

INTRODUCTION

Do you 'speak' C++ and Java? How about your English?

IT professionals and software engineers all over the world need to have a good command of English to be able to collaborate with their colleagues and help their customers.

We are going to look at some of the most common words and expressions that are in use in Computer, Software and Information Technology jobs

I STARTING CAREER IN IT

1 Read and write your own answer in 5-6 sentences using phrases for expressing the opinion.

What are the pros and cons of going into computer science?

(Following answers are given by real people from the internet forums)

Viktor:

Pros:

You don't have to invest much capital to start a business. All you need is a computer (or a few computers) and people.

No business (almost) can run without computers, so you'll probably always have a job. Computer science is the basis for developing industries like robotics, space, nano-technology etc. A degree in computer science can help you enter into such high-scope industries.

Cons:

You might not always end up in the Silicon Valley or a good company, you might end up working at a really low level company.

Marcus:

If you like to write programs, solve problems, and always learn new things then it is pro all the way.

If you don't like it the cons are that you are wasting your time and other people's time and the peace of mind.

Is not about the field, the field is great, it's about you, you feel excited about being part of it or you just consider it for the money and the fame.

Bob:

Pro: *People think you are crazily smart.*

Con: *They expect you to be able to fix any problem their computer has.*

Vocabulary.

Below are some phrases that you can use to help express opinions. Some of these phrases are more appropriate for written English such as giving your opinion in an essay whereas some can also be used in spoken English.

Personal Point of View	General Point of View	Agreeing with an opinion	Disagreeing with an opinion
In my experience... As far as I'm concerned... Speaking for myself... In my opinion... Personally, I think...	It is thought that... Some people say that... It is considered... It is generally accepted that...	Of course. You're absolutely right. Yes, I agree. I think so too. That's a good point. Exactly. I'd go along with	I don't agree with you. That's not entirely true. On the contrary... I'm sorry to disagree with you, but... Yes, but don't you

I'd say that... I'd suggest that... I'd like to point out that... I believe that... What I mean is...		that. That's true. That's just what I was thinking. I couldn't agree more.	think... I'm afraid I have to disagree. I'm not so sure about that. It's unjustifiable to say that...
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Grammar. Present Simple. Passive voice. Comparatives and Superlatives

Sentences can be active or passive. Therefore, tenses also have "active forms" and "passive forms." You must learn to recognize the difference to successfully speak English.

Present Simple (present tense + common aspect), Active voice

In active sentences, the thing doing the action is the subject of the sentence and the thing receiving the action is the object. Most sentences are active.

[Thing doing action] + [verb] + [thing receiving action]

Affirmative: Subject + Base Form of the Verb

*note: for 3rd Person Singular (he/ she/ it) add 's' to the base form

1. *I/ You/ We/ They work in a bank.*
2. *He/ She works in a bank.*

Negative: Subject + don't/ doesn't + Base Form of the Verb

1. *I/ You/ We/ They don't (do not) work.*
2. *He/ She/ It doesn't (does not) work.*

Interrogative: Question Word + do/does + Subject + Base Form of the Verb

1. *Where do I/ you/we/they work?*
2. *Where does he/ she work?*

From the above, notice the following points.

1. For positive sentences:
2. There is no auxiliary verb.
3. We conjugate the main verb by adding s to the third person singular.

For negative and question sentences:

1. The auxiliary verb (do) is conjugated in the Present Simple: do, does
2. The main verb is invariable in base form: base

For negative sentences, we insert not between the auxiliary verb and the main verb.

For question sentences, we exchange the subject and the auxiliary verb.

Emphatic do

Normally, for positive sentences we do not use the auxiliary verb do. But if we want to emphasize (stress) something, we may use it. For example, instead of saying "I like your dress", we could say "I *do* like your dress", just to show how much we like it. Here are some more examples:

I do wish you'd stop.

I do apologize.

You do look smart today.

Present Simple with main verb be

Look at these examples with the main verb be:

	subject	main verb be		
+	I	am		French.
	You, we, they	are		French.
	He, she, it	is		French.
-	I	am	not	old.
	You, we, they	are	not	old.
	He, she, it	is	not	old.
?	Am	I		late?

Present Simple (present tense + common aspect), Passive voice

In passive sentences, the thing receiving the action is the subject of the sentence and the thing doing the action is optionally included near the end of the sentence. You can use the passive form if you think that the thing receiving the action is more important or should be emphasized. You can also use the passive form if you do not know who is doing the action or if you do not want to mention who is doing the action.

[Thing receiving action] + [be] + [past participle of verb] + [by] + [thing doing action]

Affirmative: Subject + auxiliary verb + Third Form of the Verb

- 1. I am enrolled to the program*
- 2. You/ We/ They are enrolled to the program.*
- 3. He/ She is enrolled to the program*

COMPARATIVE ADJECTIVES

Comparative adjectives are used to compare differences between the two objects they modify (*larger, smaller, faster, higher*). They are used in sentences where two nouns are compared, in this pattern:

Noun (subject) + verb + comparative adjective + than + noun (object).

The second item of comparison can be omitted if it is clear from the context (final example below).

1. *My house is larger than hers.*
2. *This box is smaller than the one I lost.*
3. *Your dog runs faster than Jim's dog.*
4. *The rock flew higher than the roof.*
5. *Jim and Jack are both my friends, but I like Jack better.* ("than Jim" is understood)

SUPERLATIVE ADJECTIVES

Superlative adjectives are used to describe an object which is at the upper or lower limit of a quality (the tallest, the smallest, the fastest, the highest). They are used in sentences where a subject is compared to a group of objects.

Noun (subject) + verb + the + superlative adjective + noun (object).

The group that is being compared with can be omitted if it is clear from the context (final example below).

My house is the largest one in our neighborhood.

This is the smallest box I've ever seen.

Your dog ran the fastest of any dog in the race.

We all threw our rocks at the same time. My rock flew the highest. ("of all the rocks" is understood)

Exercises

1. Match questions with answers and fill the gaps

It ... fifty dollars.	Does it come with a guarantee?
It ... employee activity.	How much does it cost
It ... easy to use.	Is it available in other colours?
It ... in three colours.	What does it monitor?
It ... with a two-year guarantee.	Is it easy to use?

2. Fill in the gaps with the correct question words and replace words in bold

This device is manufactured in India. (... is this device manufactured?)

It is designed for competent users. (... is it designed for?)

It can be used for internal communication. (... can it be used for?)

She works every Thursday. (... does she work?)

The cover is made of leather. (... is the cover made of?)

Plastic Made External Advanced Weekend

3. Make affirmative sentences from the given words

the old /the new/ than/ one/ more reliable/ is/ version/

(Is the new version more reliable than the old one?)

laptop/ it/smaller/ than /a's /

(Is it smaller than a laptop?)

PC /'s/ it/expensive/ as/ a/ not/ as/

(Is it cheaper than a PC?)

market/'s/ the /cheapest/ on/ the/ it/ product/

Is it cheapest product on the market?

II BEING AN IT PRO

1 Read and find verbs in Passive and Active voices, comparatives and superlatives.

Tips to succeed in your IT career

Sometimes the hardest part of meeting a goal is to properly define what you are trying to accomplish in the first place. There are several things to keep in mind when determining what field of IT to go into. Keep an eye on job web sites to see which jobs are most in-demand. Keep in mind that for many jobs there are several levels of positions available. For instance there are "junior", "senior", and "lead" software developer positions available. You probably can't start out your career as a lead developer. You have to know your own limits.

Everyone who works hard deserves a raise every year. How do you show your IT manager that you are a good performer? Easy. Show up on time, be dependable, be active in the meetings, and always do a little bit more than is asked of you. Also equally important is to be well-liked by members of your team. Read on for more details...

Learn something new every day

IT is an area where people are judged largely by how much they know. If money and a high job position are important to you, you can quickly raise your level by telling your manager that you want harder tasks and more responsibility. IT Managers normally love it when employees ask for more responsibility. When you meet with your manager, set goals for yourself and meet or exceed those goals.

Appearance and attitude is very important!

Take an active interest in things outside IT: such as sports, politics, music, and film. This will make socializing at company events easier for you. If you are disliked in the company then you will not get promotions or important projects.

Be courteous, helpful, and respectful to others

When you start a new job, realize how some people are nice to you and some people ignore you. Which kind of person do you want to be? When you get a new junior team member, try to help them and include them in decisions. Make sure they have someone to eat lunch with. If you party after work with your co-workers, invite new employees with you. Being nice to new people can have many rewards, both emotionally and financially.

Have your own mind and your own opinions

State your opinions in meetings and give good reasons and facts to back up your opinions. But don't be stubborn or insistent if things don't go your way. And whatever you do, please don't be passive-aggressive! Passive-aggressive behavior is when you think something bad about a person or an idea, and then you talk badly behind someone's back (when that person is not around). This is very destructive behavior to both yourself and your IT department.

Vocabulary. Fill in the gaps with correct words from the box

Computer and Information Research Scientists
Computer System Analysts Computer Support Specialists
Database Administrators Computer Network Architects
Network and Computer System Administrators
Software Developers Computer Programmers
Web Developers

1. ...develop applications that carry out specific tasks on computers and other devices.
2. ...use the designs of Software Developers and write codes to make instructions that computers can follow.
3. ...design new technology to solve complex problems in different occupational fields, such as Medicine, Education or Business.
4. ...install and support computer systems for different organizations, such as schools, hospitals, banks and different businesses.
5. ...study existing computer systems and suggest possible changes for improvement.
6. ...are employed by organizations to help non-IT users with computer related problems.
7. ...organise and store data for businesses. They also make sure that only authorized people can access data.
8. ...create internal networks for businesses and organizations.
9. ...create websites for businesses.

Grammar.

How do we make the Present Continuous Tense?

The structure of the Present Continuous tense is:

Subject +auxiliary+main verb

The auxiliary verb (be) is conjugated in the Present Simple: *am, are, is*

The main verb is invariable in present participle form: *-ing*

For negative sentences we insert not between the auxiliary verb and the main verb.

For question sentences, we exchange the subject and the auxiliary verb.

Look at these example sentences with the Present Continuous tense:

	subject	auxiliary verb		main verb	
+	I	am		Speaking	to you.
+	You	are		Reading	this.
-	She	is	not	Staying	in London.
-	We	are	not	Playing	football.

	subject	auxiliary verb		main verb	
?	Is	he		Watching	TV?
?	Are	they		Waiting	for John?

USE 1 Now



Use the Present Continuous with Normal Verbs to express the idea that something is happening now, at this very moment. It can also be used to show that something is not happening now.

Examples:

1. *You are learning English now.*
2. *You are not swimming now.*
3. *Are you sleeping?*
4. *I am sitting.*
5. *I am not standing.*
6. *Is he sitting or standing?*
7. *They are reading their books.*
8. *They are not watching television.*
9. *What are you doing?*
10. *Why aren't you doing your homework?*

USE 2 Longer Actions in Progress Now



In English, "now" can mean: this second, today, this month, this year, this century, and so on. Sometimes, we use the Present Continuous to say that we are in the process of doing a longer action which is in progress; however, we might not be doing it at this exact second.

Examples: (All of these sentences can be said while eating dinner in a restaurant.)

1. *I am studying to become a doctor.*
2. *I am not studying to become a dentist.*
3. *I am reading the book Tom Sawyer.*
4. *I am not reading any books right now.*
5. *Are you working on any special projects at work?*
6. *Aren't you teaching at the university now?*

USE 3 Near Future



Sometimes, speakers use the Present Continuous to indicate that something will or will not happen in the near future.

Examples:

1. *I am meeting some friends after work.*
2. *I am not going to the party tonight.*
3. *Is he visiting his parents next weekend?*
4. *Isn't he coming with us tonight?*

USE 4 Repetition and Irritation with "Always"



The Present Continuous with words such as "always" or "constantly" expresses the idea that something irritating or shocking often happens. Notice that the meaning is like Simple Present, but with negative emotion. Remember to put the words "always" or "constantly" between "be" and "verb+ing."

Examples:

1. *She is always coming to class late.*
2. *He is constantly talking. I wish he would shut up.*
3. *I don't like them because they are always complaining.*

REMEMBER Non-Continuous Verbs/ Mixed Verbs

It is important to remember that Non-Continuous Verbs cannot be used in any continuous tenses. Also, certain non-continuous meanings for Mixed Verbs cannot be used in continuous tenses. Instead of using Present Continuous with these verbs, you must use Simple Present.

Examples:

1. *She is loving this chocolate ice cream. Not Correct*
2. *She loves this chocolate ice cream. Correct*

ADVERB PLACEMENT

The examples below show the placement for grammar adverbs such as: always, only, never, ever, still, just, etc.

Examples:

1. *You are still watching TV.*
2. *Are you still watching TV?*

ACTIVE / PASSIVE

Examples:

1. *Right now, Tom is writing the letter. Active*
2. *Right now, the letter is being written by Tom. Passive*

PRESENT SIMPLE OR CONTINUOUS?

WE USE THE PRESENT SIMPLE

1. *for regular actions or events : I watch TV most evenings.*
2. *facts : The sun rises in the east*
3. *facts know about the future : The plane leaves at 5.00 in the morning.*
4. *thoughts and feelings about the time of speaking: I don't understand.*

We use the Present Continuous

at the time of speaking ('now'): I'm watching a movie on TV.

things which are true at the moment but not always: I'm looking for a new job.

present plans for the future: I'm taking my husband to New York for his birthday.

Look at these sentences:

1. *I usually don't drink coffee but I'm having one this morning because there is nothing else.*
2. *I often drive to work but I'm taking the train this morning because my car is in for repair.*
3. *I'm thinking about dying my hair blonde but I don't think my wife will be very happy about it.*
4. *My parents live in New York but I'm just visiting.*

We can use the present continuous to talk about change.

Manufacturing costs are falling significantly

More and more experts are producing Open source software.

We often use one or more comparative adjectives to talk about change.

