NT213 - Engleski za informatičare

ICT systems

Lekcija 08

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ICT SYSTEMS

⌄ Uvod

OVERVIEW

In this lesson you will...

- use specialist vocabulary, listen to and talk about blockchain, ICT systems and communications systems
- learn more about word formation: how to form verbs, nouns and adjectives in English
- learn and practice common collocations related to communication systems
- learn some informal written language used in CMC and SMS
- revise passive forms and deepen your understanding of how to use it.

⌄ Poglavlje 1

Reading: Blockchain

PRE-READING

Answer the following questions.

Has it ever happened to you that you were out shopping and got to the till but your card didn't work?

Do you find yourself in distress whenever you go to the doctor's and have to explain all over from the beginning wishing for a medical record storing all your previous visits?

Do you trust the banking system and what are the flaws within it?

Look at the following potential uses for computer technology. Prioritise them in order of importance for you.

- Payment processing and money transfers
- Digital IDs
- Data sharing
- Copyright and royalty protection
- Digital voting
- Immutable data backup

Reading for gist
Read the text that follows quickly. What is the main theme in the text?
Reading for details
Read the text again and answer the questions.

Before reading the text, watch the video *Bitcoin explained: How do crypto-currencies work?* here https://www.bbc.com/news/business-51281233

Ova lekcija sadrži video materijal. Ukoliko želite da pogledate ovaj video morate da otvorite LAMS lekciju.

BLOCKCHAIN - THE REVOLUTION THAT HASN'T QUITE HAPPENED

Taken from BBC News, by Chris Baraniuk, 11 February 2020

Imagine you are out shopping and get to the till but your card doesn't work. It turns out that your bank has had a computer meltdown and none of its customers, including you, can pay for anything.

But what if the till had access to a record, or ledger, of the balance on your credit and debit cards that was updated anytime you bought something?

Even with the bank's systems down your card would still work at the supermarket, because the till itself would know your balance.

That is just one possibility offered by a distributed ledger, also referred to as a blockchain. The technology has been around for more than a decade and has been heavily hyped.

It sounds pretty handy, but in practice, it is hardly used. So what happened?

Blockchain has struggled to find a purpose, beyond powering cryptocurrencies like Bitcoin.

In that scenario, the blockchain acts as a universal record of every Bitcoin transaction ever made. The blockchain is a ledger, or log, of those transactions and users on the network collaborate to verify new transactions when they occur. They're rewarded financially for this effort - an enterprise known as "Bitcoin mining".

But the basic idea, of a ledger of information distributed around lots of different users instead of held centrally, has provoked a lot of interest.

Proponents have long argued it could be a better alternative to traditional databases.

But how transformative would blockchain-style alternatives really be? The shop tills example was suggested by Dave Birch, an author and advisor on digital financial services, who has been critical of some proposed blockchain schemes in the past.

"I'm prepared to buy that," he says, of the tills idea. "I think there's some value to it."

There are other ideas out there. Prof Gilbert Fridgen, a financial services expert at Luxembourg University suggests a distributed ledger system that keeps track of certificates and degrees issued by universities.

No one organisation would be responsible for it. Rather, copies of the ledger would be held by multiple parties and individuals would be able to check that records of their own qualifications were accurate.

It would certainly by useful. In 2018, a BBC investigation showed that there were thousands of fake degrees in circulation, so a decentralised system that tracks qualifications might appeal to employers.

That said, Prof Fridgen notes that nothing about a blockchain itself can stop some corrupt individuals trying to add fraudulent information to it. Additional checks are needed.

If those trust issues can be solved, then blockchains could have real benefits.

News surfaced recently of members of the Windrush generation of migrants from the Commonwealth who have had their legal status questioned because records were not kept of their being granted leave to remain in the 1970s. In the future, such errors might be avoided

by keeping information like this on a distributed ledger instead of relying on the government to look after it.

Some big businesses have been incorporating the technology into their operations.

Take shipping giant Maersk. It uses blockchain technology in TradeLens, a new system for tracking customs documentation on goods that are shipped internationally. The idea is that any stakeholder in the process, from a port to a customs authority, can quickly look up details pertaining to a shipment.

Maersk says that 10 million shipping events are now registered in the system every week.

Unlike Bitcoin, TradeLens uses a permissioned blockchain, this is a non-public ledger to which access is controlled.

But a similar system could be achieved with other technologies such as cloud-based ledger databases that encrypt data and control who can access what information.

Another project of interest is the real estate system trialled by the Swedish land registry, Lantmäteriet. A blockchain was designed to track documents during the sale of a property. The buyer and seller, brokers and banks involved could all take part in and keep track of the sale digitally.

While the trial proved such a scheme was possible, a change in legislation would be needed before the system could be scaled up in the future, explains Mats Snäll, chief innovation officer at the Swedish land registry.

"It was never integrated into the production system of the land registry," he tells the BBC.

In Thailand, cryptocurrency firm Zcoin developed a blockchain-based system so that members of the Thai Democrat Party could cast digital votes for their new leader in late 2018. Instead of having to trust a central authority to count the votes, they were instead collected on the Zcoin blockchain.

Votes were made at polling stations or via a mobile app, where voters needed to submit a photo of themselves when casting their ballot.

These digital votes were also audited by the election committee, a Zcoin spokesman tells the BBC. Zcoin says it is planning to announce a bigger scheme, involving "millions" of voters, in the near future.

These are thought-provoking ventures, though a debate remains as to whether blockchain is absolutely necessary for any of them.

Some say that eventually blockchain-style systems will prove to be the most efficient option for organising data at scale. Entrepreneur Helen Disney is one of them.

"In many cases there is a cost saving to be made once you've got past the initial hurdle - obviously bringing in any new system is expensive," she says.

