Секция «Английский язык в сфере профессиональной коммуникации»

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Computer Viruses: Be Careful

Nowadays, with the development of computer technologies, when different personal electronic devices are widely spread, a lot of people and organizations prefer to keep personal and confidential information and documents in a computer. There is a saying "Who owns the information, owns the world". It is not a surprise that a fight for such a valuable resource is carried out by all available means including malware (malicious software).

Malware is software created to get unauthorised access to resources or information stored in the computer to harm the owner of the information, damage, delete or substitute information resources.

It is difficult to find a person who has never faced with negative impact of malicious programs while using the Internet or e-mail. Let's look on the most common types of threats.

Blockers (of) Windows (also called Trojan.Winlock or Trojan-Ransom). This kind of malicious software hampers the work of the operating system and the user has to pay money to attackers to restore the normal work of the computer. Typically, when the system starts up, a blocking program displays a message with a demand to transfer money to an e-wallet or send a paid SMS. The frequent cause of such "blockings" is allegedly unlicensed software found on your computer. In this case the best way is to ignore the message and immediately contact Support Service of your antivirus program. If there is a complete blockage of the system, you can use a boot disk (like LiveCD) and try to find and destroy the blocker with the available Antivirus.

Network worms are malicious programs distributed via global and local computer networks. Worms usually work independently, finding addresses of other computers in the network (or turning to the user's address book), and sending their copies there. To penetrate a computer this type of malware uses vulnerability of the system or induces the user to self-start.

Trojans are malicious software that performs distortion, complete removal or theft of confidential data. Trojans, unlike viruses and worms, cannot automatically distribute copies of themselves, but the damage caused by them can also be very significant. Most often, Trojans penetrate a computer due to error or negligence of the user and look like other software. Trojans can have an icon or name of any useful program and even partially or fully fulfill its task.

Computer virus is a kind of malicious programs which, like worms, has the ability to reproduce and spread automatically, but, unlike worms, infect objects in the affected computer. In other words, the principle of infection by a computer virus is similar to the biological virus infection process of a living organism. The computer virus infection process begins when a user launches "infected" file. Then, the virus integrates its code to other files in the system. As a rule, these are files with the extension. exe, but sometimes viruses are embedded in files with different extensions (for example, in macro programs of Word and Excel). So, the danger of the virus is that it gets to your computer with necessary files.

To make sure there is no malicious software in your computer, it is necessary to follow a few simple rules. First of all, it is highly desirable to verify the correctness of your firewall or third-party anti-virus software and update anti-virus databases regularly. Many viruses are contained in attachments to e-mail and spread immediately after their opening. It is strongly recommended not to open attachments to e-mail without prior agreement of its receipt. While using the Internet, the risk of getting computer malware is particularly high, that's why you should ignore the pop-up messages about blocking of operating systems or accounts in social networks and not to click on links received from unknown sources. Following these rules, you increase the security of work in the Internet and that of your personal data.

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Sound processing programs

Programs to work with audio information can record live audio and convert it by changing the tone, improving sound quality, adding effects. For serious work with sound information, you usually need to call an external audio editor that is just a program to work with sound. Unlike MIDI-sequencer the quality of the program is determined by not only the convenience and functionality of the interface, not only by the presence of additional utilities but the actual processing algorithms. At the same conditions and parameters, in one and the same audio material different programs can give entirely different results. Prospects for the development and use of digital audio are seen very broad. Still quite untouched problems are remained.

Like the graphics, the sound of a computer is of two basic types:

Digital audio. It is analog of photos exact digital copy imposed from outside sounds. This can be done with a microphone voice recording, a copy of the audio tracks from a CD-ROM. As the picture, the sound takes a lot of space.

Synthesized sound or rather, the music format MIDI. The essence of MIDI-technology is that the computer is not just losing a desired tone, and synthesizes it with the sound card. MIDI-tune is a system of commands that controls the sound card, code notes that it should play. This technology is ideal for computer composers, because you can easily change any of the parameters created on a computer tune: replace the tools, add or remove them, change tempo and even the style of the composition. Files with MIDI-music is small, only a few kilobytes. But there are disadvantages to MIDI - MIDI-voice in the file can not be written, and the music sounds are good only on very high-quality sound card.

There are two basic types of music: Software for recording and editing digital music (Sound Forge, WaveLab, CoolEdit, SAW Plus); Sequencers - editors synthesized (MIDI) music (MidiStudio, MIDI Orchestrator Plus, Cakewaik Pro, Cubase).