Mobile phones is getting cheaper and cheaper.

Open source software is becoming more and more popular.

Exercises

1. Put the verbs into the correct tense

1. Look! He (leave)_____ the house.
2. Quiet please! I (write)_____ a test.
3. She usually (walk)_____ to school.
4. But look! Today she (go)_____ by bike.
5. Every Sunday we (go) _____ to see my grandparents.
6. He often (go)_____ to the cinema.
7. We (play)_____ Monopoly at the moment.
8. The child seldom (cry.)_____
9. I (not / do)_____ anything at the moment.
- 10.(watch / he)_____ the news regularly?

2. Complete the sentences with the words in brackets, making any changes that are necessary.

1. Digital radio sets _____ *are becoming* (become) less and less popular.
2. More and more people _____ (listen) to radio over the internet.

3. Laptops are getting _____ (cheap).
4. Handheld devices are becoming (sophisticated).
5. Battery life (get) (long)
6. In some areas, VoIP (takeover) from PSTN.
7. Mobile broadband speeds (increase) dramatically.

3. Choose the correct form for each verb.

Don't give Jan any cheese. She _____ it!

- A. hates
- B. is hating

Look! Junko _____ into the water.

- A. jumps
- B. is jumping

I _____ you're crazy!

- A. think
- B. am thinking

Once a week, I _____ to an art class at the college.

- go
- am going

Salman is rich — he _____ a Mercedes.

- drives
- is driving

I _____ lunch in the cafeteria every day.

- have
- am having

I _____ to Toronto next Thursday. Do you want to come?

- go
- am going

Marie-Claude isn't a Canadian. I _____ she comes from France.

- believe
- am believing

You won't find Jerry at home right now. He _____ in the library.

- studies
- is studying

It _____ quite hard — perhaps we shouldn't go out tonight.

- snows
- is snowing

3 Complete the sentences with the correct form of a verb

- 1 I _____ (go) to the supermarket tomorrow.
2. My sister _____ (give) me her car when she gets her new one.
3. We _____ (have) a barbecue on Sunday.
4. All my friends _____ (come) to my party next week.
5. We _____ (take) my niece to Aquapark later today.

6. The train _____ (leave) in ten minutes.
7. We _____ (go) to the zoo tomorrow.
8. On Friday I _____ (go) to Rob's party.
9. My teacher _____ (go) to school tomorrow.
10. Rhonda _____ (stay in) on Friday.
11. Bill _____ (go) to the cinema at the weekend.
12. _____ Susan _____ (work) this week?

III FAMOUS PEOPLE IN IT

1 Read the text and try to guess the right names from the list below.

Alan Mathison Turing,
Bill Gates
Charles Babbage
Edgar Frank Codd,

George Boole
Steve Jobs,
Steve Wozniak
Vannevar Bush

Almost everyone uses computers these days for everything from shopping to working to playing games. But have you ever stopped to think about where all this amazing technology came from? Who invented it all? Well, behind every company, programming language or piece of software, there is a person - or sometimes a team of people - who turned ideas into reality. We've all heard of 1 _____, the founder of Microsoft and one of the richest men in history. Equally famous is 2 _____ the person who, along with 3 _____, started Apple computers. However, there are hundreds of other people, from early pioneers to later geniuses, who aren't as well known but who deserve recognition for the work they did in advancing the world of computing.

One of the first people to conceive of computers was 4 _____, an English mathematician and analytical philosopher who drew up plans for the first programmable computer called the Difference Engine. 5 _____ came up with a way of describing logical relations using mathematical symbols - now called Boolean logic - that is the basis of all modern computer processes. 6 _____ first proposed an idea in 1945 he called 'memex', which we now know as 'hypertext'. Another notable figure in early computing was 7 _____ an Englishman known as the "father of computer science". He invented the Turing Test, which is a way to find out if a computer is acting like a machine or a human. Another English computer scientist, 8 _____ is known for inventing the "relational" model for databases, a model which is still in use today.

Related Info:

Steve Jobs

(February 24, 1955 - October 5, 2011) American founder and former CEO of Apple Computer in 1976 and a leading figure in the computer industry; he helped popularize the concept of the home computer and was one of the first to see the commercial potential of the GUI and mouse

Steve Wozniak

(born August 11, 1950) American co-founder of Apple Computer, fifth grade math teacher, and famous for designing the first commercially successful home computer (Apple II)

Alan Mathison Turing

(23 June 1912 - 7 June 1954) English computer scientist known as the "father of computer science"; inventor of a famous test, which is used as an empirical basis for what makes a computer a computer

Bill Gates

(born October 28, 1955) American founder of Microsoft Corporation and developer of Windows; he was the richest man in the world for many years before he gave away a lot of his wealth to charity.

Charles Babbage

(December 26, 1791 - October 18, 1871) English mathematician, analytical philosopher who drew up plans for the first programmable computer called the Difference Engine

Edgar Frank Codd

(August 23, 1923 - April 18, 2003) English computer scientist known for his work in inventing the "relational model" for databases, which is still in use today

George Boole

(2 November 1815 - 8 December 1864) English mathematician and philosopher who invented the boolean value

Vannevar Bush

(March 11, 1890 - June 28, 1974) American Director of the Office of Scientific Research and Development, he coordinated the activities of some six thousand leading American scientists in the application of science to warfare; he also came up with an idea called the 'memex' which was a forefather to hypertext.

GRAMMAR

Past Simple

There are two basic structures for the Past Simple tense:

1. Positive sentences

subject	+	main verb
		Past Simple

2. Negative and question sentences

Subject	+	auxiliary do	+	main verb
		conjugated in Past Simple		
		Did		base

Look at these examples with the main verbs go (irregular) and work (regular):

	subject	auxiliary verb		main verb	
+	I			went	to school.
	You			worked	very hard.

	subject	auxiliary verb		main verb	
-	She	did	not	go	with me.
	We	did	not	work	yesterday.
?	Did	you		go	to London?
	Did	they		work	at home?

From the above table, notice the following points...

1. For positive sentences:
2. There is no auxiliary verb.
3. The main verb is conjugated in the Past Simple, invariable: -ed (or irregular)
4. For negative and question sentences:
5. The auxiliary is conjugated in the Past Simple, invariable: did
6. The main verb is invariable in base form: base
7. For negative sentences, we insert not between the auxiliary verb and main verb.
8. For question sentences, we exchange the subject and the auxiliary verb.

Emphatic did

Normally, for positive sentences we do not use the auxiliary did. But if we want to emphasize (stress) something, or contradict something, we may use it. For example: "I didn't use a spellchecker but I did use a dictionary." Here are some more examples:

"Why didn't you go to the party?" / "I did go."

It did seem a bit strange.

After drinking it I did in fact feel better.

Past Simple with main verb be

The structure of the Past Simple with the main verb be is:

Subject + main verb be

Look at these examples with the main verb be:

	Subject	main verb be		
+	I, he/she/it	was		here.
	You, we, they	were		in London.
-	I, he/she/it	was	not	there.
	You, we, they	were	not	happy.

	Subject	main verb be		
?	Was	I, he/she/it		right?
	Were	you, we, they		late?

From the above table, notice the following points...

There is no auxiliary verb, even for questions and negatives.

The main verb (be) is conjugated in the Past Simple: *was, were*

For negative sentences, we insert not after the main verb.

For question sentences, we exchange the subject and the main verb.

USE 1 Completed Action in the Past



Use the Simple Past to express the idea that an action started and finished at a specific time in the past. Sometimes, the speaker may not actually mention the specific time, but they do have one specific time in mind.

Examples:

1. *I saw a movie yesterday.*
2. *I didn't see a play yesterday.*
3. *Last year, I traveled to Japan.*
4. *Last year, I didn't travel to Korea.*
5. *Did you have dinner last night?*
6. *She washed her car.*
7. *He didn't wash his car.*

USE 2 A Series of Completed Actions



We use the Simple Past to list a series of completed actions in the past. These actions happen 1st, 2nd, 3rd, 4th, and so on.

Examples:

1. *I finished work, walked to the beach, and found a nice place to swim.*
2. *He arrived from the airport at 8:00, checked into the hotel at 9:00, and met the others at 10:00.*
3. *Did you add flour, pour in the milk, and then add the eggs?*

USE 3 Duration in Past



The Simple Past can be used with a duration which starts and stops in the past. A duration is a longer action often indicated by expressions such as: for two years, for five minutes, all day, all year, etc.

Examples:

1. *I lived in Brazil for two years.*
2. *Shauna studied Japanese for five years.*
3. *They sat at the beach all day.*
4. *They did not stay at the party the entire time.*
5. *We talked on the phone for thirty minutes.*
6. A: *How long did you wait for them?*
B: *We waited for one hour.*

USE 4 Habits in the Past

XXXXXX

Past Present Future

The Simple Past can also be used to describe a habit which stopped in the past. It can have the same meaning as "used to." To make it clear that we are talking about a habit, we often add expressions such as: *always, often, usually, never, when I was a child, when I was younger, etc.*

Examples:

1. *I studied French when I was a child.*
2. *He played the violin.*
3. *He didn't play the piano.*
4. *Did you play a musical instrument when you were a kid?*
5. *She worked at the movie theater after school.*
6. *They never went to school, they always skipped class.*

USE 5 Past Facts or Generalizations

Past Present Future

The Simple Past can also be used to describe past facts or generalizations which are no longer true. As in USE 4 above, this use of the Simple Past is quite similar to the expression "used to."

Examples:

1. *She was shy as a child, but now she is very outgoing.*
2. *He didn't like tomatoes before.*
3. *Did you live in Texas when you were a kid?*
4. *People paid much more to make cell phone calls in the past.*

IMPORTANT When-Clauses Happen First

Clauses are groups of words which have meaning but are often not complete sentences. Some clauses begin with the word "when" such as "when I dropped my pen..." or "when class began..." These clauses are called when-clauses, and they are very important. The examples below contain when-clauses.

Examples:

1. *When I paid her one dollar, she answered my question.*
2. *She answered my question when I paid her one dollar.*

When-clauses are important because they always happen first when both clauses are in the Simple Past. Both of the examples above mean the same thing: first, I paid her one dollar, and then, she answered my question. It is not important whether "*when I paid her one dollar*" is at the beginning of the sentence or at the end of the sentence. However, the example below has a different meaning. First, she answered my question, and then, I paid her one dollar.

Example:

- *I paid her one dollar when she answered my question.*

ADVERB PLACEMENT

The examples below show the placement for grammar adverbs such as: always, only, never, ever, still, just, etc.

Examples:

1. *You just called Debbie.*
2. *Did you just call Debbie?*

ACTIVE / PASSIVE

Examples:

1. *Tom repaired the car. Active*
2. *The car was repaired by Tom. Passive*

Exercises

1 Choose the right form of the tense (Present or Past)

1. They (to have) a nice weekend last week.
2. What your sister (to do) every Sunday? – She (to meet) with her friends.
3. His brother (to come) yesterday? – No, he (not to come). He (to be busy).
4. You (to get) up early on Sunday? – Yes. But last Sunday I (to sleep) till ten o'clock.
5. How many lessons you (to have) every day?
6. Your brother (to be) a teacher? – Yes, he (to become) a teacher two years ago.
7. She (not to understand) the teacher at the last lesson.
8. You (to go) to the theatre? – Not very often. Usually we (to go) there once a month.
9. He usually (to sleep) well. But last night he (to sleep) badly.
10. As a rule I (to walk) to the institute but yesterday I (to take) a bus.
11. She (to buy) a new dress yesterday? – No, she (not to buy) it.
12. They (to sell) their house a week ago? – I (not to know).
13. She (to be) ill now. She (to eat) an ice-cream yesterday.
14. When you (to leave) the office yesterday?
15. They (to be) happy to see you now?

2 Answer the questions. And define whether it is Passive or Active voice/

- 1 The first modern mouse appeared.
- 2 The World Wide Web was invented.
- 3 ENIAC, the first true computer appeared.
- 4 IBM invented a family of computers.
- 5 The Internet was invented.

- A 1964
- B 1946
- C 1973
- D 1992
- E 1983

IV COMPUTER SYSTEMS

Vocabulary check

convergence

the evolution of devices towards common functionality

The iPhone is a good example of convergence, because it has all the features of a PDA, mobile phone, and an MP3 player in one package.

embedded system

a computer using a relatively slow and specialized processor and ROM chip, normally used to control a particular device such as a washing machine or an MP3 player

Nearly all electronics you can buy today are controlled by embedded systems.

laptop

a portable computer with a built-in screen, integrated keyboard, and battery power; also called a 'notebook'

As laptop computers have become more powerful and affordable, they are steadily replacing the more traditional desktop computer.

legacy system

an older device or application that continues to be used because of the high cost of replacing it

Mainframes and minicomputers used to be cutting edge; now they are known as legacy systems.

netbook

a small laptop with less powerful components meant for surfing the web, reading email, and other basic tasks.

I wanted to play Call of Duty 4 while I was traveling, but the graphics card in my netbook could only handle Solitaire.

PC (personal computer)

a computer designed for use by one person at a time

When people use the term 'PC', they are often referring to a desktop computer running Windows.

PDA (personal digital assistant)

a handheld computer about the size of wallet used as an organizer, web browser, game machine, mobile phone, or message recorder; also known as a hand-held computer

The modern traveling businessman depends on his PDA to organize all his contacts and appointments.

print server

a physical or software device connecting and facilitating a network with a printer
The secretary could not get a hard copy because the print server was broken.

router

a specialized computer which connects two networks

The DSL router allowed the entire office to share a single Internet connection.

server

a type of computer intended primarily for central distribution of data to other computers on the same network

Because servers hold large amounts of centralized data, it is critical to have daily backup routines in place.

supercomputer

refers to only the most powerful class of computer, typically designed to perform specialized tasks such as weather prediction, governmental financial calculations, or space research.