While blockchain bluster will surely continue, even sceptics like Mr Birch think there are some focused applications that could prove worthwhile. So far, blockchain might not have changed the world - but it has got a lot of people thinking.

WORDS RELATING TO BANKING

Use the words that appeared in the text to complete the sentences.

Choose a word or phrase to complete the sentences.

account
balance
credit card
debit card
financially
fraudulent
record
till
transaction

1. Thank you for opening an account with the Royal Metropolitan Bank. You will receive a _____ and a PIN number within the next three days.

2. QuickCheck is a free eligibility checker that allows you to see whether or not you will be accepted for a Post Office _____ before you apply.

3. Suspicious _____ monitoring should be a core component of any payment fraud detection strategy.

4. A new study reveals that 61 per cent of UK adults say they are not _____ independent.

5. It is preferable to pay for all purchases relating to the business by cheque so that a permanent _____ of each payment will appear in your bank statement.

6. The _____ of $500 must be paid within 90 days.

7. Banking and payment card scams involve the _____ use of a victim's card details to withdraw cash or buy goods.

8. Next time you have the _____ open, could you give me some change?

9. It's the end of the month and I only have 500 dinars in my _____. I'm glad it's payday tomorrow.

Key

1. debit card
2. credit card
3. transaction
4. financially
5. record
6. balance
7. fraudulent
8. till
9. account

WORDS RELATING TO BLOCKCHAIN TECHNOLOGY

These are some of the key concepts and terms to understand when talking about blockchain technologies.

Match the words 1- 5 to their definitions (a-e).

1. Blockchain
2. Cryptocurrencies
3. Distributed ledger
4. Hype
5. Mining

a After the 2008 financial crisis, technologists wanted to create a financial system that existed without banks; a way for people to send a new type of money to one another, without any company or authority getting involved.

b The technique that bitcoin's creators settled on to create decentralised digital money was a huge, public record-keeping system. Rather than being controlled by a single entity, the distributed ledger is spread across thousands of computers that work together to verify transactions.

c A network of connected computers that work together to agree on a transaction history, crunching through cryptographic calculations to verify the transactions.

d One type of distributed ledger, where hundreds of computers create a growing list, or chain, of time-stamped transactions that cannot be altered. Each new transaction is added as a "block" to the chain.

e Promotion or advertisement of a product or idea intensively, often exaggerating its benefits, in order to get a lot of public attention for it.

Key

a. Cryptocurrencies
b. Distributed ledger
c. Mining
d. Blockchain
e. Hype

⌄ Poglavlje 2

Word Formation: Verb, Nouns, Adjectives

WORD FORMATION TABLE

There are some common suffixes which are added to form verbs, nouns and adjectives.

Study the table. Look at the column with verbs. What can you notice about verb forms in English? How do they end?
What suffix is added to form nouns?
What suffixes are added to form adjectives?

verb	noun (-ation)	adjective
circulate	circulation	circulatory
legislate	legislation	legislative
innovate	innovation	innovative
investigate	investigation	investigative
generate	generation	generational
operate	operation	operational
encapsulate	encapsulation	encapsulated, encapsulating
annotate	annotation	annotated
concatenate	concatenation	concatenated; concatenating
ossify	ossification	osseous
verify	verification	verifiable
qualify	qualification	qualified
simplify	simplification	simplistic, simplified
specify	specification	specificative
cloudify	cloudification	cloudified
apply	application	applicable
visualize	visualisation	visual, visualizable
organize/organise (BrE)	organization/organisation (BrE)	organized/organised (BrE), organisational, organisable
configure	configuration	configurative
document	documentation	documentary
inform	information	informative
compile	compilation	compiled
format	formation	formative
alter	alteration	alternative
restore	restoration	restorative

Slika 2.1 Word Formation: Verbs, Nouns, Adjectives [Izvor: Autor]

VERB-FORMING SUFFIXES

The suffixes -ate, -ify, -ize(-ise) are added to nouns and adjectives to form verbs.

-ate

The suffix **-ate** may be pronounced /eit/ or /ət/ depending on whether the resulting word is used as a verb /eit/ as as an adjective/noun /it/. For example, the verb concatenate is pronounced /kən'keneɪt/ because it is a verb. The verb certificate is pronounced /sə'tɪfɪkeɪt/. However, the noun certificate is pronounced /sə'tɪfɪkət/.

Some more examples for different pronunciation:
Verbs /eɪt/
hyphenate /'haɪfəneɪt/
calculate /'kaelkjuleɪt/
disseminate /dɪ'semɪneɪt/
Adjectives /ət/
accurate /'aekjərət/
immediate /ɪ'miːdiət/
corporate /'kɔːpərət/

-ify

The suffix -ify is added to both nouns and adjectives of Latin origin if they have one syllable. Some verbs in English have no basic English noun or adjective. They have been formed directly from Latin.
*He made the system simple. He **simplified** the system.*
*They made the project clear. They **clarified** the project.*
*They made the music loud. They **amplified** the music.*
*They made their demands specific. They **specified** their demands.*
*It is not easy to sort the objects into categories. It is not easy to **classify** them.*

-ize (ise)

The suffix -ize (ise) is added to mainly classical nouns and adjectives if they have two or more syllables.
*She made a summary of the report. She **summarized** the report.*
*They stated the information item by item. They **itemized** the information.*
*Ultrasound is a technique that uses sound waves to make internal structures be seen by the eye. Ultrasound is a technique that uses sound waves to **visualize** internal structures.*

NOUNS ENDING IN -ATION

Noun-forming suffix -ation is added to verbs ending in -ate and small number of other verbs:

ate	>ation
operate	operation
regulate	regulation
demonstrate	demonstration
calculate	calculation
separate	separation
activate	activation
designate	designation
format	formation
alter	alteration
restore*	restoration
observe*	observation

Slika 2.2 Forming nouns from verbs with the suffix -ation [Izvor: Autor]

*When a verb ends in -e, the final -e is lost and just the suffix -ation is added: eliminate + ation = elimination.