Audio processing is varied and depends on the goals you are pursuing. This may be noise suppression, imposing sound filters, add effects, removing the fore certain frequencies. Selecting a program of sound processing depends on the tastes of the user. However, all of this in recent times are very similar to the user interface, so learn to work with one program, you can easily work with any other programs.

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Information technologies as tool of control of enterprise economics

Tendencies of progress of the modern economics dictate need of implementation of information technologies in the process of functioning of the enterprises.

It is not a secret that the organization which applies achievements in the field of information technologies is the leader in the market relations. It allows to strengthen the place in the market and to outstrip competitors who not so successfully finance this area.

Management of the companies gradually realizes that the subsequent development is impossible without implementation of enterprise information systems and software products. Information technologies are considered as a cure of problems: lowering of costs of production and labor productivity increase.

Effective management is the highest value for the companies which management wishes to see itself at peak.

Information technologies are a basis of administrative activities of firm. They expand possibilities of effective management as the newest methods of processing and the analysis of the economic information necessary for decision-making make available to employees.

Reliable functioning of information and technological infrastructure of the enterprise is one of the factors of business development. The infrastructure ensures smooth functioning of all departments and allows to create new services for clients.

To successfully compete with competitors, it is necessary to increase production efficiency, reducing expenses. For example, it is possible when using information technologies in control.

The question of industrial automation of the enterprises and implementation of management systems is very important, because automation is necessary when the company gets to the strong competitive environment. Otherwise, monitoring of execution of decisions is practically absent.

Today there is very bright need for uniform strategy of informatization, uniform strategy of an enterprise management system.

The size of the market of such decisions big rates increases. The growth of development of this market gives confidence that the market of information technologies in the field of business process management will roughly develop in the near future.

The modern market in the field of systems for managing all business processes of the enterprise can be segmented conditionally. Segments can be selected according to the tasks which are to be executed by these systems. There are tasks of the bottom level – sensors, controllers of the equipment and the software which goes together with them, a traditional enterprise management system and reporting and analytical systems.

One of the conditions for stable business development is creation and reliable functioning of information and technological infrastructure of the enterprise. It ensures smooth functioning of all its departments and allows to develop new services for clients.

Implementation of information technologies to the sphere of business allows to make optimum a choice of global and local strategy of increase of efficiency of business and return from operation of internal departments, to implement innovative methods of corporate governance. The basic technology is enhanced permanently for the last decade. And also such technologies as a multimedia, Internet technologies, the IP telephony, the business process management software etc. were upgraded though the computer equipment became cheaper and more powerful.

It is possible to refer interest of the companies to system integrators business to other examples of the specified tendencies. The examples of the perspective directions of these activities are outsourcing services, consulting, engineering researches reckon with the subsequent engineering of business processes and rendering services in the sphere of information technologies. Services in the field of information security support technologies are also effective. This sphere is considered as

separate area of the information technologies market. Technologies do real the concept of uniform global economics. It means that progress of network technologies allows people and machines to work anywhere and when necessary. And rapid growth of computer capacities made possible acceptance of technologies which seemed unreal earlier. The idea of release of the companies from non-core types of activity and receiving thanks to it solid profit permanently soars in air. And it is embodied in one, or another segment of the information technologies market. Strictly speaking, the third party can delegate any business process which is connected to acquisition of expensive infrastructure, its maintenance and the maintenance of qualified personnel.

Noise round new technologies and great deal of the suppliers, aiming to position itself in this market, can throw the principal into full confusion. Many managers prefer to ignore new technologies. The solution of this question remains to the discretion of the information technologies department or telecommunication department. But they do not always understand what is the most important. Even if large changes in the infrastructure of information technologies are not planned in the near future, they fall out of a field of vision.

Any new technology has shortcomings. Problem, to which it is necessary to pay attention when planning implementation, always exists. Using "pilot" technology already existing in business process, can lead to serious consequences for the company. It is difficult to evaluate all new technologies at once. Therefore, it is necessary to include in the developed plan those technologies which, most likely, will provide the organizations the greatest return in the given period. Each new technology should be studied by the principal. Before implementation it is necessary to hold testing of each sentence in actual practice and to give its assessment. Technologies become complicated and therefore control requires special attention.

Control of the modern industrial enterprises needs to be carried out on the basis of an integrated approach. The use of the integrated management information systems is possible. Decision making support systems which are based on the computer simulation methods and the modern technologies of intellectual data analysis are built in their circuit.