A typical supercomputer may have up to 100 processors and have speeds measured in tens of gigaflops.

tablet PC

a portable computer shaped in the form of a notebook and capable of advanced handwriting recognition via use of a stylus or on-screen keyboard.

Bill Gates predicted the rise of the tablet PC in 2001, but not much happened until Apple announced the iPad in 2010.

workstation

a high quality computer, typically with lots of RAM, plenty of CPU power, and a high quality video card

The engineer's latest 3d modeling project was so processor intensive, that he wouldn't even begin it until his new workstation arrived.

2 Read and translate the text

PCs are everywhere you look today. At home, at the office, and everywhere in between. Many people still mistakenly believe the term PC is synonymous with a desktop computer. This is not really true. Really, any computer you use by yourself for general purposes could be called a PC. You probably already own at least one of these types of PCs:

- laptop
- desktop computer
- PDA or personal digital assistant
- workstation

Besides PCs, there are other types of computers you probably see at work or school.

These include:

file servers

- print servers

- web servers

But not all types of computers are so obvious as the ones above. There are still other kinds of computers that fit inside of other devices and control them. These computers are known as embedded systems.

Embedded systems can be found in traffic lights, TV sets, refrigerators, coffee machines and many more devices. Embedded systems are typically controlled by inexpensive, specialized processors which can only handle very specific tasks.

Types of computers go in and out of fashion as times changes. Older kinds of computers which were very popular in the 20th century (1900's) are now referred to as legacy systems. These include:

mainframes

- minicomputers

- IBM clones

New types of computers are always coming out and replacing or augmenting existing computer types. Examples of new types of computers emerging would be netbooks, tablet PCs, and even wearable computers.

Keep in mind that the lines between computer types are constantly being blurred. This phenomenon is known as convergence.

Exercises

1. Match the words on the left with the words on the right to make pairs of words that often go together. The word on the left must go with all the words in another column . See the example.

1 access

2 download

3 go

4 mobile

5 silicon

A. chip, valley

B. an account,

C. online, offline, on a holiday

D. phone, telephony, broadband

E. a file, an image, a demo version

2. Complete the sentences using pairs of words from exercise 6. Make any changes that are necessary.

1 Everyone has _____ so payphones are becoming redundant.

2 Many internet entrepreneurs from _____ In California are now turning their

attention to alternative forms of energy.

Before you buy the program, you can _____ just to see how you like it.

4 With a mobile broadband connection, you can _____ any time and anywhere.

5 Internet banking allows users to _____ and check their balances.

6 How many transistors can you fit onto a _____

3. New words are continually being created in Telecoms and IT. Often these words are made up of two parts. Match the openings In Column A with the correct endings In Column B. See the example.

upload, upgrade, update

1. ~~UP-~~

2. DOWN.

3. E- -

4. TELE-

5. CYBER-

A. -space, -crime

B. ~~-load, -grade, -date~~

C. -time, -load

D. -book, -mail, -commerce

E. working, -conferencing, -coms

Now match the openings In Column A with the endings in Column B

1. hard- , ad-. spy-

2. wave-, broad-, narrow-

3. broad-, pod-, news- -

4. smart-. cell-, i-, head-

5. kilo., mega-, giga- -

A. -BAND

B. -BYTE

C. CAST

D. WARE

E. PHONE

Can you think of any other words with these openings and endings?

4. Complete the sentences using a suitable word from exercise 3.

1. _____ is increasing, so more and more people have an office at home and aren't commuting to an office.

2. The police are recruiting IT experts to deal with the alarming increase in _____

3. Each memory module contains a _____ of RAM, or 1024 megabytes, to be precise.

4. Our servers are very reliable, so we have hardly any _____ s
5. This anti-virus program scans your PC for that threatens your security.
6. Did you buy a full version of the OS or just an _____

5. Complete the sentences with word pairs from above

broadband pipe
 data centre
 digital camera
 voice calls
 disruptive technology
 Internet access
 search engine
 service provider

1. A _____ is an organization that gives its customers facilities such as internet access or mobile telephony.
2. Traditionally, telecoms companies made most of their profits from _____ but they have had to diversify into other areas.
3. A _____ is a high speed communications channel using a wire or optical cable.
4. A _____ is a facility where a company's data and applications can be stored securely.
5. A _____ is a new invention or process that provides a new product or service _____ in an unexpected way.
6. With a 3G enabled phone, you can have high speed _____ 24/7 wherever you go.
7. Google rapidly became the most widely used _____ in the 1990s.
8. The quality of a _____ depends on the number of pixels and the lens.

V TROUBLESHOOTING AND GIVING ADVICE

1. Read the answers of George and Sanya for the question. Do you agree with them? Do you think they are talking about personal or professional matters? Do you listen to and follow the advice you give to others?

George:

It's easy to give somebody else suggestions of what you think they should do, but once you are put into the same situation it is harder to follow the very same advice you gave. The only good advice is to do what you truly believe is right. It doesn't matter what the situation is, or who is telling you to do what. If you don't believe in what you are doing, then it is not good advice to follow. If your heart is in it, then you made the right decision. Simple as that.

Sanya:

No, because I don't offer advice;

The worst thing you can do is offer advice to someone who hasn't asked for it. It's disrespectful towards them and yourself too. Don't waste your words.

In the cases when I was approached for advice, I noticed that people don't want to know what I think, they want me to tell them their opinion is right. I've actually lost friends because of this.

Find Infinitives, Verbs in passive voice, superlatives comparatives

Grammar

How can you ask someone to do something for you in English without sounding rude? Here are some of the ways that you can give orders and instructions.

1. Use the imperative form

We use the imperative form to give orders, warnings and advice:

Be quiet!

Take care!

Listen to me carefully!

Because it can sound rude to give direct orders (especially if you are talking to an adult), we "soften" the imperative form with "let's" or "please":

Let's go now.

Please listen to what I'm saying.

2. Use a modal verb to turn the order into a request

We use modals to change the mood of a sentence. For example, "You should help her" is

more polite than "Help her!"

Other modal verbs you can use to make requests are:

Could: *Could you make me some tea?*

Can: *Can you come here please?*

Will: *Will you shut the door please?*

Would: *Would you wait here until the doctor is ready for you?*

3. Use an introductory phrase to soften the order

Instead of using an imperative, you can use a phrase instead. Here are some common ways of phrasing an order, in order of the most indirect to the most direct:

Would you mind possibly... (+ ing) (Most indirect)

Would you mind possibly moving your car? It's parked right in front of mine.

I was hoping you could ... (+ infinitive without to)

I was hoping you could spare me a few minutes this morning.

Do you think you could ... (+ infinitive without to)

Do you think you could do this photocopying for me?

If you have a couple of minutes spare...

If you have a couple of minutes spare, the office needs tidying up.

I'd like you to...

I'd like you to file this correspondence for me.

I want you to...

I want you to finish this by tomorrow.

4. Use sequencing words

You can use sequencing words to make instructions clear.

Firstly, make sure the appliance is disconnected.

Secondly, open the back with a screwdriver.

Then, carefully pull out the two black cables....

Exercises

1 Read and translate. Find the imperatives. Find the definition for words in bold

Burn the **ISO** to a blank **DVD**.

Did you initialize **the drive**?

Did you verify **software compatibility**?

Disable the internal **GPU**.

Don't attempt to write anything on the **hard drive**.

Don't click Yes **to format** the drive.

Have you checked your **home button settings**?

Have you disabled **the extensions**?

You should **back up** all the restored data.

You should download a **data recovery software** to help you.

Idiom of the day

To pull the plug

This is a phrase that can be used in a number of different situations. They are usually negative situations.

Thinking literally about technology, when you pull the plug on something, it means that it no longer has a power source and will therefore switch off. If you pull the plug on a computer, it will switch off immediately, the same goes for a television or a lamp.

It is commonly used for someone that has been on life support, which is equipment that keeps someone alive. If you pull the plug it means that they will die. Families often do this if their loved one is not getting better and they can stop the pain. It's a very difficult decision.

In terms of ideas, if you pull the plug on an idea it means that you stop thinking and developing that idea immediately. This might be because there is a problem with the concept or simply that people do not want to carry on developing. However, imagine if Apple had pulled the plug on the iPod!

Don't despair just yet, don't pull the plug and keep on thinking!

Here's an example to explain further:

George: So Lionel, have you been working on your new invention?

Lionel: Well, not much really. I've been so busy with my work that I haven't had time to be creative or even relax!

George: Oh dear, well maybe it will get better soon.

Lionel: No, I don't think so. I'm considering just pulling the plug on the whole thing.

George: No! Lionel, you can't give up, you have a fantastic idea and you need to keep developing it to see just how good it can get! Don't pull the plug just yet, have a think about it.

Lionel: Thanks George, we'll see, I will give it some thought. Thanks for your kind words.

Task:

Write a conversation in the context of IT using the "Pull the plug" and read it in front of your classmates taking the roles

VI BUSINESS IT

As professionals, we all want to make a good impression on the people we are working with. Learning following expressions will boost your confidence when it comes to speaking with a new client on the phone, or responding to your e-mails.

1. People use different language depending on the situation. Read two phone conversations to learn how to use both formal and informal English on the phone. Which one is formal?

<i>chillin' down for whatever</i>	<i>holding for a minute</i>	<i>Put him through</i>
<i>grab a bite</i>	<i>in regards to</i>	<i>starving</i>
<i>Hang on just a second</i>	<i>in ten</i>	<i>Take care</i>
	<i>pencil you in</i>	<i>what's up</i>

A: Hello.

B: Hey is Sasha there?

A: Uh, yeah. Who's this?

B: It's Pip.

A:(wait a minute), Pip... Sasha, phone's for you.

C: Who is it?

A: It's Pip.

C: Hey, (slang way to say "What are you doing?")

B: Nothing. Just (relaxing) at home. How bout you?

C: Just hanging out.

B: You wanna (go out for food)?

C: Sure, what were you thinking?

B: Let's just go out and find something. I'm (I'll eat anything).

C: Sounds good... I'm ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, (really hungry).

B: Meet ya down there (minutes)?

C: Cool see ya then .

B: Later.

A: Good afternoon, this is Rachel. How may I help you?

B: Hello. Is Mr. Smith available?

A: May I ask who's calling?

B: My name is Mr. Wilson. I'm calling..... (because of)our meeting this week.

A: Would you mind.....(waiting), Mr. Wilson?

B: Not at all.

A: Thanks so much.

C: Hello.

A: Mr. Smith, you have a phone call from a Mr. Wilson about a meeting this week.

C: Great. (transfer the call to me). Hello, Mr. Wilson. What can I do for you?

B: Hi, Mr. Smith. I was just calling to confirm the details of our meeting. What's a good time for you?

A: Well I'm pretty busy tomorrow. How about 10 o'clock on Friday?

B: I may not be able to make it at ten. Would 10:30 be OK?

A: Sure that works for me. I'll (put you on my schedule) for 10:30 on Friday.

B: Great. I'm looking forward to it. See you soon.

A: Sure... thanks for calling. (have a nice day).

2. Read aloud and translate the phrases.

- *This is Tom Smith speaking.*
- *I would like to speak to Mr Brown. / Can I speak to Mr Brown?*
- *I would like to leave a message for Ms Jones. Can you ask her to call me back as soon as possible?*
- *I'll make sure she gets the message.*
- *I'm sorry, I don't understand/ I can't hear you very well.*
- *Could you say that again? Can you speak up a little?*
- *I'm calling to make an appointment with Mr Brown.*
- *I'm calling about the problem you reported this morning.*
- *I'm calling about the computer you have ordered.*
- *I'm sorry, I'm in a meeting/ I'm very busy at the moment.*
- *I'll get back to you as soon as possible.*
- *Can I call you back this afternoon?*

Knowing your audience will also help you to decide on the "voice" to use. The writer's voice is a literary term used to describe the individual writing style of an author but also includes how formal or informal (relaxed) the tone of voice should be. Letters or emails to personal friends may be written in a very informal style since there is already a degree of familiarity between the writer (you) and the audience (your friend). However this same style is not appropriate in professional situations where a more formal tone is expected.

3. Write a formal letter using the phrases below to your chef/professor/supervisor on any subject

Opening

Dear Mr/ Ms Jones,

Dear Dr Smith,

Dear Sir/ Madam,

The reason of your letter

I am writing to let you know that your payment is overdue.

Thank you for your e-mail of 29 February regarding the sale of...

I am sending you the brochure as an attachment.

Attaching files

Please see the statement attached.

I am afraid I cannot open the file you have sent me.

Could you send it again in ... format?

I look forward to hearing from you.

Ending

Yours faithfully, (when you start with Dear Sir/ Madam,)

Yours sincerely, (when you start with the name e.g. Dear Ms Collins)

IT related idiom: Bells and whistles

When something has bells and whistles on it, it means that it has lots of cool features. Think about your smartphone and just how many features it has, there are so many that you may not even use and perhaps you don't need. Even so, companies still continue adding capabilities and extra features which they say make our lives easier. You can also describe items like cars as having all the bells and whistles. Take a look below:

Alan: Nice car, Francis!

Francis: Thanks Al, I bought it last week and I'm really enjoying it!

Alan: It looks cool, how much was it?

Francis: It cost a lot of money, 30,000 pounds, but it has all the bells and whistles as well!

Alan: Oh wow, what does it have?

Francis: Well, with this model I get in-car wifi, heated seats and a satellite radio.

So, as you can see with Francis' fancy car, to have all the bells and whistles can be a good thing but it may also cost a lot of extra money!

Task:

Write a conversation in the context of IT using the "Bells and whistles" and read it in front of your classmates taking the roles

VII CLIPBOARD TECHNOLOGY

Grammar

How do we make the Present Perfect Tense?

The structure of the Present Perfect is:

subject	+	auxiliary <i>have</i>	+	main verb
		conjugated in Present Simple		
		have, has		past participle

The auxiliary verb (have) is conjugated in the Present Simple: *have, has*

The main verb is invariable in past participle form: *-ed (or irregular)*

For negative sentences we insert **not** between the auxiliary verb and the main verb.