Change the form of the words in bold to complete the second sentence in 1-5.

1. We expect that the appendices will **circulate** far more widely than the full report.
We expect that the appendices will have wider _____ than the full report.

2. In this course we will cover the topic "How code is **generated** for method calls and objects".
In this course we will cover the topic "Code _____ for method calls and objects".

3. In 2001, a report from the National Research Council pointed to the Internet **ossifying**, both intellectually and in terms of the infrastructure itself.
In 2001, a report from the National Research Council pointed to the _____ of the Internet, both intellectually and in terms of the infrastructure itself.

4. If you don't **document** adequately, your system is not a quality product.
If the _____ is inadequate, your system is not a quality product.

5. The Computer Misuse Act (CMA), which was **legislated** in 1990, criminalises the act of accessing or modifying data stored on a computer system without appropriate consent or permission.
The Computer Misuse Act (CMA) from 1990 is a key piece of _____ that criminalises the act of accessing or modifying data stored on a computer system without appropriate consent or permission.

Key

1. circulation
2. generation
3. ossification
4. documentation
5. legislation

ADJECTIVE-FORMING SUFFIXES

The suffixes -ative, -al, -y, -able/-ible, -ic, -ous are added to nouns and adjectives to form verbs.

What happens when we want to turn simple nouns into corresponding adjectives? You add a suffix to the stem (the main part of a word that stays the same when endings are added to it). You might have noticed from the table that there are some patterns and some suffixes re-appear. Common adjective-forming suffixes in English are:

-ative
doing or tending to do something
restore + ative = **restorative**
format + ative = **formative**
-(ion)al
Relating to, having the quality of, connected with

operate + ional = **operational**
generate + ional= **generational**
<mark>-(ari)y, -(ori)y</mark>
document + ary = **documentary**
circulate + ary = **circulatory**
<mark>-able/-ible</mark>
having the quality of, that can or must be; capable of, fit for, or worthy of (being so acted upon or toward)
verify + able = **verifiable** *(y changes into "i" before a consonant)*
visualize + able = **visualizable** *(final e is lost)*

There are number of -able adjectives which have been taken directly from Latin. The Latin bases (given in brackets) have the same meaning as their English counterparts.
This smartphone will last (dur-) for a long time. This smartphone is a **durable** *one.*
It is easy to find the information and to sail (navig-) your way around on this site. This site is **navigable***.*
The meeting with my boss last week is the one that I shall remember (memor-) for a long time. This meeting has been a **memorable** *one.*
<mark>-ic</mark>
connected with; that performs the action mentioned
simplify + ic = **simplistic**
<mark>-ous</mark>
full of, relating to
ossify + ous = osseous (network)
spur + ous = spurious (data)
autonomy + ous = autonomous (cars: also <mark>self-</mark> *driving, driver* <mark>less</mark> *cars)*
This suffix is pronounces /əs/. Some more examples with adjectives ending in -ous:
(a)synchronous /eɪˈsɪŋkrənəs/ /ˈsɪŋkrənəs/ (communication)
analogous */əˈneləgəs/ (projects)*
ubiquitous */juːˈbɪkwɪtəs/ (computing)*
contiguous */kənˈtɪgjuəs/ (bits, bitstream)*
instantaneous */ˌɪnstənˈteɪnɪəs/ (rate)*
promiscuous */prəˈmɪskjuəs/ (mode).*

-ED OR -ING?

Adjectives ending in -ed or -ing in technical language are usually reduced relative clauses (that, which)!

<mark>-ed</mark>
having; having the characteristics of
encapsulate* + ed = encapsulated
simplify + ed = simplified

*When a verb ends in -e, the final -e is assimilated with the suffix -ed (we only add -d):
encapsulate + ed = eliminated

-ing

concatenate + ing = concatenating (final e is lost)
encapsulate + ing = encapsulating

What is the difference in the meaning when you add -ed and when you add -ing to form an adjective? The -ing adjective can be used to describe something which is happening at a certain time. The activity is seen as continuous.

*Managing a rapidly **evolving** network is arguably the central challenge in networking today. (Networks are evolving more and more these days).*
The -ing adjective can be used when talking about something which a person or a thing does regularly.

*The machine adds (numbers). It is an **adding** machine.*
Write adjectives ending in -ed or -ing:
1. For example, the string "LANGER" is really equivalent to five iterations of different alphanumeric characters that are connected, or _____ , together.
2. The plus sign (+) has two meanings: one for addition and the other for _____ (combining) strings.
3. _____ requirements reduces software life cycle costs by making requirements and the code that implements them more adaptable to changing technology and business needs.
4. One way to enforce encapsulation of information is to explicitly restrict direct access to the _____ information from software external to the module.

Key

1. concatenated
2. concatenating
3. Encapsulating
4. encapsulated

WORD FORMATION: PRACTICE

Adjective forming suffixes are -ative, -al, -y, -able/-ible, -ic, -ous, but also -ant, -full/less, -ive! (Revise Lesson 2).

Fill in the appropriate form of the word in brackets.
1. CMC can be _____ (synchronize) , which means that messages are sent to a user who receives them and replies at a different time.
2. Cable companies provide broadband services at _____ (afford) rates.
3. Basically, connections can be cable or _____ (wire).
4. A common ISDN interface standard has a digital communications line consisting of three _____ (depend) channels.
5. ADSL services are now getting more available because there is more _____ (compete) at the market.

⌄ Poglavlje 3

Listening: ICT Systems

LISTENING: ICT SYSTEMS, PART 1

The first lecture outlines the differences between embedded and general purpose systems.

