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# Необходимость знания английского языка для работы в сфере информационно-коммуникационных технологий

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**Аннотация.** В связи со стремительным развитием информационных технологий и широким разнообразием цифровых благ, начиная от стриминговых площадок и заканчивая приложениями для знакомств, спрос на грамотных специалистов в IT сфере значительно повысился. Многие выпускники стремятся стать программистами в том числе из-за высокой заработной платы. Вместе с тем, по данным исследования сервиса “Head Hunter” – одного из главных онлайн – рекрутеров России, сложнее всего новым участникам рынка труда найти работу в сферах «Безопасность» (0,2%), «Медицина, фармацевтика» (0,2%), а также «Информационные технологии» (0,3%). Показатели сферы IT обусловлены высоким уровнем конкуренции и быстрыми темпами развития технологий, в связи с которыми знания, усвоенные в университете, могут быстро терять свою релевантность.

Актуальность нашего исследования состоит во взаимосвязи высокого спроса на специалистов, которые не ограничены лишь теоретическими знаниями в программировании, но также нацелены на саморазвитие для того, чтобы идти

в ногу с развитием цифрового мира, и знаниями английского языка как основного конкурентного преимущества выпускников сегодня.

Наша цель заключается в повышении заинтересованности учеников старшей школы в изучении иностранного языка для успешного функционирования в профессиональной деятельности и расширении своего кругозора.

Для достижения поставленной цели, нами были рассмотрены различная обучающая литература и интернет сервисы для программистов, исследованы виды профессии и средняя заработная плата каждого из них, а также выявлены аспекты, иллюстрирующие необходимость знания языка в рамках профессионального сленга и компьютерных операциях, строящихся преимущественно на английской лексике.

**Ключевые слова:** программирование, английский язык, информационные технологии, выпускники школ

## The necessity of knowing the English language to succeed in IT-sphere

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**Abstract.** Due to the rapid development of information technologies and a wide variety of digital goods, ranging from streaming platforms to dating applications, the demand for competent IT specialists has increased significantly. Many graduates strive to become programmers because of the high salary paid in such occupation. At the

same time, according to the research of the Head Hunter service, one of the main online recruiters in Russia, it is most difficult for new labor market participants to find a job in the fields of "Security" (0.2%), "Medicine, Pharmaceuticals" (0.2%), as well as "Information Technology" (0.3%). The indicators of the IT sphere are caused by the high level of competition and the rapid pace of technology development, in connection with which the knowledge acquired at the university can quickly lose its validity.

The relevance of our research lies in the connection between the high demand for specialists who are not limited only to theoretical knowledge in programming, but also aimed at self-cultivation in order to keep up with the development of the digital world, and knowledge of English as the main competitive advantage of graduates today.

Our objective is to increase the interest of senior students in learning a foreign language for successful functioning in professional activities and expanding their horizons.

To achieve the objective, we have examined various educational literature and Internet services for programmers, investigated the types of profession and the average salary of each of them, and also identified aspects illustrating the need for language knowledge within the framework of professional slang and computer operations based mainly on English vocabulary.

**Keywords:** programming, the English language, information technologies, senior school students

Nowadays Information Technologies grow rapidly and interfere every part of our life: we buy things, look for information, communicate and work using the Internet and various applications on our computers and phones. All these benefits are brought to us by programmers. This profession is surrounded with many misbeliefs and delusions, as many people are convinced that it is very easy to be a programmer, as they do nothing and get an enormous amount of money. However, any profession in IT-sphere requires tremendous moral and physical investments. Since an increasing number of graduates find themselves in this profession, and we study English, we decided to combine a foreign language and programming in order to identify how important it is

to know English in this field and whether it will help in the career. Today we will analyze some of the professions in IT-sphere and average salary in the sphere, useful and important materials for studying the theoretical base, and take a look at some programming languages. Our purpose is to show how crucial it is to study English language if one wants to be a programmer.

It is not a secret that in modern realities, professions in the field of Information Technology are in great demand in the labour market, and an increasing amount of people is aiming to "enter IT". Fortunately, this field of activity is very extensive and offers a large number of very diverse professions. The only problem is that the IT industry is developing rapidly, which makes some specialties more in demand and relevant than others. For 2022, the list of the most popular IT professions has been compiled as follows.

**A tester** checks how programmes and applications work: tests different usage scenarios, finds errors and bugs. For example, he makes sure that the mobile version opens correctly on smartphones with various operating systems. The tester does not just click on buttons and fill out forms on websites. To find errors in the program, testers need to think through all the options of user behavior and make a systematic instruction for checking — a test case. Then the specialist checks how convenient it is to work with the program, how it copes with a heavy load and whether it is easy to hack it. The average salary is about 109 000 ₽.