For question sentences, we **exchange** the subject and the auxiliary verb.

Look at these example sentences with the Present Perfect tense:

	subject	auxiliary verb		main verb	
+	I	Have		seen	ET.
+	You	Have		eaten	mine.
-	She	Has	not	been	to Rome.
-	We	Have	not	played	football.
?	Have	You		finished?	
?	Have	they		done	it?

Contraction with Present Perfect

When we use the Present Perfect in speaking, we often contract the subject and auxiliary verb. We also sometimes do this in informal writing.

I have		I've
You have		You've
He has She has It has John has The car has	→	He's She's It's John's The car's
We have		We've

They have		They've
-----------	--	---------

- You've told me that before.
- John's seen *Harry Potter*.

In negative sentences, we may contract the auxiliary verb and "not":

- You haven't got a chance.
- She hasn't heard from him.

He's or he's??? Be careful! The 's contraction is used for the auxiliary verbs *have* and *be*.

For example, "It's eaten" can mean:

- It **has** eaten. (Present Perfect tense, active voice)
- It **is** eaten. (Present Simple tense, passive voice)

It is usually clear from the context.

How do we use the Present Perfect Tense?

This tense is called the **Present Perfect** tense. There is always a connection with the past *and* with the **present**.

We use the Present Perfect to talk about:

- experience
- change
- continuing situation

Present Perfect for experience

We often use the Present Perfect to talk about **experience** from the past. We are not interested in **when** you did something. We only want to know **if** you did it:

I **have seen** an alien.
 He **has lived** in Bangkok.
Have you been there?
 We **have never eaten** caviar.

Past	Present	future
!!!		
The action or state was in the past.	In my head, I have a memory now.	

Connection with past: the event was in the past

Connection with present: in my head, **now**, I have a memory of the event; I **know** something about the event; I have **experience** of it

Present Perfect for change

We also use the Present Perfect to talk about a **change**, or **new** information:

I **have bought** a car.

past	Present	future
------	---------	--------

-	+	
Last week I didn't have a car.	Now I have a car.	

John **has broken** his leg.

past	Present	future
+	-	
Yesterday John had a good leg.	Now he has a bad leg.	

Has the price **gone up**?

past	Present	future
+	-	
Was the price \$1.50 yesterday?	Is the price \$1.70 today?	

The police **have arrested** the killer.

past	Present	future
-	+	
Yesterday the killer was free.	Now he is in prison.	

Connection with past: the past is the opposite of the present

Connection with present: the present is the opposite of the past

Americans do use the Present Perfect but less than British speakers. Americans often use the Past Simple tense instead. An American might say "Did you have lunch?", where a British person would say "Have you had lunch?"

Present Perfect for continuing situation

We often use the Present Perfect to talk about a **continuing situation**. This is a state that started in the **past** and continues in the **present** (and will probably continue into the future). This is a **situation** (not an action). We usually use **for** or **since** with this structure.

I **have worked** here since June.

He **has been** ill for 2 days.

How long **have you known** Tara (for)?

past	Present	Future
The situation started in the past.	It continues up to now.	(It will probably continue into the future.)

Connection with past: the situation started in the past.

Connection with present: the situation continues in the present.

Present Perfect Continuous for past action just stopped

We use the Present Perfect Continuous tense to talk about **action** that started in the past and stopped recently. There is usually a result **now**.

I'm tired because I've been running.

past	Present	future
!!!		
Recent action	Result now	

- I'm tired ^[now] because I've been running.
- Why is the grass wet ^[now]? **Has it been raining?**
- You don't understand ^[now] because you **haven't been listening.**

Present Perfect Continuous for past action continuing now

We use the Present Perfect Continuous tense to talk about **action** that started in the past and is continuing **now**. This is often used with **for** or **since**.

I have been reading for 2 hours.		
past	present	Future
Action started in past.	Action is continuing now.	

- **I have been reading for 2 hours.** (I am still reading now.)
- **We've been studying since 9 o'clock.** (We're still studying now.)
- How long **have you been learning** English? (You are still learning now.)
- **We have not been smoking.** (And we are not smoking now.)

For and Since with Present Perfect Tense

We often use **for** and **since** with perfect tenses:

- We use **for** to talk about a **period** of time: *five minutes, two weeks, six years*
- We use **since** to talk about a **point** in past time: *9 o'clock, 1st January, Monday*

for	since
a period of time	a point in past time
20 minutes	6.15pm
three days	Monday
6 months	January
4 years	1994
2 centuries	1800
a long time	I left school
ever	the beginning of time

Look at these example sentences using *for* and *since* with the Present Perfect tense:

- I have been here **for** twenty minutes.
- I have been here **since** 9 o'clock.
- John hasn't called **for** six months.
- John hasn't called **since** February.
- He has worked in New York **for** a long time.
- He has worked in New York **since** he left school.

For can be used with all tenses. **Since** is usually used with perfect tenses only.

How do we make the Present Perfect Continuous Tense?

The structure of the Present Perfect Continuous tense is:

subject	+	auxiliary <i>have</i>	+	auxiliary <i>be</i>	+	main verb
		conjugated in Present Simple		past participle		
		have, has		Been		present participle

The first auxiliary (have) is conjugated in the Present Simple: *have, has*

The second auxiliary (be) is invariable in past participle form: *been*

The main verb is invariable in present participle form: *-ing*

For negative sentences we insert **not** after the first auxiliary verb.

For question sentences, we **exchange** the subject and first auxiliary verb.

Look at these example sentences with the Present Perfect Continuous tense:

	subject	auxiliary verb		auxiliary verb	main verb	
+	I	have		Been	waiting	for one hour.
+	You	have		Been	talking	too much.
-	It	has	not	Been	raining.	
-	We	have	not	Been	playing	football.
?	Have	you		Been	seeing	her?
?	Have	they		Been	doing	their homework?

Contraction with Present Perfect Continuous

When we use the Present Perfect Continuous tense in speaking, we often contract the subject and the first auxiliary verb. We also sometimes do this in informal writing.

I have been		I've been
You have been		You've been
He has been She has been It has been John has been The car has been	→	He's been She's been It's been John's been The car's been
We have been		We've been
They have been		They've been

- I've been reading.
- Jenny's been helping us recently.

In negative sentences, we may contract the first auxiliary verb and "not":

- I haven't been playing tennis.
- It hasn't been snowing.

How do we use the Present Perfect Continuous Tense?

This tense is called the **Present** Perfect Continuous tense. There is usually a connection with the **present** or now.

We use the Present Perfect Continuous to talk about:

- past action recently-stopped
- past action still-continuing

For and Since with Present Perfect Continuous Tense

We often use **for** and **since** with perfect tenses:

- We use **for** to talk about a **period** of time: *three hours, two months, one decade*
- We use **since** to talk about a **point** in past time: *9 o'clock, 1st January, Monday*

for	Since
a period of time	a point in past time
-----	- • -----
30 minutes	10.00am
four days	Friday
3 months	March
2 years	2010
3 centuries	1700
ages	I left school
ever	the beginning of time
etc	Etc

Look at these example sentences using *for* and *since* with the Present Perfect Continuous tense:

- I have been studying **for** three hours.
- I have been watching TV **since** 7pm.
- Tara hasn't been feeling well **for** two weeks.
- Tara hasn't been visiting us **since** March.
- He has been playing football **for** a long time.
- He has been living in Bangkok **since** he left school.

1READING

Delete Keys - Clipboard Technology

For the last generation, Silicon Valley and Tokyo have been working to design computers that are ever easier to use. There is one thing, however, that has prevented the machines from becoming their user-friendliest: you still have to input data with a keyboard, and that can require you to do a lot of typing and to memorize a lot of elaborate commands. Enter the clipboard computer, a technology that has been in development for the last 20

years but took hold in the mass market only this year. Clipboard PCs—which, as their name suggests are not much bigger than an actual clipboard—replace the keyboard with a liquid crystal display (LCD) screen and an electronic stylus. Users input data by printing individual letters directly on the screen. There are two technologies at work in a clipboard PC: one allows raw data to get into the computer and the other allows the computer to figure out what that data means. The first technology relies principally on hardware and varies depending on the particular computer. In one system, marketed under the name GRIDPad, the computer's (Lel) screen is covered by a sheet of glass with a transparent conductive coating. Voltage is sent across the glass in horizontal and vertical lines forming a fine grid; at any point on the grid, the voltage is slightly different. When the stylus—which is essentially a voltmeter—touches the screen, it informs the computer of the voltage at that point. The computer uses this information to determine where the stylus is and causes a liquid crystal pixel to appear at those coordinates. The position of the stylus is monitored several hundred times a second, so as the stylus moves across the glass, whole strings of pixels are activated. 'What we do is sort of connect the dots,' says Jeff Hawkins, the creator of GRIDPad. 'Users can then write whatever they want on the screen with a kind of electronic ink.' Making that writing comprehensible to the computer, however, requires the help of some powerful software. When the stylus is being used, the computer is programmed to look for moments when the tip does not touch the screen for a third of a second or more. Every time this happens—and it happens a lot when somebody is printing—the software assumes that one letter or number has been written. The pixel positions of this fresh character are then passed on to the computer's pattern recognition software, which instantly identifies the letter or number written. The software does this by first cleaning up the character—smoothing out crooked lines and removing extra dots. The remaining lines and curves are then compared with a series of templates in the computer's memory that represent hundreds of thousands of different versions of every letter in the English alphabet and all ten numerals. When the computer finds the closest match, it encodes the character in memory and displays it on the screen as if it had been typed. The entire process takes just a fraction of a second. To delete a word, you simply draw a line through it. To move to the next page, you flick the stylus at the bottom of the screen as if you're flicking the page of a book. There are a handful of clipboard computers now on the market, including GIUDPad, which is sold in the US; Penvision, manufactured by NCR and sold around the world; and Sony's Palmtop and Canon's AI Note, both sold only in Japan. IBM and Apple are also pouring millions of dollars into the technology. In addition to this hardware a variety of software is also making its way to the market. Depending on the power of the computer and the sophistication of the software, clipboard systems can be programmed to understand the particular quirks of a particular user's printing; this is an especially useful feature in Japan, where elaborate kanji characters make up most of the written language. Improvements in software may soon allow machines sold in the US to understand not only printing but continuous script as well. Given such flexibility, the designers of clipboard computers are predicting big things—and a big market—for their products. 'There's no doubt about it,' says an optimistic Hawkins. 'You're going to own one of these things in the not-too-distant future.'

1 Decide whether the following statements are true (T) or false (F) in relation to the information in the text. If you think a statement is false, change it to make it true.

- The Americans and the Japanese are working together to produce user-friendlier computers.
- The clipboard computer was first sold twenty years ago.
- On a clipboard, an electronic pen replaces the traditional keyboard.
- In the GRIDrad system, when the pen touches the screen, it informs the computer and a liquid crystal pixel appears at that point.
- The software decides that one character or number is complete if the tip of the stylus is not in contact with the screen for more than half a second.
- The whole process of recognizing letters or numbers and printing them on the screen takes very little time.
- There are many clipboard computers sold today which are all available everywhere in the world.
- Clipboard systems can be made to understand any kind of writing.

2 Choose the correct word to complete each sentence. You may have to change some words slightly.

1 electron, electronic, electronics, electronically

- A. An _____ pen is one example of an input device.
- B. A computer solves problems _
- C. Many _...._ __ students go on to work as engineers.

2 technology, technological, technologically, technologist

- A. The computer_____ is the greatest invention of the twentieth century.
- B. There are two _____ involved in a clipboard PC
- C. Today's computers are _ __ far superior to those used a few years ago.

3 identify, identifying, identifiable. Identity

- A. The clipboard's pattern recognition software immediately the letters and numbers written by the stylus.
- B. Most computer companies will not allow people without an . _ card to enter their premises.
- C. A password is a mechanism for the computer-user and allowing access.

4 compute, computing, computation, computerize, computerization

- A. The._____ of the manufacturing division will be expensive in the short term, but cost-effective in the long term.
- B. We should be able to ___ our profit for next year fairly accurately with the new program.
- C. I could tell from all_____ the board math lesson is in progress.

VIII OPERATING SYSTEMS

Grammar.

Determiner

Determiner (noun): a word like *the*, *an*, *this* or *some* that comes at the beginning of a noun phrase

These pages explain the grammar and usage of determiners, with example sentences.

Main Determiners

These are the main determiners. There can be only ONE main determiner in a noun phrase

Articles

a/an, the

- We want to buy an umbrella. (Any umbrella, not a particular umbrella.)
- It's raining! Where is the umbrella? (We already have an umbrella. We are looking for our umbrella, a particular umbrella.)

Demonstrative Determiners

this/that, these/those

I like this food.

I use these pens.

I have to do it this morning.

We don't meet these days.

Look at that big cloud.

Can you see those birds?

Do you remember that man we met last week?

Those days on holiday were enjoyable.

Possessive Determiners

my, your, his, her, its, our, their

This is my book.

His name is John.

Her first name is Mary.

The dog licked its wounded paw.

We have sold our house.

The students thanked their Thai teacher.

I like your hair.

Your two children are lovely.

Pre-Determiners and Post-Determiners

Pre-determiners come before main determiners and post-determiners come after main determiners

Quantifiers

Like all determiners, quantifiers come at the beginning of a noun phrase, so they come in front of any adjective(s).

Look at these example sentences:

want *all the eggs* and I want *all the red wine*.

Please give me *every egg you have*.

Who has *the most eggs*? Who has *the most money*?

We don't have *many eggs*. We don't have *much money*.

I have *some eggs*. I have *some money*.

I have *a few eggs*. I have *a little money*.

I don't have *any eggs*. I don't have *any money*.

We had *no eggs*. We had *no money*.

Numbers

cardinal and ordinal numbers

double/twice/three times...

I ordered *two cakes*.

There were *three hundred angry people* present.

Jane won *first prize* and Jo won *third prize*.