Listen to Part 1 of the lecture. What is the lecturer going to talk about today?

- How people use ICT systems
- Communication systems
- what ICT systems are
- what ICT systems do
- different types of computes

What does the lecturer give definitions of?

Ova lekcija sadrži audio materijal. Ukoliko želite da pogledate ovaj audio morate da otvorite LAMS lekciju.

Key

What ICT systems are, what ICT systems do

The lecturer gives the definition of embedded systems and general purpose systems.

LISTENING: ICT SYSTEMS, PART 2

The second lecture looks at systems for data storage and management, systems for control and systems for communication.

Listen to Part 2 of the lecture.

What is the main idea of this section?

What example of an information system does the lecturer give?

What does a control system do?

What three examples of communication channels does the lecturer mention?

Ova lekcija sadrži audio materijal. Ukoliko želite da pogledate ovaj audio morate da otvorite LAMS lekciju.

Key

Main idea: there are three functions that ICT systems can perform: information storage/ management, control, and communications. Some systems may be capable of performing more than one function (e.g. information management and communications).

The patient database that a doctor uses.

It uses data to manage or regulate something (e.g. a device or another system).

Telephone lines, cables, satellite.

LISTENING: ICT SYSTEMS, PART 3

ICT systems are composed of hardware and software.

Listen to Part 3 of the lecture. What two components of ICT systems are discussed and what are their definitions?

Ova lekcija sadrži audio materijal. Ukoliko želite da pogledate ovaj audio morate da otvorite LAMS lekciju.

Key

˅ Poglavlje 4

Vocabulary: Communications Systems

INTRODUCTION: COMMUNICATION SYSTEMS

Communication systems are the various processes, both formal and informal, by which information is passed between the managers and employees within a business.

What is communication?

Communication (from Latin commūnicāre, meaning "to share") is the purposeful activity of information exchange between two or more participants in order to convey or receive the intended meanings through a shared system of signs and semiotic rules.
There are several **types of communication**: direct (face-to-face communication); by phone: mobile (cell), ordinary phone; via SMS or
EMC (electronically mediated communication): email, forum, audio conferencing; regular written communication.

Computer-mediated communication (CMC) can be either synchronous, where the users can communicate with each other at the same time in real-time i.e. immediately, enabling interactive communication; or it can be asynchronous, where messages are sent to a user who receives them and replies at a different time. Some messages are text only, some are audio only and others are multimedia (include text, graphics, audio, animation and video data).

VOCABULARY: COMMUNICATIONS SYSTEMS

Useful vocabulary related to communications systems.

You are probably familiar with most of these terms in English, but pay attention to the collocations and pronunciation:
GPRS [dzi; pi: ar es] = general packet radio service
Wap [waep] = wireless application protocol
WML [dʌbl ju: el] = wireless markup language
SMS [es em es] = short message service
ISDN [ai es di: en] = Integrated Services Digital Network
DSL [di: es el] = Digital Subscribar Line
ADSL [ei di: es el] = Asymmetric Digital Subscriber Line
GPS [dz: pi: es] = Global Positioning System

make (as a noun) = brand, as in "What make is you phone?"

mobile / cellular / cell / smart phone

broadband communications

cable connection

wireless connection

bandwidth = signal capacity

Note: pay attention to measure adjectives and related nouns:

' wide' = širok, 'width' = širina long - length high - height [hajt] heavy - weight [weit]

Words with 'up'

upstream (n.,adv. adj.), opposite 'downstream' (in the bandwidth line)

to upgrade

to upload

General vocabulary

subscribe = pretplatiti se, prijaviti se; opposite: unsubscribe

subscriber = pretplatnik

subscription = pretplata

copper = bakar

affordable = pristupačan, dostupan, koji se moze priuštiti

to afford something/ to do something = priuštiti sebi nešto

to capitalise on something = make use of something

premises = rooms or offices (formal), (poslovne) prostorije

competitive = takmičarski, konkurentan

to compete /kəm'piːt/ = nadmetati se, takmičiti se

competitor = takmičar, konkurent

competition

ABBREVIATIONS IN CMC

There are many abbervations used in CMC communication.

Answer the following questions.

1. Do you have a mobile phone?
2. Is it a cell phone or a smart phone?
3. What do you use it for?
4. What make is it?
5. How often do you use it per day?
6. What additional features does it have
7. Does it have "smart stay"?

Look at these examples used in mobile phone messaging and CMC. Do you know their meaning?

1. ATB All the best
2. BCNU
3. CU
4. CUL8R

5. Luv
6. Msg
7. NE Any
8. NE1
9. NO1
10. PPL
11. RUOK
12. THNQ
13. Wknd
14. 4

Key
2 be seeing you
3 see you
4 See you later.
5 love
6 message
8 anyone
9 no one
10 people
11 Are you OK?
12 thank you
13 weekend
14 for

VOICE OVER INTERNET PROTOCOL (VOIP)

Voice over Internet Protocol (VoIP) is a technology for communicating using "Internet protocol" instead of traditional analog systems.

What do these abbrevations mean?

- ADSL
- ITSP
- MP4
- spit
- VoIP

Voice over Internet Protocol (VoIP) is a technology for communicating using "Internet protocol" instead of traditional analog systems. Some VoIP services need only a regular phone connection, while others allow you to make telephone calls using an Internet connection instead. Some VoIP services may allow you only to call other people using the same service, but others may allow you to call any telephone number - including local, long distance, wireless and international numbers.