In the conditions of cutthroat competition administrative activities face the whole range of risks. In this regard it is necessary to focus special attention on administrative prediction in a context of neutralization or minimization of possible risks.

Experience and intuition of principals can't provide acceptance of the correct decisions in case of continuous change of the enterprises operating conditions. Computer information systems of support of acceptance of administrative decisions become the important assistant administrator. They allow to simulate a situation, and also to select the best plan of action. Using mathematical simulation methods and making on their basis reasonable decisions on the enterprise activities control is advantage in relation to the enterprises operating in the same segments of the market and not using the modern economic-mathematical methods in control.

The current trends of increasing interest in the information technologies, new projects in this sphere advance on the first line items in a company pattern which actively use them. To remain at peak it is necessary to track everything that is new.

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The Evolution of Internet Browsers

A web browser or a browser is software for viewing web sites, that is, to request Web pages from the network, processing, output, and the transition from one page to another.

Browsers have been constantly upgraded since the creation of the World Wide Web and browsers becomes more and more popular software applications with every passing yeat. Nowadays a browser integrated application for processing and display of various components of a web page and for providing an interface between the website and its visitors. Almost all the popular browsers are free of charge or "bundled" with other applications: Internet Explorer (with Microsoft Windows), Mozilla Firefox (free, free software, with some distributions Linux, for example, Ubuntu), Safari (with Mac OS X and free for Microsoft Windows), Google Chrome (free), Opera (for free, starting with version 8.5).

The first common browser GUI was NCSA Mosaic. Its source code was open, and some other browsers (Netscape Navigator and Internet Explorer) used it as a basis. The NCSA Mosaic had its drawbacks, but almost all of them have been eliminated in the browser Netscape Navigator (some Netscape employees were from the NCSA, and they participated in the development of Mosaic). Netscape produced Netscape Navigator for different operating systems (UNIX, Windows, Mac OS) and was success, including the commercial sphere. That prompted Microsoft to produce its browser Internet Explorer.

In 1995, Microsoft produced the Windows 95 operating system, it did not have a built-in browser, but after some time the upgraded Internet Explorer 3.0 browser was built into the system. In addition, Microsoft added to its browser the extension that was incompatible with the standards of HTML, and it was the beginning of the browser wars. The result of the wars was the monopolization (95%) of the browser market by Microsoft.

The browser war would have been entirely a matter of commercial corporations, if the main point in the struggle had not been the addition of specific, non-standard features to the browser. As a result, many sites were "optimized" for some browsers and did not work in other browsers.

Due to the loss of market the revenues of Netscape fell and the company was bought by AOL. Netscape browser source code was produced under a free license MPL (Mozilla Public License). The name «Mozilla» was present in the browser from Netscape at first and the contraction of the words meant «Mosaic + killer». However, this code was not to be used. Instead of the code a new engine Gecko was written for Netscape 6.

Later the management of the Mozilla Foundation decided to provide and develop the browser separately from the package. Thus, the project «Mozilla Firefox» was born. Firefox includes many features that are not available in IE or other browsers. Firefox is slowly gaining popularity. [1]

The IE browser market monopolization had the following consequences: Microsoft almost stopped developing browser, it hardly changed: the Microsoft browser supported standards worse than the other browsers, lagged behind in terms of the convenience of use and the speed of page display. The situation Microsoft improve the browser and the 7th version was produced with some changes (tabs were added, standards support was improved, the speed was increased, the interface was improved). On March 19, 2009 Microsoft produced the 8th version of Internet Explorer, and on March 14, 2011 9th version of Internet Explorer was produced by Microsoft on the Russian market, with such companies: Yandex, Mail.ru and Rambler. [3]

In 1995 the browser Opera appeared. Opera was originally distributed as free software. However, since 2005 Opera has also been distributed free of charge.

In 2008 Google decided to participate in the competition in the browser market and produced its browser - Chrome based on the open source project Chromium. The Chrome browser contains some

innovations. The versions for Windows XP, Windows Vista, Windows 7, Linux, BSD and Mac OS X were produced. [2]

To date, Opera has the highest frequency of use in the Ukraine, Azerbaijan, Georgia, Kazakhstan and Uzbekistan, is very popular in the rest of the CIS.

Mozilla Firefox leads in Indonesia, Germany (more than half), Eastern Europe, parts of Africa and Southeast Asia.

In the United States, Canada, South Korea and China have increasingly used Internet Explorer.