They have just produced their *one millionth sports car*.

Interrogative Determiners

whose, what, which

- *Whose iPhone* was stolen?
- He couldn't remember *whose car keys* they were.
- *What idiot* told you that?
- I don't know *what non-fiction books* he was reading.
- I asked them *which Italian car* was best.
- *Which nightclubs on the Champs Elysées* did you go to?

1 Read and find determiners.

General features of operating systems

An operating system is a master control program which controls the functions of the computer system as a whole and the running of application programs. All computers do not use the same operating systems. It is therefore important to assess the operating system used on a particular model before initial commitment because some software is only designed to run under the control of specific operating systems. Some operating systems are adopted as 'industry standards' and these are the ones which should be

evaluated because they normally have a good software base. The reason for this is that software houses are willing to expand resources on the development of application packages for machines functioning under the control of an operating system which is widely used. The cost of software is likely to be lower in such circumstances as the development costs are spread over a greater number of users, both actual and potential. Mainframe computers usually process several application programs concurrently, switching from one to the other, for the purpose of increasing processing productivity. This is known as multiprogramming (multi-tasking in the context of microcomputers), which requires a powerful operating system incorporating work scheduling facilities to control the switching between programs. This entails reading in data for one program while the processor is performing computations on another and printing out results on yet another. In multi-user environments an operating system is required to control terminal operations on a shared access basis as only one user can access the system at any moment of time. The operating system allocates control to each terminal in turn. Such systems also require a system for record locking and unlocking, to prevent one user attempting to read a record whilst another user is updating it, for instance. The first user is allocated control to write to a record (or file in some instances) and other users are denied access until the record is updated and unlocked. Some environments operate in concurrent batch and real-time mode. This means that a 'background' job deals with routine batch processing whilst the 'foreground' job deals with real-time operations such as airline seat reservations, on-line booking of hotel accommodation, or control of warehouse stocks. etc.. The real-time operation has priority, and the operating system interrupts batch processing operations to deal with real-time enquiries or file updates. The stage of batch processing attained at the time of the interrupt is temporarily transferred to backing storage. After the real-time operation has been dealt with, the interrupted program is transferred back to internal memory from backing storage, and processing recommences from a 'restart' point. The operating system also copies to disk backing storage the state of the real-time system every few minutes (periodic check points) to provide a means of 'recovering' the system in the event of a malfunction. • An operating system is stored on disk and has to be booted into the internal memory (RAM) where it must reside throughout processing so that commands are instantly available. The operating system commands may exceed the internal memory capacity of the computer in which case only that portion of the OS which is frequently used is retained internally, other modules being read in from disk as required. Many microcomputers function under the control of a disk operating system known as DOS.

Answer these questions about the text.

1. Why is it important to assess the operating system on a computer before buying it?
2. What is multiprogramming?
3. The text gives some examples of real-time processing.
4. Can you think of some examples of batch-processing?

Here is a list of typical tasks performed by an operating system. In each case the main verb has been omitted. Fill in the blanks from the words given. Sometime more than one may apply.

A typical operating system will:

1. ____ input and output devices
2. ____ the status of hardware devices.
3. ____ hardware interrupts.
4. ____ new disks.
5. ____ disk directories.
6. ____ disk reading and writing operations.
7. ____ disk errors.
8. ____ disk commands relating to the deletion, copying, renaming, and dumping of files.

execute

monitor

format

diagnose

Match these common DOS commands with the appropriate explanation.

<ol style="list-style-type: none"> 1. BACKUP 2. CHDIR or CD 3. CHKDSK 4. CLS 5. DEL 6. DIR:~1 7. REN 8. TYPE 9. FIND 10. DTSKCOPY 	<ol style="list-style-type: none"> A. searches for a specific string of text in a file. B. allows a text file from the current directory to be displayed on screen. C. allows the user to change the name of a file. D. saves the contents of the hard disk to a floppy disk for security purposes. E. is used when it is necessary to change the current directory. F. clears data from the screen. G. alphabetically sorts and lists a disk directory. H. makes back-up copies of the contents of one disk to another. I. deletes a specified file from the current directory, specified drive, or specified path. J. produces a status report of the currently logged-on disk, indicating the amount of disk space used the available capacity (in bytes) and the number of files on disk.
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Word-play

Find the hidden words in this square. Some appear vertically, some horizontally, and some diagonally. They may be upside-down or back to front. Use the clues below to help you. The number of letters in each word and the first letter of the word appear in brackets after the clue. The first one has been done for you.

C T A A R I T P L R
 L P N T P I D A E E
 I U E A E E B L X T

P R T D L A F M I E
B R E E S N O T P M
O E T G R I D O T P
A E C Y K I M P Y L
R N D S T Y L U S A
D E L V E I Y S T T
T P U R R E T N I E

Find words which mean:

1. a computer that is small enough to hold in the hand. (7, P)
2. an electronic pen. (6, S)
3. to erase or omit. (6, D)
4. one type of portable computer which operates with an electronic pen. (9, C) the information that the computer processes. (4, D)
5. a network of lines crossing at right angles. (4, G)
6. a signal to a processor to suspend temporarily the current sequence of instructions. (9, 1)
7. a pattern used as a guide for creating letters or characters. (8, T)
8. an individual dot on a computer screen. (5, P)

IX VOCABULARY BUILDING

Affixes and roots

Adding affixes to existing words (the base or root) to form new words is common in academic English. Prefixes are added to the front of the base (*like* → *dislike*), whereas suffixes are added to the end of the base (*active* → *activate*). Prefixes usually do not change the class of the base word, but suffixes usually do change the class of the word. The most common prefixes used to form new verbs in academic English are: *re-*, *dis-*, *over-*, *un-*, *mis-*, *out-*. The most common suffixes are: *-ise*, *-en*, *-ate*, *-(i)fy*. By far the most common affix in academic English is *-ise*.

Verbs

e.g. prefix + verb → verb

Prefix	Meaning	Examples
<i>re-</i>	again or back	restructure, revisit, reappear, rebuild, refinance
<i>dis-</i>	reverses the meaning of the verb	disappear, disallow, disarm, disconnect, discontinue
<i>over-</i>	too much	overbook, oversleep, overwork
<i>un-</i>	reverses the meaning of the verb	unbend, uncouple, unfasten
<i>mis-</i>	badly or wrongly	mislead, misinform, misidentify
<i>out-</i>	more or better than others	outperform, outbid
<i>be-</i>	make or cause	befriend, belittle
<i>co-</i>	Together	co-exist, co-operate, co-own
<i>de-</i>	do the opposite of	Deselect, decode
<i>fore-</i>	earlier, before	foreclose, foresee
<i>inter-</i>	Between	interact, intermix, interface
<i>pre-</i>	Before	pre-expose, prejudge, pretest
<i>sub-</i>	under/below	subcontract, subdivide
<i>trans-</i>	across, over	transform, transcribe, transplant
<i>under-</i>	not enough	underfund, undersell, undervalue, underdevelop

e.g. Suffix used to form verbs with the meaning "cause to be".

Suffix	Example
<i>-ise</i>	stabilise, characterise, symbolise, visualise, specialise
<i>-ate</i>	differentiate, liquidate, pollinate, duplicate, fabricate
<i>-fy</i>	classify, exemplify, simplify, justify
<i>-en</i>	awaken, fasten, shorten, moisten

Nouns

The most common prefixes used to form new nouns in academic English are: *co-* and *sub-*. The most common suffixes are: *-tion*, *-ity*, *-er*, *-ness*, *-ism*, *-ment*, *-ant*, *-ship*, *-age*, *-ery*. By far the most common noun affix in academic English is *-tion*.

e.g. prefix + noun → noun

Prefix	Meaning	Examples
<i>anti-</i>	Against	anticlimax, antidote, antithesis
<i>auto-</i>	Self	autobiography, automobile
<i>bi-</i>	Two	bilingualism, biculturalism, bi-metalism
<i>co-</i>	Joint	co-founder, co-owner, co-descendant
<i>counter-</i>	Against	counter-argument, counter-example, counter-proposal
<i>dis-</i>	the converse of	discomfort, dislike
<i>ex-</i>	Former	ex-chairman, ex-hunter
<i>hyper-</i>	Extreme	hyperinflation, hypersurface
<i>in-</i>	the converse of	inattention, incoherence, incompatibility
<i>in-</i>	Inside	inpatient,
<i>inter-</i>	Between	interaction, inter-change, interference
<i>kilo-</i>	Thousand	kilobyte
<i>mal-</i>	Bad	malfunction, maltreatment, malnutrition
<i>mega-</i>	Million	megabyte
<i>mis-</i>	Wrong	misconduct, misdeed, mismanagement
<i>mini-</i>	Small	mini-publication, mini-theory
<i>mono-</i>	One	monosyllable, monograph, monogamy
<i>neo-</i>	New	neo-colonialism, neo-impressionism
<i>out-</i>	Separate	outbuilding,
<i>poly-</i>	Many	polysyllable
<i>pseudo-</i>	False	pseudo-expert
<i>re-</i>	Again	re-organisation, re-assessment, re-examination
<i>semi-</i>	Half	semicircle, semi-darkness
<i>sub-</i>	Below	subset, subdivision
<i>super-</i>	more than, above	superset, superimposition, superpowers
<i>sur-</i>	over and above	surtax

<i>tele-</i>	Distant	telecommunications,
<i>tri-</i>	Three	tripartism
<i>ultra-</i>	Beyond	ultrasound
<i>under-</i>	below, too little	underpayment, under-development, undergraduate
<i>vice-</i>	Deputy	vice-president

e.g. Suffix added to a verb (V), noun (N) or adjective (A) → noun

Suffix	Meaning	Examples
<i>-tion</i>	action/instance of V-ing	alteration, demonstration
<i>-sion</i>		expansion, inclusion, admission
<i>-er</i>	person who V-s something used for V-ing	advertiser, driver computer, silencer
<i>-ment</i>	action/instance of V-ing	development, punishment, unemployment
<i>-ant</i>	person who V-s	assistant, consultant
<i>-ent</i>		student
<i>-age</i>	action/result of V	breakage, wastage, package
<i>-al</i>	action/result of V	denial, proposal, refusal, dismissal
<i>-ence</i>	action/result of V	preference, dependence, interference
<i>-ance</i>		attendance, acceptance, endurance
<i>-ery/-ry</i>	action/instance of V-ing place of V-ing	bribery, robbery, misery refinery, bakery

Suffix	Meaning	Examples
<i>-er</i>	person concerned with N	astronomer, geographer
<i>-ism</i>	doctrine of N	Marxism, Maoism, Thatcherism
<i>-ship</i>	state of being N	friendship, citizenship, leadership
<i>-age</i>	collection of N	baggage, plumage

Suffix	Meaning	Examples
<i>-ity</i>	state or quality of being A	ability, similarity, responsibility, curiosity
<i>-ness</i>	state or quality of being A	darkness, preparedness, consciousness
<i>-cy</i>	state or quality of being A	urgency, efficiency, frequency

Adjectives

Many adjectives are formed from a base of a different class with a suffix (e.g. *-less*, *-ous*). Adjectives can also be formed from other adjectives, especially by the negative prefixes (*un-*, *in-* and *non-*).

The most common suffixes are *-al*, *-ent*, *-ive*, *-ous*, *-ful*, *-less*.

e.g.

Suffix added to verbs or nouns → adjective

Suffix Example

-al central, political, national, optional, professional

-ent different, dependent, excellent

-ive attractive, effective, imaginative, repetitive

-ous continuous, dangerous, famous

-ful beautiful, peaceful, careful

-less endless, homeless, careless, thoughtless

-able drinkable, countable, avoidable,

e.g. negative + adjective → adjective

Prefix Examples

un- unfortunate, uncomfortable, unjust

im-/in-/ir-/il- immature, impatient, improbable, inconvenient, irreplaceable, illegal

non- non-fiction, non-political, non-neutral

dis- disloyal, dissimilar, dishonest

Mixed

e.g. base with both prefix and suffix

Adjectives: uncomfortable, unavoidable, unimaginative, inactive, semi-circular

Nouns: disappointment, misinformation, reformulation

Word formation

Formal written English uses nouns more than verbs. For example, judgement rather than judge, development rather than develop, admiration rather than admire.

There appeared to be evidence of differential *treatment* of children.

This is reflected in our *admiration* for people who have made something of their lives, sometimes against great odds, and in our somewhat disappointed *judgment* of those who merely drift through life.

All airfields in the country would be nationalised, and the government would continue with the *development* of new aircraft as recommended by the Brabazon Committee.

Associated with nominalisation is the occurrence of prepositional phrases, introduced by *of*:

- judgment *of* those

- treatment *of* children
- development *of* new aircraft

-tion is the most common suffix used in this way. For example: *alteration, resignation*. However others are: *-ity* ability, similarity, complexity; *-ness* blindness, darkness, preparedness; *-ment* development, encouragement; *-ship* friendship; *-age* mileage; *-ery* robbery, bribery; *-al* arrival; *-ance* assistance, resemblance.

Exercises

1. Translate the words and find a noun in each row.

- A. 1) Developing; 2) development; 3) developed; 4) develop .
 B. 1) Provide; 2) providing; 3) provision; 4) provided
 C. 1) Defend; 2) defence; 3) defensive; 4) defended
 D. 1) Depended; 2) dependent; 3) depend; 4) dependence.
 E. 1) Possible; 2) impossible; 3) possibility; 4) possibly
 F. 1) Destroy; 2) destructive; 3) destruction; 4) destroyed.
 G. 1) Act; 2) actual; 3) action; 4) acted).
 H. 1) Produce; 2) produced; 3) productive; 4) production.
 I. 1) Resist; 2) resistant; 3) resistible; 4) resistance .
 J. 1) Reestablish; 2) establishment; 3) establish; 4) established

2. Translate the words and find an adjective in each row.

- A. 1) Differ; 2) difference; 3) different; 4) differently
 B. 1) Achievement; 2) achieve; 3) achievable; 4) achievements
 C. 1) Courage; 2) encourage; 3) courageous; 4) courageously .
 D. 1) Mean; 2) meanings; 3) meaningless; 4) meaningly .
 E. 1) Prevent; 2) preventive; 3) prevention; 4) preventively.
 F. 1) Elect; 2) election; 3) elective; 4) reelect
 G. 1) Consider; 2) considerable; 3) consideration; 4) reconsider
 H. 1) Express; 2) expression; 3) expressive; 4) expressionism .