VoIP converts the voice signal from your telephone into a digital signal that can travel over the Internet. If you are calling a regular telephone number, the signal is then converted back at the other end. VoIP calls can be made from a computer, a special VoIP phone, a traditional

phone with or without an adapter, or using a wireless phone, depending on the type of VoIP service you subscribe to. Here is one example of how VoIP service works:
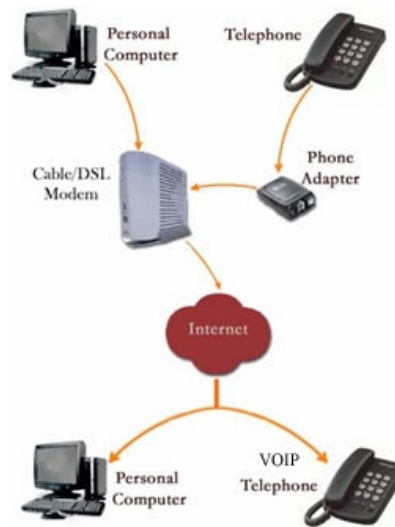
Slika 4.1 VoIP [Izvor: http://www.wikiwand.com/bs/Voice_over_Internet_Protocol]

HOW VOIP WORKS

VoIP can turn a standard Internet connection into a way to place free phone calls. How?

VoIP first digitizes your voice signal. The digital data is then reduced by audio compression using codecs*. These operate in a similar way to MP3, which compresses music files. The compressed data is then broken into packets and sent across the Internet. At the other end, it is reconverted into audio data. Because data rate is high, for good audio quality a broadband connection works best.

Each packet of data is delivered by any route the network can find. Packets can be delayed or lost. VoIP deals with loss by dividing the data into 30-millisecond packets. If such a small packet is lost, you won't notice.
Jitter is the term is the term used for differences in the time packets to arrive. VoIP uses a buffer at the receiving end to store and sequence packets. In this way, the differences are smoothed out but this can cause delays. Latency is the delay between the packets reaching the receiver and you hearing the
sound. If the delay is too long, it makes conversation difficult.

When VoIP was first introduced, the connection had to be made between PCs online at the same time. This is no longer necessary. Gateways provided by ITSPs (Internet Telephony Service Providers) make it possible to link your PC to a standard phone. For better sound quality, you can use a VoIP phone whenever there is a broadband connection.
VoIP spam or SPIT (Spam over Internet Telephony) are bulk unsolicited, automatically dialled, pre-recorded phone calls using the Voice over Internet Protocol (VoIP). Telephone spam is comparable to E-mail spam, but due to its synchronous character, different mitigation methods are needed.
Voice over IP systems, like e-mail and other Internet applications, are susceptible to abuse

by malicious parties who initiate unsolicited and unwanted communications. Telemarketers, prank callers, and other telephone system abusers are likely to target VoIP systems increasingly, particularly if VoIP supplants conventional telephony. The VoIP technology provides convenient tools (e.g. Asterisk and SIPp) and low-priced possibilities to place a large number of Spam calls.

A **codec** is a device or computer program for encoding or decoding a digital data stream or signal. Codec is a **portmanteau word** of coder-decoder or, less commonly, compressor-decompressor. A portmanteau a word that is invented by combining the beginning of one word and the end of another and keeping the meaning of each. For example motel is a portmanteau word that is a combination of motor and hotel.

VIDEO: WHAT IS VOIP

This video explains VoIP technology -- Voice Over Internet Protocol -- and its use and implications for your organization's telecommunications.

Ova lekcija sadrži video materijal. Ukoliko želite da pogledate ovaj video morate da otvorite LAMS lekciju.

TRANSLATION

Here are some words translated into Serbian.

bandwidth - propusni opseg
broadband - širokopojasni
buffer - bufer; mehanička zaštita (spoljni omot)
jitter - džiter
latency - latencija
mitigation - mitigacija, sprečavanje, zaštita, ublažavanje
supplant - zameniti
susceptiveness - susceptibilnost (tendencija kola da hvataju šum i niskofrekventnu indukciju)
unsolicited event - događaj u komutaciji koji se dešava bez kontrole programa koji treba da kontroliše telefon

READING COMPREHENSION QUESTIONS

Find the answers in the text that you have just read to these questions.

1. What is the main benefit of VoIP?
2. What do codecs do?
3. How does the VoIP deal with the problem of packet loss?
4. How does VoIP combat jitter?
5. What is latency?

Key

1. It reduces the cost of long-distance calls.
2. Codecs (Coder/decoder software and hardware) are used to reduce the digital data by audio compression.
3. VoIP deals with loss by dividing the data into 30-milisecond packets. If such a small packet is lost, you won't notice.
4. VoIP uses a buffer at the receiving end to store and sequence packets. In this way, the differences are smoothed out but this can cause delays.
5. Latency is the delay between the packets reaching the receiver and you hearing the sound.

⌄ Poglavlje 5

Grammar: Passive

GRAMMAR REFERENCE

When we mention the agent, we use by.

Present simple passive
Information is transmitted by devices such as the telephone, radio, TV...
The user is charged only for the amount of data transmitted.
The digital data is then reduced by audio compression using codecs.
The compressed data is then broken into packets and sent across the Internet.
Present continuous passive
New technologies are being devised to allow you to watch TV on your mobile.
Past simple passive
The term cyborg was invented by M Clynes and N Kline in 1960.
Past continuous passive
My TV was being repaired, so I couldn't watch the match.
Present perfect passive
It has been predicted that about one third of all work could eventually be performed outside the workplace.
This has been made possible by technological advances in 'bandwidths'.
Past perfect passive
The system had been infected by a virus.
Future simple passive
In the next few years, GPS chips will also be incorporated into most mobile phones.
Wap will quickly be replaced by new technology.
Modal verbs in the passive
It has been predicted that about one-third of all work could eventually be performed outside the workplace.
Email addresses have to be keyed in via the numbers.
Frequent addresses can be stored in the memory and accessed easily.

PRESENT SIMPLE PASSIVE: PRACTICE

Present Simple Passive = Present simple of the verb TO BE (am, are, is) + past participle (verb+ed or III column)

I Convert these instructions for fitting a new motherboard into a description in the Present passive.

