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<div align="center">The Power of Computer Coding</div>

People who decide to be computer information technology specialists are exposed to Java and other computer languages. Programming, or coding, is an important subject, especially for young people. Every day many people use applications or software to get educational help; the applications they use are built through programming. It is important to know how the applications are created and how they work. Thanks to Java developers who use this language, many people can enjoy using different programs. Numerous applications or websites won't work unless Java is installed on the computer. As everybody knows, even some websites contain this language. Using the Internet and its tools is useful for people. Sometimes we don't even realize we use something that was built from Java. This programming language has a big and widely respected usage which deserves attention. Developers who code applications and software in Java or different coding languages have an opportunity to develop their future and become successful. Working as an IT specialist is a great adventure, and making money is as joyful as coding. Many people succeed in this field, and now they work for good companies, make good money, and enjoy doing their work. Working as an Information Technology specialist is a good and well-paid job that can help to influence the future; however, some people are not convinced of Java's potentials.

Java language has been used for 23 years. It first appeared in 1995. James Gosling, Mike Sheridan, and Patrick Naughton, also known as the "Green Team" group, introduced the Java

project in June 1991. The process of launching Java wasn't smooth. When this new language first appeared in tv controller, it turned out that this project was too advanced. According to the *Oracle* website:

> The Green Team demonstrated their new language with an interactive, handheld home entertainment controller that was originally targeted at the digital cable television industry. Unfortunately, the concept was much too advanced for the team at the time. But it was just right for the Internet, which was just starting to take off. In 1995, the team announced that the Netscape Navigator Internet browser would incorporate Java technology. ("Introduction")

 This group revealed the new language and then connected it with the Internet so that Java and a browser could cooperate. Why did those Java inventors think a new programming language was needed? They wanted it to be useful in many more computing and digital fields. This specific computer-programming language eventually developed a widespread use in many fields, and it is not narrowed to computer discovery. Where did all these technology inventions lead us? Thanks to Java, we can create and develop applications and programs that are helpful in many areas of our lives, including school and educational programs or work and database programs. Technology relates to coding, managing databases and networks. Java is a programming language that focuses on coding, which means designing programs or programming devices.

First, it needs to be highlighted that Java is not just a simple program that is easy to understand for everyone. There are different versions and specifications that distinguish each of them. There are thirteen versions of Java, including the fourteenth version that will be released in March 2019. Each of the Java versions is upgraded and equipped with new features: "Up to JDK 1.0.1, private and protected keywords could be used together to create yet another form of

protection which used to act as a restriction to methods or variables mainly to subclasses of a given class. In JDK 1.0.2, this capability has been removed" ("Java Versions"). Every new feature brings an opportunity to create something better in easier way. Working with each newer version makes people more familiar with technology and teaches them how to be more modern. Software development is moving forward all the time, and new changes appear. It's good to remember about updating Java because updating makes the system more secure and equipped with new features. The Java platform must be well prepared for the people who will use it, and that's why the platforms are updated. For example, Java 9 is better than Java 8 because of the clearer platform which is easier to use, and integrity was improved, too. *Oracle* website says,

> Before Java 9, it was possible to use many classes in the platform that were not meant for use by an app's classes. With strong encapsulation, these internal APIs are truly encapsulated and hidden from apps using the platform. This can make migrating legacy code to modularized Java 9 problematic if your code depends on internal API.
> ("Understanding Java 9 Modules")

Thanks to these changes, many corporations can enjoy using Java language and build their own company apps or websites. Developers can create specific codes and make them useful. Eng, editor of *Learn How to Program* website acknowledges,

> In other words, it's all about code reusability. Java is perhaps the most successful example of code reusability in the history of computing. Smalltalk is another example. It's the premier object-oriented language. It has been commercially used for over three decades by enterprises all around the world, including the likes of JPMorgan, Desjardins, UBS, Florida Power & Light, Texas Instruments, Telecom Argentina, Orient Overseas Container Lines, Siemens AG, and so on.

 With Java, it's all about the coding feature, which is a big convenience for many enterprises. All the companies use code reusability to design applications or software so that they can improve the company's interest and earnings. Working as an IT specialist is interesting because there are many positions that can be adjusted to people's skills.

Working as a Java developer or programing specialist is a great opportunity to make a good living. Being an IT specialist is a profitable and developing career. Everyone wants to get the job that would be satisfying and with a good income at the same time. The possibilities are endless. There are just a few things required to get this job: desire, knowledge and a positive and open-minded attitude. Opportunity is everywhere and an IT job guarantees a satisfactory salary. Sarah White, a senior writer covering IT and healthcare careers, says,

> According to PayScale, the average salary for a Java developer is $69,722 per year, with an average salary range of $47,169 to $106,610 per year. The highest paid Java developers are in San Francisco and Arlington, where the average reported yearly salaries are $97,000 per year.