3. Find the suffixes and prefixes of the words and translate them.

binary card; nonimpact printer; collateral statement; abnormal termination;
 bidirectional printer; nonprogrammer user; recoverable; error; recompile;
 postprocessor; mismatch; preanalytic; modeless command; internal specification;
 integer; integer variable; egoless programming.

4. Find a word with opposite meaning to the given:

- A. Effect 1) effectless; 2) effective; 3) effectiveness; 4) effectively.
 B. Stop 1) stopper; 2) stoppage; 3) nonstop; 4) stopping.
 C. Equal 1) equality; 2) unequal; 3) equalize; 4) equally.
 D. Form 1) formation; 2) formalize; 3) formative; 4) deform.
 E. Mobile 1) mobility; 2) mobilization; 3) mobilize; 4) immobile.
 F. Regular 1) regularity; 2) irregular; 3) regularly; 4) regulation.
 G. Home 1) homeless; 2) homely; 3) homing; 4) homelessness.

X CLOUD COMPUTING

Grammar

Gerunds

When a verb ends in *-ing*, it may be a present participle or it may be a gerund. It is important to understand that they are not the same.

When we use a verb in *-ing* form more like a verb or an adjective, it is usually a present participle:

Anthony is coding.

I have a boring job.

When we use a verb in *-ing* form more like a noun, it is usually a gerund:

Coding is fun.

In this lesson, we look at how we use gerunds, followed by a quiz to check your understanding:

- **Gerund as Subject, Object or Complement**

Try to think of a gerund as a noun in verb form.

Like nouns, gerunds can be the subject, object or complement of a sentence:

Smoking costs a lot of money.

I don't like writing.

My favourite occupation is reading.

But, like verbs, a gerund can also have an object itself. In this case, the whole expression (gerund + object) can be the subject, object or complement of the sentence.

Smoking cigarettes costs a lot of money.

I don't like writing letters.

My favourite occupation is reading detective stories.

Gerund after Preposition

Here is a good rule. It has no exceptions:

Prepositions are always followed by a noun-phrase.

If we want to use a verb after a preposition, it must be a gerund (which functions as a noun). It is impossible to use an infinitive after a preposition. So, for example, we say:

I will call you after arriving at the office.

~~*not I will call after to arrive at the office.*~~

Please have a drink before leaving.

I am looking forward to meeting you.

Do you object to working late?

Tara always dreams about going on holiday.

Gerund after Certain Verbs

We sometimes use one verb after another verb. Often the second verb is in the to-infinitive form, for example:

I want to eat.

But sometimes the second verb must be in gerund form, for example:

I dislike eating.

This depends on the *first verb*. Here is a list of verbs that are usually followed by a verb in gerund form:

admit, appreciate, avoid, carry on, consider, defer, delay, deny, detest, dislike, endure, enjoy, escape, excuse, face, feel like, finish, forgive, give up, can't help, imagine, involve, leave off, mention, mind, miss, postpone, practise, put off, report, resent, risk, can't stand, suggest, understand

Gerund in Passive Sense

We often use a gerund after the verbs *need, require* and *want*.

In this case, the gerund has a passive sense.

Look at these example sentences. Notice that this construction can be in any tense:

I have three shirts that *need* washing. (need to be washed)

I sent it back to the shop because it *needed* fixing. (needed to be fixed)

This letter *requires* signing. (needs to be signed)

The contract will *require* signing tomorrow. (will need to be signed)

The house *wants* repainting. (needs to be repainted)

Your hair's *wanted* cutting for weeks. (has needed to be cut)

1 Read and find gerunds. Define its type. Discuss the type of cloud computing you familiar with.

What is cloud computing?

Cloud computing means that instead of all the computer hardware and software you're using sitting on your desktop, or somewhere inside your company's network, it's provided for you as a service by another company and accessed over the Internet, usually in a completely seamless way. Exactly where the hardware and software is located and how it all works doesn't matter to you, the user—it's just somewhere up in the "cloud" that the Internet represents.

Preparing documents over the Net is a newer example of cloud computing. Simply log on to a web-based service such as Google Documents and you can create a document, spreadsheet, presentation, or whatever you like using Web-based software. Instead of typing your words into a program like Microsoft Word or OpenOffice, running on your computer, you're using similar software running on a PC at one of Google's world-wide data centers. Like an email drafted on Hotmail, the document you produce is stored remotely, on a Web server, so you can access it from any Internet-connected computer, anywhere in the world, any time you like. Do you know where it's stored? No! Do you care where it's stored? Again, no! Using a Web-based service like this means you're "contracting out" or "outsourcing" some of your computing needs to a company such as Google: they pay the cost of developing the software and keeping it up-to-date and they earn back the money to do this through advertising and other paid-for services.

IT people talk about three different kinds of cloud computing, where different services are being provided for you. Note that there's a certain amount of vagueness about how these things are defined and some overlap between them.

Infrastructure as a Service (IaaS) means you're buying access to raw computing hardware over the Net, such as servers or storage. Since you buy what you need and pay-as-you-go, this is often referred to as utility computing. Ordinary web hosting is a simple example of

IaaS: you pay a monthly subscription or a per-megabyte/gigabyte fee to have a hosting company serve up files for your website from their servers.

Software as a Service (SaaS) means you use a complete application running on someone else's system. Web-based email and Google Documents are perhaps the best-known examples. Zoho is another well-known SaaS provider offering a variety of office applications online.

Platform as a Service (PaaS) means you develop applications using Web-based tools so they run on systems software and hardware provided by another company. So, for example, you might develop your own ecommerce website but have the whole thing, including the shopping cart, checkout, and payment mechanism running on a merchant's server. Force.com (from salesforce.com) and the Google App Engine are examples of PaaS.

Exercises

1. Read carefully and find the subject of a gerund in the sentences.

- 1) I remember leaving a message for him. I remember his leaving a message for me.
- 2) Mr. Blank apologized for having caused a trouble. Mr. Blank apologized for his children having caused a trouble.
- 3) We don't mind cooperating with you. We don't mind you cooperating with us.

2. Write sentences according to the model:

Model : I advise you to read the book. The book is worth reading:.

- 1) Go and see the film. The film _____
- 2) That's a good song. _____
- 3) Don't quote this man. He is not worth _____
- 4) Remember his words. What he says is worth _____

3. Write questions according to the model:

Model: It's useless to argue with him. What's the use of arguing with him?

It's no use accusing him.

It's useless to object to it.

It's no use talking, let's get down to work.

4. Say as many sentences as you can using the model:

Model: We'll solve the problem by using this algorithm.

1. We learn to speak English
2. We can't learn a foreign language only
3. One learns to swim
4. You won't change anything
5. You won't achieve anything

by

- A. speaking.
- B. arguing.
- C. reading books.
- D. swimming.
- E. shouting.

5. Finish the sentences according to the model:

Model: How did you like his singing? I enjoyed his singing.

1. Would you like to walk a bit? Not in this rain. I hate _____
2. Do you often talk with young Howard? He avoids _____
3. The dinner is very good. Yes. Jane is very good at _____

XI INFORMATION SYSTEMS

Grammaar

How do we make the Future Simple Tense?

The structure of the Future Simple tense is:

subject	+	auxiliary <i>will</i>	+	main verb
		will		base

The auxiliary verb (will) is invariable: *will*

The main verb is invariable in base form: *base*

For negative sentences we insert **not** between the auxiliary verb and the main verb.

For question sentences, we **exchange** the subject and the auxiliary verb.

Look at these example sentences with the Future Simple tense:

	subject	auxiliary verb		main verb	
+	I	will		open	the door.
+	You	will		finish	before me.
-	She	will	not	be	at school tomorrow.
-	We	will	not	leave	yet.
?	Will	you		arrive	on time?
?	Will	they		want	dinner?

Contraction with Future Simple

When we use the Future Simple in speaking, we often contract the subject and the auxiliary verb. We also sometimes do this in informal writing.

I will	→	I'll
you will		you'll
he will she will it will		he'll she'll it'll
we will		we'll
they will		they'll

- She'll be happy to see you.

- They'll be here next week.

In negative sentences, we may contract with **won't**, like this:

- You **won't** like it.
- I'm sure they **won't** give you the job.

How do we use the Future Simple Tense?

Here we look at three cases in the use of the Future Simple:

- no prior plan
- predicting the future
- main verb *be*

Future Simple with no plan

We use the Future Simple tense when there is no plan or decision to do something before we speak. We make the decision spontaneously at the time of speaking. Look at these examples:

- Hold on. I'll **get** a pen.
- We **will see** what we can do to help you.
- Maybe we'll **stay in** and **watch** television tonight.

In these examples, we had no firm plan before speaking. The decision is made **at the time of speaking**.

We often use the Future Simple tense with the verb **to think** before it:

- I **think** I'll go to the gym tomorrow.
- I **think** I will have a holiday next year.
- I don't **think** I'll buy that car.

Future Simple for prediction

We often use the Future Simple tense to make a prediction about the future. Again, there is no firm plan. We are saying **what we think will happen**. Here are some examples:

- It **will rain** tomorrow.
- People **won't go** to Jupiter before the 22nd century.
- Who do you think **will get** the job?

Future Simple with main verb *be*

When the main verb is **be**, we can use the Future Simple tense even if we have a firm plan or decision before speaking. Examples:

- I'll **be** in London tomorrow.
- I'm going shopping. I **won't be** very long.
- **Will you be** at work tomorrow?

Note that when we have a plan or intention to do something in the future, we usually use other tenses or expressions, such as the present continuous or going to.

How do we make the Future Continuous Tense?

The structure of the Future Continuous tense is:

subject	+	auxiliary <i>will</i>	+	auxiliary <i>be</i>	+	main verb
		will		be		present participle

The first auxiliary verb (will) is invariable: *will*

The second auxiliary verb (be) is invariable in base form: *be*

The main verb is invariable in present participle form: *-ing*

For negative sentences we insert **not** after the first auxiliary verb.

For question sentences, we **exchange** the subject and the first auxiliary verb.

Look at these example sentences with the Future Continuous tense:

	subject	auxiliary verb		auxiliary verb	main verb	
+	I	will		be	working	at 10am.
+	You	will		be	lying	on a beach tomorrow.
-	She	will	not	be	using	the car.
-	We	will	not	be	having	dinner at home.
?	Will	you		be	playing	football?
?	Will	they		be	watching	TV?

Contraction with Future Continuous

When we use the Future Continuous tense in speaking, we often contract the subject and the first auxiliary verb. We also sometimes do this in informal writing.

I will		I'll
you will		you'll
he will she will it will	→	he'll she'll it'll
we will		we'll
they will		they'll

- She'll be cooking dinner.
- We'll be working all night.

In negative sentences, we may contract with **won't**, like this:

- You won't be playing golf, will you?
- They won't be using their car tomorrow.

How do we use the Future Continuous Tense?

The Future Continuous tense expresses action at a **particular moment** in the future. The action will have started before that moment but it will not have finished at that moment.

For example, tomorrow I will start work at 2pm and stop work at 6pm:

Past	present	future
		4pm
		At 4pm, I will be in the middle of working.
At 4pm tomorrow, I will be working .		

When we use the Future Continuous tense, our listener usually knows or understands what time we are talking about. Look at these examples:

- I **will be playing** tennis at 10am tomorrow.
- They **won't be watching** TV at 9pm tonight.
- What **will you be doing** at 10pm tonight?
- What **will you be doing** when I arrive?
- She **will not be sleeping** when you telephone her.
- We'**ll be having** dinner when the film starts.
- Take your umbrella. It **will be raining** when you return.

Reading

Information systems

1 Before reading the text, try to decide which of the following definitions best describes a management information system:

- A. a system for supplying information to management
- B. a system for managing information
- C. a system which supplies information about management

2 Decide whether these statements are true (T) or false (F), then read the passage to check your answers.

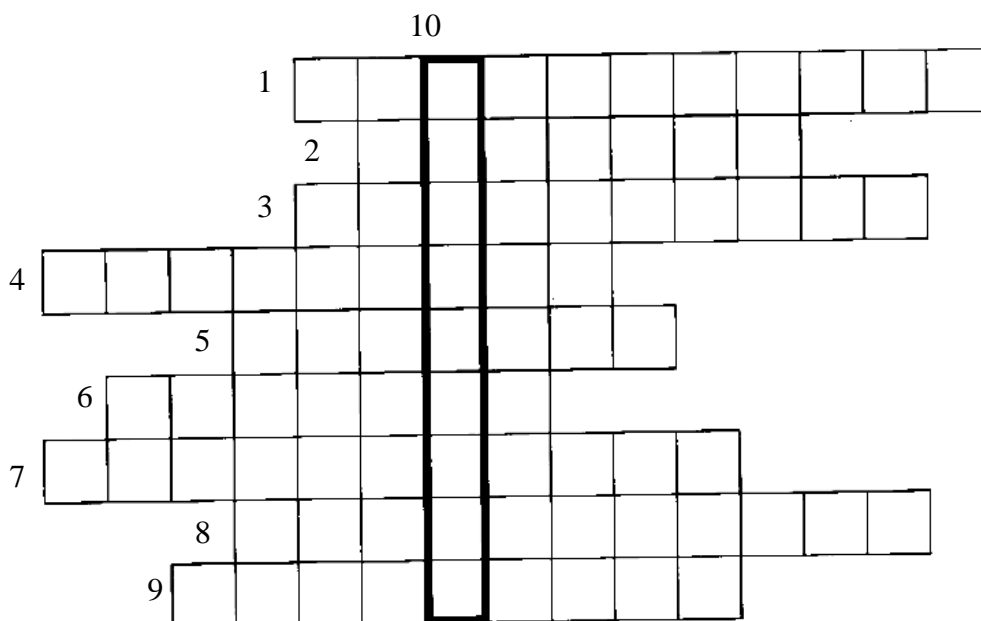
1. All businesses are interested in more or less the same information, regardless of the nature of their operations.
2. The managing director of a company needs a lot more detailed information about the day-to-day operations than his executives do.
3. Functional management requires up-to-the-minute information so that they can take action to control events as they happen.
4. Information systems are usually computerized.
5. Transaction processing systems are usually the first systems to be installed.