Example:

Access the PC's system start-up program and note the hard disk's parameters.

The PC's system start-up program is accessed and the hard disk's parameters are noted.

1 Turn off the computer and open the case.

2 Check the new motherboard to ensure it fits the system case.

3 Disconnect wires and cables and label them with tape.

4 Unplug all external peripherals.

5 Take out the add-in cards.

6 Remove the screws holding the motherboard.

7 Lift the motherboard carefully from the case.

8 Add the CPU and memory to the new motherboard.

9 Insert the new motherboard.

10 Replace the screws.

11 Replace cards and cables.

12 Switch on the computer and monitor.

II Describe the operation of the new speed trap by converting each of these statements to the present passive. Add information on the agent where you think it is necessary.

1 The first unit records the time each vehicle passes.

2 It identifies each vehicle by its number plates using OCR software.

3 It relays the information to the second unit.

4 The second unit also records the time each vehicle passes.

5 The microprocessor calculates the time taken to travel between the units.

6 It relays the registration numbers of speeding vehicles to police headquarters.

7 A computer matches each vehicle with the DVLC database.

8 It prints off a letter to the vehicle owners using mailmerge.

Key

I

1 The computer is turned off and the case (is) opened.

2 The new motherboard is checked to ensure it fits the system case.

3 Wires and cables are disconnected and (are) labelled with tape.

4 All external peripherals are unplugged.

5 The add-in cards are taken out.

6 The screws holding the motherboard are removed.

7 The motherboard is lifted carefully from the case.

8 The CPU and memory are added to the new motherboard.

9 The new motherboard is inserted.

10 The screws are replaced.

11 Cards and cables are replaced.

12 The computer and monitor are switched on.

II

1 The time each vehicle passes is recorded by the first unit.

2 Each vehicle is identified by its number plates using OCR software.

3 The information is relayed to the second unit.

4 The time each vehicle passes is also recorded by the second unit.

5 The time taken to travel between the units is calculated by the microprocessor.

6 The registration numbers of speeding vehicles are relayed to police headquarters.

7 Each vehicle is matched with the DVLC database.

8 A letter is printed off to the vehicle owners using mail merge.

PAST PARTICIPLES

For regular verbs we normally add ED to form its past participle.
Irregular verbs are found in the 3rd column.
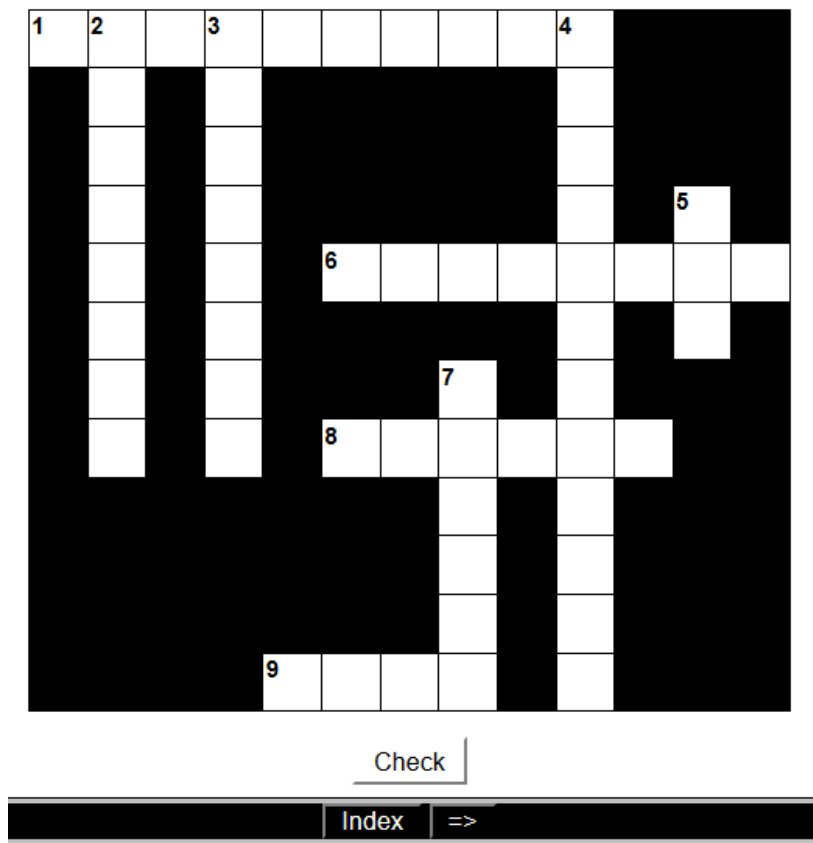
Slika 5.1 Crossword [Izvor: Autor]

Solve the clues and complete the puzzle with verbs from the texts.

Across

1 It has been .... , i.e. laid out according to the user's specifications or needs.

6 The web page will be .... to the server, where it will be published.

8 Different peripherals can be .... up to a PC.

9 More data is .... on a DVD than on a CD.

Down

2 After my computer had been .... by adding more RAM, it had better performance.

3 In an Internet discussion group the messages are .... in reply to an initial post.

4 The disk was .... to optimize the data storage.

5 A video conference was .... up to present the new products to the customers.

7 A lot of responses to that controversial message were .... to the newsgroup.

Key

Across
1 customized
6 uploaded
8 hooked
9 held

Down
2 upgraded
3 threaded
4 defragmented
5 set
7 posted

PASSIVE (PRACTICE)

The appropriate form of the verb 'to be' (am, are, is, was, were, has been, have been, had been, will be / modal + be) + past participle.

Complete the sentences with the following verbs:

convert digitize display feed process

1. In order for your voice to travel over the Net as email does, it .... from an analogue to a digital signal, i.e. it ...., and then .... into small envelopes of data called Internet Protocol packets. Voice communication that .... in this way is what's known as Voice over IP.