A Chrome 20 May 2012 was the most popular browser in the world.

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"Calculator of matrixes" application

The level of development of the modern coding environment in high level language allows to create highly technological and efficient applications in short time by means of RAD – technologies, as well as built in units implement fixed functions that allows to avoid the description of many subroutines.

Thus, visual development becomes considerably simpler at the expense of existing coding environments of ready-made decisions only in certain place and produce adjustment of necessary parameters for implementation of necessary conditions. While creating software in such development environments high level - the Object Pascal for instance are used.

The Object Pascal is one of the most widespread programming languages applied not only for small programs, but also for creation of high – efficiently network database management system and other network application, and also ordinary applications and applications with HD or 3D to graphics.

I have used of such coding environments for creation of "The calculator of matrixes" application. This software will be useful for both students and schoolchildren, and engineers dealing with matrixes of big dimensionality. The necessary of such application such is connected with the difficulty of calculation carrying which include matrixes of numbers. The modern complex products for the decision of engineering tasks possess the means for operation with matrixes, but they are huge applications with extensive functional features which are unnecessary for users.

The program "Calculator of matrixes" is a small efficient program, which allows producing the elementary mathematical actions over matrixes of any dimensionality, namely, addition/subtraction of matrixes, multiplication of matrixes, multiplying/division of matrixes into number, calculations of determinant of a matrix. The application works both with integral and real type of numbers in matrixes; also there is a function of automatic oscillation (filling) of matrixes, with the parameters set by the user. The program supports the operation with both the original files, and with text files which represent matrixes of numbers. The developed program has intuitively – clear user interface. Thus if the user makes an error in setting any parameters of calculations the program will notify him about it by showing the information message with prospective variants of error correction (irregular parameters). For increasing the performance the application allows to create and work with specialized files of matrixes which can be created and moves by any accessible method. Besides "The Calculator of matrixes" allows to save the result of calculation or the initial matrixes in the text format (*.txt), that can be printed or opened for the review by any text editor which is a part of an operating system. Thanks to the built-in local reference system the user can receive at any moment the necessary information of corrected operating with the program, as well as he can see a short explanation of the functions implement by the application.

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Electronic Money

New technologies make our life easier. Modern people no longer think about washing, cleaning, cooking – there are various machines that do it. But as it is known, everything should be paid. And even operation of payment have become much easier with the invention of electronic money.

Modern service remittance goes back to 1918 when the Federal Reserve Bank of the United States transferred money via telegraph. However, the wide spread of electronic money became widely spread only when in 1972 the U.S. Federal Reserve was established automated clearing house to provide the National Bank and commercial banks to the U.S. with electronic alternative operations with checks. At the same time, the similar systems appeared in Europe. Electronic money have been used all over the world for more than 20 years.

Depending on the storage of the monetary value electronic money can be divided on the basis of multi-purpose prepaid cards and prepaid software based networking products. The first type is based on the multi-purpose prepaid cards, also called "electronic wallet". Such cards are multi-purpose prepaid cards, microprocessor that stores information about the monetary value, the amount of which may decrease or increase depending on the type of operations conducted with the card. The information contained on these cards is a prepaid number of consumption units of a single service. These cards are used in telephoning and transport services. The second type of electronic money – based on a pre-paid software networking products – is also known as digital cash. In this case, the monetary value is stored in the computer memory on hard drives or other storage devices and its transferring is made by means of special software through electronic communication networks, including the Internet.

Why is e-money, more and more often used, gradually replacing paper notes and coins usual for us? The peculiarity of this money is that you cannot touch it, put it in your pocket, and they are not materially exist. However, electronic money payment process is quick, there is no queue, no necessity in change, money is transferred from the payer to the recipient quickly. It has low cost issue and it is not necessary to mint coins and print notes. Electronic money do not lose their quality with the time, and such money cannot be faked. In addition to the acquired advantages, electronic money has properties of familiar to us banknotes and coins –liquidity, denominality and durability.

But electronic money has some drawbacks. Despite the ease of use, many people still prefer cash, and plastic cards are accepted not everywhere. There is also a risk of hackers stealing money. But not only ordinary people cannot confidently apply to electronic money, the central banks of most countries are also wary of electronic money, fearing of uncontrolled emissions and other possible abuses.