1. Read and translate

The objective of information systems is to provide information to all levels of management at the most relevant time, at an acceptable level of accuracy, and at an economical cost. Individual businesses require information according to the nature of

their operations. A car manufacturer is particularly interested in the extent of competition from overseas manufacturers in the home market and competition from other home-based manufacturers. A tour operator is concerned about purchasing power and its effect on holiday bookings and the political situation prevailing in the various countries. As a general guide, the detail contained in reports containing information varies according to the position of the recipient in the hierarchical management structure. The chairman and managing director of a company require details of operations which are broad in scope and which concentrate on key factors pinpointing economic and financial trends. Functional management require information relating to the departments they are responsible for in sufficient detail to enable them to apply whatever measures are required to bring situations into line with requirements. They require information relating to events as they occur so that appropriate action can be taken to control them. Information systems are often computerized because of the need to respond quickly and flexibly to queries. At the bottom level in the information hierarchy are the transaction processing systems, which capture and process internal information, such as sales, production, and stock data. These produce the working documents of the business, such as invoices and statements. Typically, these are the first systems which a company will install. Above the transaction-level systems are the decision support systems. These take external information - market trends and other external financial data – and processed internal information, such as sales trends, to produce strategic plans, forecasts, and budgets. Often such systems are put together with PC spreadsheets and other unconnected tools. Management information systems lie at the top of the hierarchy of information needs. The MIS takes the plans and information from the transaction-level systems to monitor the performance of the business as a whole. This provides feedback to aid strategic planning, forecasting, and/or budgeting, which in turn affects what happens at the transactional level.

Exercises
Word Play



Across

1. The T of MIS.
2. Another term for a VDU.
3. See 8
4. An A/D changes analog signals into digital signals.
5. The D of VDU.
6. The decision systems combine information from outside and inside an organization to produce strategic plans and forecasts.
7. Voice ___ systems permit people to talk to computers.
8. and 3_____ systems capture and process information generated within an organization (e.g. sales and production data).
9. Converted from an analog to a digital signal.

Down

The amount of deskpace (or floorspace) taken up by a computer.

XII IT IN MEDICINE

Grammar

USED TO DO

I used to be handsome.

We use used to do to talk about the past. It is not a tense but it is like a tense. It is a special structure. We use the structure used to do for the past only.

Do not confuse used to do with the expression be used to. They have different meanings.

Structure of *used to do*

The structure of *used to do* is:

subject	+	main verb <i>use</i>	+	to-infinitive
---------	---	-------------------------	---	---------------

Look at the structure again with positive, negative and question sentences:

	subject	auxiliary <i>did</i>	not	main verb <i>use</i>	Infinitive
+	I			Used	to like him.
-	I	Did	n't	Use	to work.
?	Did	You		Use	to drink?

Used or use?

- when there is no did in the sentence, we say used to (with d)
- when there is did in the sentence, we say use to (without d)

Use of *used to do*

We use the used to do structure to talk about:

- an activity that we did regularly in the past (like a habit)
- a situation that was true in the past

past	Present	Future

Look at these examples.

past	present
She used to work in a shop.	Now she works in a bank.
He used to watch a lot of TV.	Now he doesn't watch much TV.
They used to be married.	Now they are divorced.

past	present
There used to be a cinema here.	Now there is a supermarket here.
I didn't use to go swimming.	Now I go swimming.
Did you use to smoke?	

Reading

1 First, make a list of all the applications of computers you can think of which are related to medicine and patient care. Then read the text and translate.

Vocabulary

whimsical (1. 2) — fanciful, highly imaginative

lexicon (1. 7) — vocabulary

dozen (1. 9) — about twelve

stroke (1. 10) — sudden attack of illness in the brain, causing loss of speech and movement

took to (1. 107) — developed an ability with

passed away (1. 126) — died

EILEEN CARLETON HAS a whimsical talent for hand signals. When the 65-year-old stroke victim draws a vertical line in the air, her family knows she is referring to a very slim friend of her son. But a lexicon of hand gestures — no matter how inventive — and the few dozen words left in Carleton's vocabulary following her stroke are inadequate for conveying even the most basic wishes, observations, or questions to her family. Through a pilot study at the School of Medicine, however, Carleton has learned to communicate using a specially designed computer program that has restored not only her ability to express herself. but also, family members and therapists say, her enthusiasm for life. The stroke that Carleton suffered in 1985 damaged the portion of her brain where words and speech are processed, leaving her with a condition known as aphasia, or the inability to use language. While she is able to comprehend much of what people say to her, she cannot formulate her thoughts into coherent phrases or sentences. Using the computer program, she can select from hundreds of pictures that represent people, objects, actions, and descriptive qualities and arrange them in sequence to communicate thought, obviating the need to use words. 'When Eileen first entered the study, she depended on her husband Steve to figure out what she wanted to say from her gestures and facial expressions. All she could say was, "Come on! You know!", with increasing frustration,' said Dr Cheryl Goodenough Trepagnier, associate professor of rehabilitation medicine. The computer program used in the Tufts study was developed in conjunction with the Palo Alto, California, Veterans Administration Medical Center and grew out of research in the 19 70s at the Boston Veterans Administration Hospital.

Researchers had found that chimpanzees, whose brains lack specialized language centers could engage in a kind of communication using plastic tokens that represented different objects and actions.' Dr Trepagnier said. 'We wondered whether aphasics — whose language processing areas are damaged — could benefit from the same idea.' On small cards, researchers drew symbols representing different people, objects; and actions and trained aphasic patients to select and arrange the cards to form statements or questions. By selecting cards showing a woman, a person walking, a store, and a chicken, for example, an aphasic patient could ask his wife to go to the grocery store to buy some poultry. 'Some patients become quite adept at using the cards,' Dr Trepagnier said. 'But as the number of cards increased, it became awkward and time-consuming to find the right cards and then put them back in the right order. Patients found the cards too cumbersome and didn't use them at home.' In the mid-1980s, however, a computer program was developed that, like the cards, used pictures to represent ideas, but was easier to use. With the program, aphasic patients could select from hundreds of pictures simply by moving a computer mouse. Dr Trepagnier was among the first researchers to test the new software on aphasics. 'At first, there was a great deal of doubt over whether aphasics would be able to use computer,' Dr Trepagnier said. 'But we found that many took to the computer quite easily. As they became more proficient on the computer, some showed gains in their overall self-confidence, as well. It's hardly an exaggeration to say that the program transformed Carleton's life. Now she can introduce topics, rather than hoping that people will guess what's on her mind. When her husband passed away suddenly, she was able to carry on.'

Encouraged by the results thus far, Dr Trepagnier will study ways of expanding the computer program's capabilities. For unknown reasons, many aphasics have more trouble conceptualizing verbs than nouns. Making the intellectual connection between a picture of a sailboat and the idea of a sailboat is easier than connecting a picture of a boy running to the idea of running. Trepagnier hopes to overcome this difficulty by designing a program that enables patients to see computer images in motion.

Decide which of these titles best sums up the content of the text.

1. A new way to communicate for stroke victims
2. Stroke victims: computers that care
3. New technology comes to the rescue of stroke victims

Read this summary of the text and fill in each gap with an appropriate word.

Eileen Carleton's life has been completely transformed by Dr Trepagnier's computer program. Whereas she used to be entirely _____ on her husband to deduce what she wanted to say, now she is able to _____ her own ideas. Before, she had to hope other people would _____ what she was thinking. Now she is _____ of starting a conversation with others.

Dr Trepagnier's program was _____ from research on symbolic communication by chimpanzees, which _____ specialized language areas in their brains. As these

language-processing areas are also known to be_____ in human aphasics, the same idea of using visual symbols to represent different people, objects, and actions was thought likely to be effective.

Using cards to show these symbols proved_____ for most patients, but the introduction of computer technology has greatly_____ the use of the system by aphasics, whose lives have been immeasurably_____ since the invention of this program.

XIII DATABASE MANAGEMENT SYSTEMS

There are two basic structures for the Past Simple tense:

1. Positive sentences

subject	+	main verb
		Past Simple

2. Negative and question sentences

subject	+	auxiliary <i>do</i>	+	main verb
		conjugated in Past Simple		
		Did		base

Look at these examples with the main verbs *go* (irregular) and *work* (regular):

	subject	auxiliary verb		main verb	
+	I			went	to school.
	You			worked	very hard.
-	She	did	Not	go	with me.
	We	did	Not	work	yesterday.
?	Did	you		go	to London?
	Did	they		work	at home?

From the above table, notice the following points...

For positive sentences:

1. There is **no auxiliary verb**.
2. The main verb is conjugated in the Past Simple, invariable: *-ed* (or irregular)
3. For negative and question sentences:
4. The auxiliary is conjugated in the Past Simple, invariable: *did*
5. The main verb is invariable in base form: *base*
6. For negative sentences, we insert **not** between the auxiliary verb and main verb.
7. For question sentences, we **exchange** the subject and the auxiliary verb.

Emphatic did

Normally, for positive sentences we do not use the auxiliary *did*. But if we want to emphasize (stress) something, or contradict something, we may use it. For example: "I didn't use a spellchecker but I did use a dictionary." Here are some more examples:

1. "Why *didn't* you go to the party?" / "I *did* go."

2. *It did seem a bit strange.*
3. *After drinking it I did in fact feel better.*

Past Simple with main verb *be*

The structure of the Past Simple with the main verb *be* is:

subject	+	main verb <i>be</i>
		conjugated in Past Simple
		was, were

Look at these examples with the main verb *be*:

	subject	main verb <i>be</i>		
+	I, he/she/it	Was		here.
	You, we, they	Were		in London.
-	I, he/she/it	Was	not	there.
	You, we, they	Were	not	happy.
?	Was	I, he/she/it		right?
	Were	you, we, they		late?

From the above table, notice the following points...

- There is **no auxiliary verb**, even for questions and negatives.
- The main verb (*be*) is conjugated in the Past Simple: *was, were*
- For negative sentences, we insert **not** after the main verb.
- For question sentences, we **exchange** the subject and the main verb.

Reading

1. Before reading the text opposite, match the following words with their definitions:

1. logical record
2. field
3. physical record
4. internal schema
5. external schema
6. conceptual schema

- A. the logical design of the database
- B. an item of data such as a number, a name, or an address
- C. the way that the data is physically held

- D. the collection of data relating to one subject
- E. the collection of data transferred as a unit
- F. the user's permitted view of the data

2. Before reading the text, try to answer these questions in pairs.

1. How many medical uses of a database can you think of?
2. What is a DBMS?
3. What is its function?

Database management systems

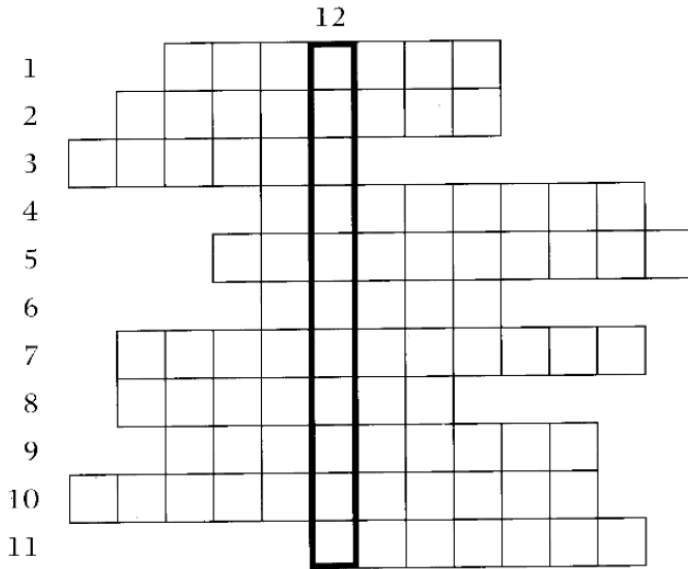
Databases are used within a medical context for many purposes. For example, they are used to hold patient details so they can be accessed from anywhere within a hospital or network of hospitals. With the recent improvements in image compression techniques, X-rays and scan output can also be held in databases and accessed in the same way. These multi-user databases are managed by a piece of software called a database management system (DBMS). It is this which differentiates a database from an ordinary computer file. Between the physical database itself (i.e. the data as actually stored) and the users of the system is the DBMS. All requests for access to data from users - whether people at terminals or other programs running in batch - are handled by the DBMS. One general function of the DBMS is the shielding of database users from machine code (in much the same way that COBOL shields programmers from machine code). In other words, the DBMS provides a view of the data that is elevated above the hardware level, and supports user-requests such as 'Get the PATIENT record for patient Smith', written in a higher-level language. The DBMS also determines the amount and type of information that each user can access from a database. For example, a surgeon and a hospital administrator will require different views of a database. When a user wishes to access a database, he makes an access request using a particular data-manipulation language understood by the DBMS. The DBMS receives the request, and checks it for syntax errors. The DBMS then inspects, in turn, the external schema, the conceptual schema, and the mapping between the conceptual schema and the internal schema. It then performs the necessary operations on the stored data. In general, fields may be required from several logical tables of data held in the database. Each logical record occurrence may, in turn, require data from more than one physical record held in the actual database. The DBMS must retrieve each of the required physical records and construct the logical view of the data requested by the user. In this way, users are protected from having to know anything about the physical layout of the database, which may be altered, say, for performance reasons, without the users having their logical view of the data structures altered.