A **frontend developer** creates the "external" side of the site and applications: what the user sees on the screen. The specialist translates the design layout into code and sets up interactive components: buttons, links, videos and animations. The frontend developer works together with backend developers and designers, overview of these two professions is given further. The area of responsibility of this specialist is the following: layout of websites and applications, creating a user interface, development of the application architecture — the relationship between the server and the user. The standard salary is 150 000 ₽.

A **backend developer** is a programmer who arranges the "internal" work of the site: uploading content, storing user data, linking the payment system with the site.

When a user fills out the registration form on the site, he sees only the frontend: interface, design, fonts. The entered information gets into the database and is stored in the other end — in the backend of the site. Backend developer is responsible for development of internal and computational logic of the site and applications, working with database systems, the connection of the site with external services — with payment systems, delivery services, marketplaces, personal accounts, testing and optimization of the application. The average salary is 165 000 ₽.

A **fullstack developer** is a specialist who deals with frontend and backend, in other words, develops both the external side of the site and the server side. Backend or frontend developers who have mastered the second direction often switch to fullstack. Fullstack developer can lead the launch of a web application and fully complete it. He develops the internal logic and interface meticulously, makes up the site, adjusts the internal work. An average salary is about 150 000 ₽.

A **data scientist** works with data. Unlike data analyst, data science specialist uses mathematical models and makes predictions with their help. For example, an analyst can explain the reasons why employees are quitting, and a data scientist based on this data will predict who will quit in the nearest future. Depending on the skills and work sphere, a data scientist has different responsibilities: predicting the supply and demand of goods, creating technologies for speech and written speech recognition, developing recommendation systems and artificial intelligence. A standard salary is about 150 000 ₽.

A **UX/UI designer** creates the visual design, develops interfaces for websites and applications. His task is to realize the user's path from beginning to end and make the interface easier for understanding. For example, on the restaurant page, it should be obvious how to open the menu and order home delivery immediately. On the university's page — how to review education programs and passing scores. This work combines two directions:

• UX (user experience) — creation of convenient navigation on the site so that information is provided accessible and understandable to the user. One browses the site — and immediately realizes how to select the necessary filters and make an order.

• UI (user interface) — creating a prototype of a website or application: the choice of colors and fonts, the location of pictures and inscriptions, the design of buttons and other graphic elements. The average salary is 100 000 ₽.

The IT field is very promising and provides such benefits as the convenience of remote work, the level of salary and rapid career growth, but the second important component that is necessary for successful development in this area, after knowledge in the field of information technology, is English language proficiency. English is the main language of development IT products. The most popular programming languages and technical documentation are written in English, English is spoken in international companies, they communicate on forums and job sites. It is better to search the most relevant information on development on foreign sites, since new products take longer to reach Russian resources. In addition, leading companies conduct many lectures and webinars in English.

Joint research of the job search portal hh.ru and English language learning school SkyEng showed that proficiency in English in general increases the salary offer by 15%. If we talk about the IT market, employers offer on average 35% more to those specialists who understand English fluently than to other programmers, average salaries are 89 and 57 thousand rubles, accordingly.

Top managers, business analysts and project managers have the highest level of English proficiency – most of them have upper-intermediate level of language command. Developers, testers and system administrators have intermediate level, and most designers have pre-intermediate. A great number of vacancies require programmers to speak the language at the Intermediate level (B1-B2). From novice developers, employers expect the ability to "confidently read technical documentation". This means that you need to know special vocabulary, the context of the use of technical terms, be able to read complex professional literature, instructions and technical tasks. That means that spoken English is not enough, you need to master technical English.

There are many programming languages, but one of the most used is JavaScript, a high-level dynamic scripting programming language. Special international ratings

annually confirm its relevance and wide areas of application. Now we give you an overview of some books for JS.

“The Clean Coder: A Code of Conduct for Professional Programmers” by Robert C. Martin. All programmers who succeed in the world of software development are distinguished by one common feature: they care about the quality of the product. This is the basis for them. In this book, an expert in the field of software development Robert Martin talks about what it means to "be a professional programmer", describing methods, tools and practices for developing "ideal software". The book is full of practical advice on all aspects of programming.

“Code complete” by Steve McConnell. Considered to be the best programming book for more than 10 years, it has now been updated to reflect current trends and technologies and updated with hundreds of new examples illustrating the art and science of programming. No matter how complex your project might be, in this book one can find the necessary information.

“You don’t know JS” by Kyle Simpson. The series is structurally divided into six small books: from the basics to the analysis of complex tasks: "Up and going"; "Scope and Closures"; "This and Object Prototypes"; "Types and Grammar"; "Async and Performance"; "ES6 and beyond". These textbooks are strict to the point and form a correct understanding of JS. Pros: each book is written for a certain level of knowledge; tasks are similar to those that are required to be solved to get a job. Cons: the textbook is only available in English; basic knowledge of JS is needed.