Starting with basic salaries people can upgrade to the level of higher incomes. This is not the end of the good news. IT positions are different, and an academic degree plays a role here, too. The salaries can differ depending on position. White states,

> Once you get further in your career as a Java developer and move onto a senior role, you can earn an average yearly salary of $95,787, with a reported salary range of $70,257 to $139,132 per year. The highest paid senior Java developers are in Washington, Seattle, and San Francisco, where the average reported yearly salaries are $124,000; $122,000; and $120,000; respectively.

The opportunity of getting a higher salary is encouraging because becoming a senior Java developer can even bring a $124,000 yearly salary. Everything depends on the developer's position and the work one does. The skills can have an influence on salary, too. White explains, "Java developers working with C++ skills can even make $127,396 per year and with C# skills $110,155 per year." The opportunity is big and IT specialists and programmers are needed all the time. Jobs are not hard to find; many employers look for IT specialists. This kind of work has many positions that depend on the skills and major.

Java developers work on creating applications and websites, but let's face the reality, those are not the only things developers do. Their work is not focused on the same things, and they are expected to perform more advanced tasks which, according to Aarthi, means the following:

At the same time, Java developers are required to have extensive knowledge in the basics at all cost. This would include programming using Java and working on Unix OS. Additionally, you would also be required to familiarize yourself with essentials such as RDBMS program, JEE architecture, framework, etc. To learn more join this course.

This means that every position has a different job description so there is no need to worry about knowing everything. That is why people can take different positions that are adjusted to their IT skills, which is very convenient. The next position is network administrator who is responsible for an entire network. This job not only depends on watching the network but requires keeping an eye on changes and preventing possible problems. According to Erstad,

As seen in the job duties above, a network admin has a broad job description: managing an entire network, preventing and fixing network problems and supporting a number of

teams and individuals. This means there's rarely a 'typical day' in the life of a network admin.

This is exciting because every day at work creates new challenges as the program evolves and the challenges keep everyone on their feet. Doing new things and working on new problems gives a chance to practice the skills and doesn't make people bored at the work place. Working with databases is also an interesting job because work focuses on managing, collecting, reviewing and formatting data. Network administrator and database manager seem to be similar but there are differences between them. According to the *PennState Human Resources* website: "The Research Data Management Specialist advises and assists investigators in developing and implementing a data management plan that focuses on the collection, structure/format, coding, review, entry, validation, editing, and reporting of research data..." ("Research Data Management Specialist"). Analyzing data and knowing how to organize files helps to keep track of different kinds of accounts. Also, knowledge about the ability to improve the programs is crucial in this situation because all the features provide safe and well-organized space for people who trust database specialists.

Overviewing databases is a puzzling, demanding job that requires responsibility and makes people use their logical thinking. As soon as young people get their college degree, they can be hired in one position and upgrade to higher levels by doing higher education at the same time. The fact that IT specialists can work from home deserves attention. This is a great opportunity for many people who struggle with overwhelming lifestyles. Working from home is convenient for parents or students. Other jobs don't have this amenity for people because many of them have standard requirements that demand coming to the work place. Having children and working doesn't always go together because of too many burdens. Also, students who work as IT

specialists and do higher degrees at the same time have an opportunity to affect their futures for

the better. Working from home doesn't stop you from getting a chance to move forward. Also,

people with disabilities have a chance to work in the field they like. Working with computers and

programs is a great opportunity to show that they have equal chances and the same rights.

Everybody needs to go through the interviewing process which is mandatory and employers

demand that job applicants be prepared.

To become an Information Technology specialist, there are some requirements. Most of

the companies require a higher degree while some of them only need people to prove skills and

adequate knowledge. Steele supports this point, saying,

> There are some information technology specialists who only have certifications in certain
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> IT-related issues. Others have undergraduate or even graduate degrees. The employer will
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> determine which educational standards they expect and the larger the organization, the
>
> more likely that they will expect a graduate degree. Majors include computer science,
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> mathematics, and engineering.

Of course, some companies that hire freshly graduated students may have different restrictions

that require less experience. One thing is for sure, charisma and people's skill are important, but

IT specialists need to show the skills and adequate knowledge about the position and work.

Attention to details and analytical thinking are very crucial in this job. Employers do require

employees to have communication skills. Being able to communicate with others is the key to

better-solved problems and good explaining of matters. Many people are curious about the job

interview. The key to a successful interview is self-confidence and knowledge which equals

hours spent to achieve personal goals. This is nothing hard if people put in a lot of work and

prepare themselves for this kind of challenge. Employers check the skills and knowledge that are

needed in specific positions. Let's look at Java developers who prepare themselves for a coding interview. There are a few steps that everybody must go through, for example, answering the questions or doing the "homework."