3. The steps below show how a DBMS deals with an access request. Find the relevant section in the text, then put the steps in the correct order. The DBMS:

- A. inspects the mapping between the conceptual schema and internal schema
- B. checks for syntax errors
- C. inspects the external schema
- D. receives the request E1
- E. performs operations on the stored data
- F. inspects the conceptual schema

4. Word-play

Complete the puzzle and find the key word in 12 down.



Across

- 1 and 11 The creation of an artificial environment in the memory of a computer in which the user can apparently exist.
- 2 and 3 The user's permitted view of the data in a database.
- 4 The opposite of 2.
- 5 A surgical ____ is a tool used for carrying out operations.
- 6 and 10 A technique for reducing the amount of space that a graphics image will use when stored in computer memory.
- 7 A program must be converted into this before a computer will read and process it.
- 8 Programs that run = do not involve any terminal or user interaction.
- 9 Used to describe computer systems that allow access by more than one user simultaneously.
- 10 See 6.
- 11 See 1.

Down

- 12 A device for sending a radio message.

XIV VIRTUAL REALITY

VOCABULARY LIST

Nouns: sitcom, voyage, goggles, gear, content, combat, oblivion.

Verbs: slip on (off), feature, strap, blast, bind, clutch, swoop. **Adjectives:** incredible, appropriate, ambitious, exciting, paraple-gic.

Word combinations: to take a ride, to go astray, the age of dino-saurs, to fight monsters, to don (strap on/into) cyberspace gear, a military point of view, a fiber optic glove, a computer-enhanced fantasy world.

How do we use the Past Perfect Tense?

The Past Perfect tense expresses action in the **past** *before* another action in the **past**. This is the **past in the past**. For example:

- The train left at 9am. We arrived at 9:15am. When we arrived, the train **had left**.

The train **had left** when we arrived.

past	Present	future
Train leaves in past at 9:00		
9:00 9:15		
We arrive in past at 9:15		

Look at some more examples:

- I wasn't hungry. I **had** just **eaten**.
- They were hungry. They **had** not **eaten** for five hours.
- I didn't know who he was. I **had** never **seen** him before.
- "Mary wasn't at home when I arrived." / "Really? Where **had** she **gone**?"

You can sometimes think of the Past Perfect tense like the Present Perfect tense, but instead of the time being **now** the time is **before**.

	have done →		
had done →			
	past	present	future

For example, imagine that you arrive at the station at 9:15am. The stationmaster says to you:

- "You *are* too late. The train **has left**."

Later, you tell your friends:

- "We *were* too late. The train **had left**."

We often use the Past Perfect in reported speech after verbs like: *said, told, asked, thought, wondered*

Look at these examples:

- He told us that the train **had left**.
- I thought I **had met** her before, but I was wrong.
- He explained that he **had closed** the window because of the rain.
- I wondered if I **had been** there before.
- asked them why they **had not finished**.

How do we make the Past Perfect Tense?

The structure of the Past Perfect tense is:

subject	+	auxiliary <i>have</i>	+	main verb
		conjugated in Past Simple		
		had		past participle

The auxiliary verb (have) is conjugated in the Past Simple: *had*

The main verb is invariable in past participle form: *-ed (or irregular)*

For negative sentences we insert **not** between the auxiliary verb and the main verb.

For question sentences, we **exchange** the subject and the auxiliary verb.

Look at these example sentences with the Past Perfect tense:

	subject	auxiliary verb		main verb	
+	I	had		finished	my work.
+	You	had		stopped	before me.
-	She	had	not	gone	to school.
-	We	had	not	left.	
?	Had	you		arrived?	
?	Had	they		eaten	dinner?

Contraction with Past Perfect

When we use the Past Perfect in speaking, we often contract the subject and the auxiliary verb. We also sometimes do this in informal writing: had='d; had not = hadn't.

- I'd eaten already.
- They'd gone home.

In negative sentences, we may contract the auxiliary verb and "not":

- I hadn't finished my meal.
- Anthony hadn't had a day off for months.

The 'd contraction is also used for the auxiliary verb **would**. For example, **we'd** can mean:

- We **had**, *OR*
- We **would**

But usually the main verb is in a different form, for example:

- We had **arrived** (past participle)
- We would **arrive** (base)

It is always clear from the context.

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- I wondered if I **had been** there before.
- I asked them why they **had not finished**.

1 Read and translate

One of the most exciting new areas of computer research is virtual reality. Having been featured in TV sitcoms as well as public television documentaries, virtual reality is merely an ambitious new style of computer interface. Virtual reality creates the illusion of being in an artificial world — one created by computers. Virtual reality visitors strap on a set of eyephones, 3-D goggles that are really individual computer screens for the eyes. Slipping on the rest of the gear allows you not only to see and hear, but also to sense your voyage. The world of virtual reality has been called cyberspace, a computer-enhanced fantasy world in which you move around and manipulate objects to your mind's content. When you move your head, magnetic sensors instruct the computer to refocus your eye phones to your new viewpoint. Sounds surround you, and a fiber-optic glove allows you to "manipulate" what you see. You may seek out strange new worlds, fight monsters in computer 'combat, or strap yourself into the seat of a Star Wars-type jet and scream through cyberspace, blasting all comers to oblivion (computer oblivion, at least). Or, with your stomach appropriately settled, you might even try out the most incredible roller coaster ride you will ever take in your life.

For the disabled, virtual reality promises a new form of freedom. Consider the wheelchair bound paraplegic child who is suddenly able to use virtual reality gear to take part in games like baseball or basketball. Research funded by the government takes a military point of view, investigating the possibility of sending robots into the real conflict while human beings don cyberspace gear to guide them from back in the lab. Spectrum Holobyte, a computer games development company, announced its first virtual reality computer game for the home during 1991 Christmas season. Imagine yourself suddenly clutching your handheld laser pistol as a giant bird swoops right at you from the age of dinosaurs! Your laser shot goes astray, and you feel yourself suddenly lifted off the ground and carried higher and higher. That's enough - for some of us it can be virtually too real.

EXERCISES

I. True or false?

1. Virtual reality is a computer-built fantasy world.
2. Virtual reality is also called cyberspace.
3. There are no limits to virtual reality.
4. Virtual reality is created by being in a special room.
5. Virtual reality is available only on expensive computer systems.
6. Virtual reality is the leading edge of the computer technology.
7. Eyephones are the 3DFX fiber-optic glasses.
8. Eyephones are not the only virtual reality gear.
9. Virtual reality might be misused.
10. Virtual reality can return the disabled to the full-fledged life.
11. Virtual reality was designed by the military to guide robots.
12. One can not only see or hear virtual reality, but also feel and smell it.
13. Virtual reality is only a type of computer interface.

II. Read the words as they are used in the following sentences and try to come up with your own definition:

1. Using computers to create graphics and sounds, virtual reality makes the viewer believe he or she is in another world.
2. Three-dimensional images are created using technology that fools the viewers' mind into perceptive depth.
3. Plug a terminal directly into the brain via a prepared skull and you can enter cyberspace.
4. I've got a set of eyephones, 3D goggles, a fiber optic glove and the rest of the gear.
5. There are many word substitutes for invalids, e.g. the handicapped, challenged by birth or by accidents, disabled people.
6. The bowman took a deep breath, aimed at the target and shot, but the arrow went astray.

Virtual reality ----

Three-dimensional (3D) —

Cyberspace —

Gear —

Disabled —

To go astray —

III. Put the proper words into sentences:

a) fiber-optic, swoop, go astray, clutching, gear, to one's mind content, enhance, cyberspace, eye phones.

1. Virtual reality is sometimes called...
2. 3-D ... are really individual computer screens for the eyes.
3. Virtual reality can ... possibilities of the disabled.
4. The manual ... box allows you to slow down without braking, while the automatic one doesn't.
5. Cyberspace allows everybody to change it... 6. The letters wrongly addressed...
7. ... unknown things may cause an accident.

8. By the end of the 20th century metal wires had been replaced by ... ones.
9. In one of the s the NATO has lost their most expensive fighter.

b) *be, have, see, do, leave, write, tell.*

I. It was more than a hundred years ago that Lewis Carroll ... about Alice's trip through the looking glass.

2. Now that fiction ... became a reality ... or you might say, a virtual reality ... because that's the name of a new computer technology that many believe will revolutionize the way we live.

3. Trainees fighting in virtual battles often cannot ... a man from a machine.

4. Virtual reality lets you travel to places you've never ..., do things you've never — without ... the room.

5. Some day, you will ... that virtual reality makes other forms of entertainment, such as TV and movies, obsolete.

IV. Guess the meaning of the italicized words:

I. Virtual reality *straddles* the foggy boundary between fantasy and fact.

2. Imagine a place and you'll be able to step into it. **Conjure** up a dream and you'll be able to fly through it.

3. He's launched one of the first computers to mass-produce virtual reality systems.

4. Virtual reality techniques have been used to make a 3D model of the planet Mars.

There are, of course, more *down-to-earth* applications. Virtual reality models of urban landscapes are allowing urban planners to redesign Main Street without leaving the room.

5. We're now reaching a point where the simulations are so realistic that the line between playing a game or a simulation and actually blowing people up is becoming *blurred*.

XV THE FIRST HACKERS

VOCABULARY LIST

Nouns: freshman, access to, authority, reign, pride, innovation, bogus, endeavor, exhilaration, insights.

Verbs: to encompass, to promote.

Adjectives: bonafide, awe-inspiring, mere, efficient.

Grammar

How do we use the Past Perfect Continuous Tense?

The Past Perfect Continuous tense is like the Past Perfect tense, but it expresses longer actions in the **past** before another action in the **past**. For example:

- Ram started waiting at 9am. I arrived at 11am. When I arrived, Ram **had been waiting** for two hours.

past	present	future
Ram starts waiting in past at 9am.		
9	11	
I arrive in past at 11am.		
Ram had been waiting for two hours when I arrived.		

Here are some more examples:

- John was very tired. He **had been running**.
- I could smell cigarettes. Somebody **had been smoking**.
- Suddenly, my car broke down. I was not surprised. It **had not been running** well for a long time.
- **Had** the pilot **been drinking** before the crash?

You can sometimes think of the Past Perfect Continuous tense like the Present Perfect Continuous tense, but instead of the time being **now** the time is **before**.

	have been doing →	
had been doing		

→			
	past	present	future

For example, imagine that you meet Ram at 11am. Ram says to you:

- "I **am** angry. I **have been waiting** for two hours."

Later, you tell your friends:

- "Ram **was** angry. He **had been waiting** for two hours."

1 Read and Translate

The first "hackers" were students at the Massachusetts Institute of Technology (MIT) who belonged to the TMRC (Tech Model Railroad Club). Some of the members really built model trains. But many were more interested in the wires and circuits underneath the track platform. Spending hours at TMRC creating better circuitry was called "a mere hack." Those members who were interested in creating innovative, stylistic, and technically clever circuits called themselves (with pride) hackers. During the spring of 1959, a new course was offered at MIT, a freshman programming class. Soon the hackers of the railroad club were spending days, hours, and nights hacking away at their computer, an IBM 704. Instead of creating a better circuit, their hack became creating faster, more efficient program — with the least number of lines of code. Eventually they formed a group and created the first set of hacker's rules, called the Hacker's Ethic. Steven Levy, in his book Hackers, presented the rules:

- Rule 1: Access to computers — and anything, which might teach you, something about the way the world works — should be unlimited and total.
- Rule 2: All information should be free.
- Rule 3: Mistrust authority — promote decentralization.
- Rule 4: Hackers should be judged by their hacking, not bogus criteria such as degrees, race, or position.
- Rule 5: You can create art and beauty on a computer.
- Rule 6: Computers can change your life for the better

(These rules made programming at MIT's Artificial Intelligence Laboratory a challenging, all encompassing endeavor. Just for the exhilaration of programming; students in the AI Lab would write a new program to perform even the smallest tasks. The program would be made available to others who would try to perform the same task with fewer instructions. The act of making the computer work more elegantly was, to a bonafide hacker, awe-inspiring. Hackers were given free reign on the computer by two AI Lab professors, "Uncle" John McCarthy and Marvin Minsky, who realized that hacking created new insights. Over the years, the AI Lab created many innovations: LIFE, a game about survival; LISP, a new kind of programming language; the first computer chess game; The CAVE, the first computer adventure; and SPACEWAR, the first video game.

EXERCISES

I. True or false?

1. Those who can, do. Those who cannot, teach. Those who cannot teach, HACK!
2. The first hackers were interested in railroad circuitry.
3. The first hackers studied at MIT.
4. The point of a hacker's work was to create a faster and smaller code.
5. Hackers had their own Ethic Code.
6. TM RC stands for Toy Machinery Railroad Car.
7. Hackers sabotaged the work of the AI Lab.
8. An elegant computer was, to a real hacker, awe-inspiring.
9. At AI Lab hackers wrote a computer program for every other task.
10. Hackers were quite prolific in innovations.
11. Hackers were given free reign on the two AI Lab professors.

II. Put the proper words into sentences:

programming, insights, innovation, ethic, instructions, exhilaration, endeavor, awe-inspiring, encompass, freshmen, authority, bogus, mistrust.

1. Decentralization results in ... to the chief
2. Holding the door for a lady is the question of..
3. This still life isn't Picasso's; it's a...
4. The report you've presented doesn't ... some of the problems.
5. If you can survive both in the jungle and the desert, a ... Indian you are.
6. The ... in how hardware works is obligatory for a good programmer.
7. Each ... is another step to a new technological revolution.
8. In 1961 the Soviet Scientists' ... to conquer the space was a success.
9. ... without any reason proves one's carelessness.
10. Iron grip boss expects you to carry out all his
- 11 . Annually MIT gains over 5000 ...
12. ... should cause ... terror in your heart.