“A Smarter Way to Learn JavaScript: The New Tech-Assisted Approach that Requires Half the Effort” by Mark Mayers. The author of the book thinks that understanding and keeping information are the two main problems when studying JS. Based on this, the textbook format is based on the constant consolidation of theoretical knowledge through solving everyday tasks. Therefore, Myers' book can be found on the shelves of both amateurs and professionals. The author managed to maintain a balance between the fundamental concepts and the practical part. Pros: easy to understand; lots of practical information. Cons: only available in English; some of the information is outdated.

“JavaScript the Definitive Guide” by David Flanagan. It covers the basics and solutions to complex problems, so it is suitable for both beginners and experienced developers. Pros: consistent narrative that articulates even complicated moments of JS. Cons: the book is designed for a long and consistent study — there are no quick answers.

There are also online textbooks in both Russian and English. They are saturated with basic information, so they can be used as the main training material, and the books above can be read for additional knowledge.

Programming communities are great starting points for beginners. Stackoverflow.com is one of the most popular services, there is also a Russian version of the website, ru.stackoverflow.com, however, the interface of the English version is far more impressive and attracts more users. Also, there are not so many answers for visitors’ questions in Russian version, which leads to a thought that Russian developers do not use Russian sources for programming.

It can be noted that most of the useful materials are in English, and even if they are translated, the specifics of the craft itself are untranslatable and based on one of the most used languages, which may be associated with translation inaccuracies. All commands in almost all programming languages are English words. Also, there are many borrowings and anglicisms, and the following examples may confirm that fact.

БАТО́Н, БА́ТТОН (англ. button) – кнопка. «Прессовать батоны» (англ. Press button) «Жать/давить батоны» – to use a keyboard.

ГАМАТЬ, ГАЙМИТЬ (англ. game) – играть

ЗАБА́НИТЬ, ЗАБА́БИТЬ, ЗАБА́НАНИТЬ, ПОСЛАТЬ В БАНЮ – запретить пользователю написание сообщений в форум или чат (от англ. to ban), запретить доступ к какому-либо ресурсу (например, «забанить .mp3 файлы на проксе»).

ЛАГ (англ. lag) – задержка, торможение или медленная работа чего либо, например, программы или компьютерной игры.

The reason that the borrowed word rarely agrees with the original pronunciation is the "half-scale" method. When a term is transferred from English into Russian, the word is adjusted not only to the norms of Russian phonetics, but also grammar. Word-

formation models of the Russian language (suffixes, endings) are added to the original English basis.

As we can see, programming slang in most cases represents English borrowings or phonetic associations. Cases of translation are less common, especially when working with commands and computer operations.

To solidify the idea that English is simply necessary in the field of IT, we are going to give you an overview of a couple of the most popular programming languages and their syntax, that is, various commands, tags, and so on.

JavaScript a programming language that is primarily used in web development. With its help, websites are made interactive: pop-ups, animations, like buttons and forms for sending information are added. It is also referred as the main language of the frontend — the "face" of the web-page with which users interact.

There are some simple commands: “if”, “else”, “while”, “continue”, “break”. All these commands are usually a part of a cycle-programme, and perform functions directly corresponding to their translation.

English is also necessary when using documentation for extensions of the JS language, for example, Node JS. Of course, there is a Russian-language version of the official website of this program, but the page with its documentation is automatically translated into English, and the programme interface itself is also in English.

Python a computer programming language often used to create websites and software, automate tasks and perform data analysis. The official website of the language exists only in English, but there are many Russian-language sources with amateur translation, as well as various forums and online-courses, but at some point, any developer has to use the original source. Just like in the previous example, let us look at some basic commands for working with strings and numbers in Python:

- Print (Command to print messages on the screen or other standard output device. The print command can be used to print any type of object — an integer, a string, a list, a tuple, and others).

- Round (A command to round a number to a specified precision in decimal places. Allows you to reduce the number of digits after the decimal point in a floating-point number to the specified value).

- Input (Command to receive input from the user. The execution of the program will be stopped until the user enters a value that will be converted by the input) function into a string. If you need to take an integer as input, you need to convert it explicitly).

- Capitalize (The capitalize) string function returns a string by changing its first character to uppercase, and converting the rest to lowercase. If the first character is already uppercase, and also represents an integer or any special character, the command does nothing).

Same pattern occurs: without any knowledge of Python and peeping into the reference books, one may guess the functions of these commands. It is evident that knowledge of English language may provide better understanding of programming languages and thus, better memorizing.

In conclusion, it is important to underline that the connection between programming languages and English is obvious. English language proficiency expands opportunities for development in the sphere of Information Technologies, primarily contributes to the deepening and expansion of knowledge, as well as increases the level of salary and helps to feel confident when an unfamiliar word that came from English language is found in Russian.

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