To sum it up, electronic money has its advantages and disadvantages. There are many problems connected with implementing electronic money in the circulation. One of them is the lack of laws controlling functioning of electronic money. A lot of countries are not going to form a new legal base for electronic money. There is no term *electronic money* in Russian official documents. Anyway electronic money in Russia occupy a small portion of payment transactions for small amounts. But at the same time the number of users of such paying system increases. There is a reason to believe that in the future electronic money will occupy a dominant position. So, we have to raise the question of creating single global currency. The essence of money won't change – only its form will become more convenient to use.

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Mathematics in Programming

Decision-making processes characterize any purposeful activity. In economy they precede the creation of the production and economic organizations, provide their optimum performance and interaction. In scientific research they help to allocate the major scientific problems, to find ways of their studying, predetermine the development of the experimental base and the theoretical apparatus. In the process of creating new equipment they make an important stage in designing cars, devices, complexes, buildings, in the development of the technology of their construction and operation; in the social sphere they are used for the organization of functioning and developing social processes, their coordination with economic processes. Optimal (effective) decisions help to achieve the objective at the minimal expenses of labour, material and raw material resources.

The scientific fundamentals of mathematical programming were developed by such scientists as B.Egervary, L.V.Kantorovich, V.S.Nemchinov,V.V.Novozhilov, A.L.Lurye, A.Brudno, A.G.Aganbegyan, D.B.Yudin, E.G.Golshtein, G.Kun, A.Tucker, Gass, Charnes, Beale, E.Barankin, Dorfman, Frank, Wolfe, G.Markovits, Dennis, Rosen, Zontendijk and others.

In classical mathematics methods of the search of optimal decisions are included in the sections of classical mathematics connected with studying extrema of functions in mathematical programming.

Mathematical programming is mathematical discipline studying the theories and methods of the solution of tasks of finding extrema of functions on sets of vector space, defined by linear and nonlinear restrictions (equalities and inequalities).

Mathematics in programming is necessary at the modern stage of the development of society. It is used at different types of business where computer systems are applied. The forming of programming in mathematics led to the process of optimizing decisions connected with the production activities of people. Now algebraic languages of modeling (such as AMPL and LINGO) are developed for the effective application of methods of mathematical programming and the solution of tasks on computers.

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Cloud computing: Windows Azure

Cloud technologies began to develop some years ago but they have got a widespread distribution recently. The development of new conceptions of planning of network infrastructures was started because of the increase power of PC with the decrease of their cost at the same time. Cloud resources are one of such conception.

Windows Azure is a technology of cloud resources which is being developed by Microsoft Corporation since the beginning of 2012. The idea of this technology is to provide computing power as a service. The company which provides such service is responsible for planning of infrastructures and engaging infrastructures of computing centers, providing the redundancy, routing of traffic with backup. It allows decreasing initial cost for the administrating servers of the company, decreasing time from the beginning of development of applications till providing it to the user thanks to simplification of the process of expansion of applications. Using this model the application is unpacked once on server and then the user can use it with web-interface.

There are several types of Windows Azure. It is necessary to present some of them in order to understand how it works.

The first type of Windows Azure is IaaS (Infrastructure as a Service). Using such model of resources renting, the user gets a virtual machine with operating system and the further duties of preparing and unpacking programs are duties of the user. The company which presents this service provides the redundancy of virtual machine and backup.

The second type of Windows Azure is PaaS (Platform as a service). It means that this model rents the execution of development environment for which the user writes a program. In this case the company provides non-stop working of equipment, backup and the performance of the environment of the execution.

The third type of Windows Azure is SaaS (Software as a Service). This is the most convenient model in which the user rents a program. In this case the company is responsible for the hardware, modifying the programs and providing the access to the application anytime. The access to the program as a rule is implemented through web-interface.

The comparison of these platforms is presented below:

	Local	IaaS	PaaS	SaaS
Applications	-	-	-	+
Data	-	-	-	+
User Passports	-	-	-	+/-
OS + Runtime Environment	-	-	+	+
Hardware	-	+	+	+
Hosting	-	+	+	+

(+) – provider managing

(-) – user managing

It has already been said that IaaS is the most convenient model of Windows Azure but in spite of this fact this model has some disadvantages:

1) Limit of programs available on platform;

2) Functionless for the desktop;

3) Troubles with speed of work because of Web.

In conclusion it is very important to underline that cloud technologies are developing at the moment. For the small businesses they are the best decision for providing infrastructures of the company. Everyone can choose any model depending on the user's choice. Cloud technologies are varied and flexible. Using these technologies you can get more redundancy and scalability.