2. The Pocket Weather Tracker, which is the size of a mobile phone, measures temperature, humidity and barometric pressure. The results .... on an easy-to–read LCD screen.

3. One NBA basketball coach who uses high-tech training methods says: "We have 11 cameras strategically positioned on the stands and they film an entire match. Then the recording .... into a main computer and 24 hours later we have a CD-ROM disc which presents everything in a tactics board format."

Key

1. must be converted, must be digitized, is processed
2. are displayed
3. is fed

THE USES OF THE PASSIVE

The passive is often used in technical writing, description of processes, and scientific and technical language to give an objective tone. It is also used to describe areas of computing.

Look at these examples:

Input, process, output

The data is fed into the computer system.

Instructions are processed by the CPU. The results are displayed on the monitor.

Computer components and configuration

The icons and taskbar can be customized, configured, to cater for your needs.

Your computer system may need to be upgraded, improved, by adding devices or upgrading software.

Storage

Today a lot of information is held, kept, on optical discs*.

The data in the hard disk should be defragmented, rearranged, so it can be accessed more quickly.

Internet

Messages are posted, sent, to a newsgroup where they are threaded, grouped, by subject.

Files can be uploaded, transmitted, to another computer by using FTP, File Transfer Protocol.

---

*disc or disk?

A disc refers to optical media, such as an audio CD, CD-ROM, DVD-ROM, DVD-RAM, or DVD-Video disc.

A disk refers to magnetic media, such as a floppy disk, the disk in your computer's hard drive, an external hard drive.

DESCRIBING TECHNICAL PROCESSES

Passive is often used when describing technical processes.

A technical process: how VoIP works

With VoIP, Voice over Internet Protocol, your voice **is digitized** and then **broken** into small data packets.

To make a phone call, an analogue telephone **must be hooked up**, linked, to an ATA, an analogue telephone adaptor. When you pick up the receiver and dial a number, the tones **are converted** by the ATA to digital data and temporarily stored. When your friend picks up the phone, a session **is set up**, established, between both computers. During the conversation the systems transmit packets of data that **are sent** back and forth through your VoIP company's call processor. They **are received** by the ATA and **converted** to the analogue audio signal that you hear. When you hang up, a signal **is sent** by the ATA to finish the session.

VoIP calls **can also be delivered** via an IP telephone with an Internet connection.

Compare these sentences:

Active Passive

Someone sets up a session. A session is set up.

The ATA receives packets. Packets are received by the ATA.

When **describing a technical process**, we often use the **present simple passive**, e.g. is digitized / are converted / is set up, to explain how something is made or used. The agent is not as important as the process.

When you have to give a series of instructions to make or produce something, there are some common, useful and simple language features you can use to sound fluent and natural.

Ova lekcija sadrži video materijal. Ukoliko želite da pogledate ovaj video morate da otvorite LAMS lekciju.

SEQUENCING A PROCESS

When we describe a technical proces, it is important to show the process of arranging things into a sequence. To achieve this we must use time connectors.

The use of time and sequence connectors means we can show the different stages of a process. The process is usually a series of events, for example, one event taking place after the other, and in order to connect the stages of a process together you can sequence them by using suitable **time connectors.** By using these connectors your writing becomes logical, cohesive, easy to follow.

Typical connectors Examples

First Then / Next Finally First the computer is switched on. Then the OS is booted. Finally the application is run.
As As the laser printer drum rolls, the toner gets stuck to it and reproduces the original image.
After / Once After you have had a program for a while, it may have to be updated.
Once a CD-R has been written to, you can't alter the data.

Before Before you can recover the files that have been deleted, you must unformat the hard disk.

Slika 5.2 Example essay [Izvor: https://ielts-jonathan.com/time-and-sequencing-in-process-diagrams-task-1/]

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SEQUENCING A PROCESS: PRACTICE

In order to sequence a process logically, pay attention to the time connectors mentioned in the sentences. They have been highlighted for you.

Rearrange the paragraphs in the text below by referring to the connectors in the text Sequencing a process.

a Then a pure silicon crystal is cut into thin wafers, which are covered with two other layers of protective materials.

b First engineers design the construction plans for the chip.

c After the chemical treatment, the chip undergoes a process that alters its electrical properties.

d Chip production today is based on photolithography. Here is a MTI sequential description of the process.

e Finally when all the components are ready, metal is added to connect the components to each other.

f Next UV–light is shone through the mask and onto the wafers. The protective materials break apart on the parts of the chip that are hit by light. Then it has to be treated with chemicals before the protective material can be removed.

Key

1. d
2. b
3. a
4. f
5. c
6. e

OPERATION OF EPOS TILL

There are many ways in which computer systems can be used in supermarkets, esp. for financial calculations and in stock control using EPOS tills (electronic point of sale tills).

With the help of the diagram, sequence these steps in the operation of an EPOS till. Then write a description of its operation in the present passive.

a The scanner converts the barcode into electrical pulses.

b The branch computer sends the price and description of the product to the EPOS till.

c The scanner reads the barcode.

d The branch computer records the sale of the product.

e The till shows the item and price.

f The checkout operator scans the item.

g The scanner sends the pulses to the branch computer.

h The till prints the item and price on the paper receipt.
i The branch computer searches the stock file for a product matching the barcode EAN.
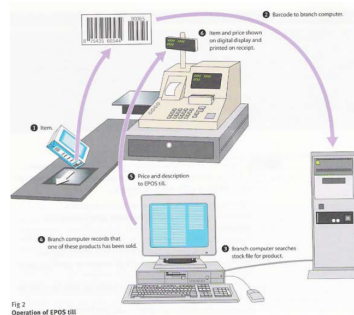
Slika 5.3 EPOS till [Izvor: Oxford English for Information Technology, p. 20]

Key

1 f The checkout operator scans the item.
2 c The scanner reads the barcode.
3 a The scanner converts the barcode into electrical pulses.
4 g The scanner sends the pulses to the branch computer.
5 i The branch computer searches the stock file for a product matching the barcode EAN.
6 d The branch computer records the sale of the product.
7 b The branch computer sends the price and description of the product to the EPOS till.
8 e The till shows the item and price.
9 h The till prints the item and price on the paper receipt.

Model answer for the description

The EPOS (Electronic Point Of Sale) till is linked to a number of peripherals. These include a barcode reader which is used to identify each item sold and match it to the correct price. It also allows it to provide stock control information. There is a swipe card reader used for reading information from cash cards to check the holder has sufficient money in their accounts or credit to pay for the goods. The EPOS till can also read loyalty cards to record information on the kind of goods bought by the customer for marketing information and to provide a small discount for the customer. The LCD screen displays the price and a description of each item .There is a printer which is used to print out a detailed receipt for the customer. The electronic scales are used to weigh purchases such as fruit and vegetables.

PROCESS DIAGRAM

This IELTS Writing Task 1 question asks you to describe a process with the help of some data or a diagram.

If you think about sitting an internationally recognized exam in English, such as IELTS Academic, this is a type of task that you will have to do. **IELTS Writing Task 1: Question** is to describe a process based on the provided diagram.

Look at this process diagram question about the manmade process of hydroelectricity. The diagram shows how electricity is generated by a hydroelectric dam. Write a 150-word report for a university lecturer explaining how the process works.
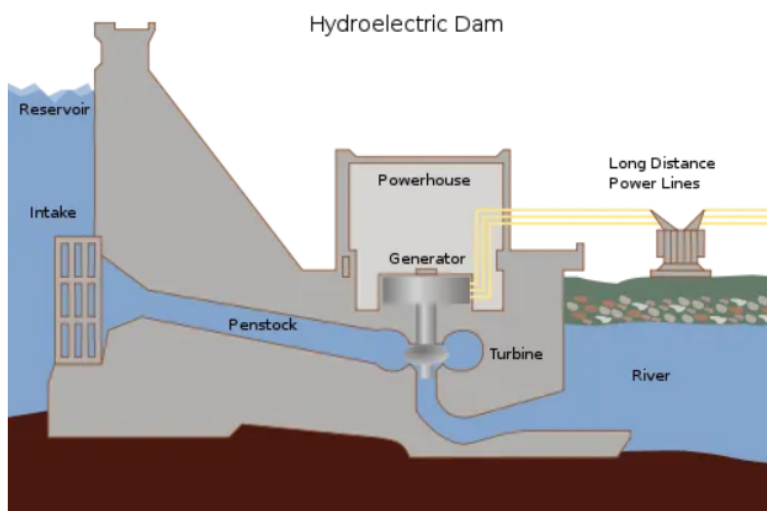
Slika 5.4 The manmade process of hydroelectricity [Izvor: https://ielts-academic.com/2012/03/11/ielts-writing-task-1-process-diagram-with-sample-answer/]

The Academic Writing module of IELTS consists of two writing tasks of 150 and 250 words each. Task 1 requires you to describe some data or a diagram. Task 2 requires you to write a short discursive essay, usually presenting your opinion on a particular issue.

This IELTS Writing Task 1 question asks you to describe a process. Usually the process diagram will include some technical vocabulary. The challenge is how well you can integrate the vocabulary into a coherent report. The examiner is also looking at how you use sequencing expressions to show the order of events. Finally, remember that most processes happen at any time, so use only the present simple tense.

IELTS WRITING TASK 1: MODEL ANSWER

Read the model answer and the explanation of the mark it got.

The diagram illustrates the basic principles of hydroelectric power. The process requires the construction of a large dam connected to a powerhouse. The dam creates a large reservoir and the powerhouse is where the electricity is generated.

First of all, water trapped in the reservoir behind the dam is forced through an intake. It then flows into a narrow chamber called a penstock, where the resulting high pressure turns a turbine. The turbine is connected to a generator in the powerhouse above, and this is where the movement of the turbine is converted into electricity. The resulting electricity leaves the powerhouse via cables that carry it over long distances to where it can be used.

It is interesting to note that a hydroelectric dam creates no harmful byproducts and relies entirely on natural forces to produce electricity. After the turbine stage, water flows out through a second channel and into a river. The process is renewable, thanks to the water cycle in nature.

(163 words, IELTS 8.0)

This model answer got the highest mark in the exam. Here is the explanation why it got an IELTS Band 8 score.

Task achievement: The introduction paraphrases the question and describes the constituent parts of the process. The body describes each stage of the process in sequence.

Coherence and cohesion: The model answer has an introduction, body and conclusion. Sequencing expressions such as first of all, then and after are used appropriately. The articles a and the are used effectively to introduce and refer back to different elements of the process.

Lexical resource: The labels in the diagram are well integrated into the model answer and appropriate verbs such as converted, flows and leaves are used throughout. Less-common words such as byproducts and renewable are introduced by the writer. Spelling is always accurate.

Grammatical range and accuracy: The writer uses the present simple tense and has good control of subject-verb agreement and active/passive forms. A good balance of simple and complex sentences is used throughout.

⌄ Conclusion

CONCLUSION: ICT SYSTEMS

The aim of this section is to revise what we talked about in this lesson.

In this lesson we

- used specialist vocabulary, listen to and talk about blockchain, ICT systems and communications systems
- learnt more about word formation: how to form verbs, nouns and adjectives in English
- learnt and practiced common collocations related to communication systems
- learnt some informal written language used in CMC and SMS
- revised passive forms and deepened your understanding of how to use it.

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