The whole interview process is focused on presenting the strong sides of a person who knows the subject and has decided to go for an adventure with coding. All the steps follow a specific order. Everybody is informed about the rules and tasks that must be performed. As McDowell explains, "Once you are selected for an interview, you usually go through a screening interview. This is typically conducted over the phone. College candidates who attend top schools may have these interviews in-person" (6). The "screening" interview includes coding and algorithms questions. As we can see, the rules also involve phone or personal interviews. One interviewee may be asked to visit the company while another can use the phone for this. McDowell states,

> Many companies have taken advantage of online synchronized document editors, but others will expect you to write code on paper and read it back over the phone. Some interviews may even give you 'homework' to solve after you hang up the phone or just ask you to email them the code you wrote. You typically do one or two screening interviews before being brought on-site. (6)

Some companies can require doing the homework as a part of the interview. If somebody is prepared, there is no need to worry about any failures. Sometimes the interview can be scary, but hard work and confidence bring rewards. It is interesting how this process looks in real life.

Let's focus on the coding interview and often-asked questions. There are four main question fields which contain: data structures, concepts and algorithms, knowledge-based questions (C and C++, Java, Database, or Threads and Locks) and additional review problems.

McDowell says that Java coding "deals with questions about the language and syntax. Such questions are more unusual at bigger companies, which believe more in testing a candidate's aptitude than a candidate's knowledge (and which have the time and resources to train a candidate in a particular language)" (141). A positive attitude and willingness to learn is a great way to succeed because many companies need employees with these features. According to Gayle Laakman McDowell, a person applying for a job can hear these questions: "What is the difference between final, finally, and finalize?" (145) or "Explain what object reflection is in Java and why it is useful" (145) or "Explain the difference between templates in C++ and generics in Java" (145). Working in this field gives an opportunity to become not only a well-paid employee in a small company but opens opportunities for anybody of skill. Everybody knows these six top companies: Microsoft, Amazon, Google, Apple, Facebook and Yahoo!. Imagine working for these big corporations, having a comfortable life and enjoying the work at the same time. This is a great adventure and a way to be satisfied with work.

Knowledge about how to code is a way to become a millionaire. IT specialists do not have to work for a company because they can be their own bosses. There are four young app developers known for big success. Monnappa says, "Some of these developers have become so successful, in fact, that they managed to make their first million even before they hit the legal drinking age." This seems to be interesting not only because of huge money but the fact that they are so young. Imagine making big money before turning 21; that would be an amazing opportunity to manage the future better and reach the goals. Monnappa mentions,

Born in 1991, Brian Wong is a Canadian internet entrepreneur. In 2010, Brian along with

his colleagues Courtney Guertin and Amadeus Demarzi, founded Kiip, a mobile app

rewards platform that lets companies and brands give real-world rewards for in-game

achievements.

These imaginative and creative young people created an application that made them successful

right away. It was a good idea that turned out to be very good after patenting it. Everybody can

only imagine what was the feeling after that big success. Apps developed by them serve the

companies and enterprises. Let's look at Kiip application. Kiip is a mobile app that gives people

real physical rewards. The authors gave the opportunity for companies so that they could give

real rewards in game-achievements. It means that people can get a bottle of water for every time

they run 8 miles instead of a digital reward. This is a good idea and apps like this are needed.

Monnappa explains the extent of Kiip's popularity:

Kiip is active on more than 1,100 apps and on 75 million devices. It sends 500 million

moments of achievement-based reward notices to customers on a monthly basis through

its network. By mid-2012, Kiip had raised more than $15 million venture capital from

companies like Hummer Winbald, Relay Ventures, Verizon Ventures, True Ventures,

CrossLink Capital, and many others.

New apps are appreciated, and these kinds of inventions are meaningful for many people.

Possibilities of becoming successful are limited to the most dedicated, but even basic

programmers are living a good life.

In the IT field, the opportunity to succeed is open for everybody. Computer science has

wide interest in other countries, too. The interesting fact about IT employment is that this job has

a high rank in many countries, so the opportunity is big. People can study in one country but can

work abroad and broaden the horizons. Reena Ghosh says, "Tech professionals have a wide

range of countries to choose from. Since every individual's circumstances, needs, and priorities

are different, what may be the best destination for one may not be so for another." Everything

depends on young people and their priorities. The United States is not the only place that has

good incomes in Information Technology fields. Europe is also known for computer science

opportunities. The six top countries in which to find work as an IT technician include:

Switzerland, Denmark, Singapore, United Kingdom, Germany and Ireland. Working abroad is

also a good way to make money and experience something new. What is more, other countries

care about the technology because this field is very important in today's world. For example, the

United Kingdom put more and more improvement in technology to have a good financial and

cooperating base with industries. Ghosh says,

> According to the recent Tech Nation report, Britain's tech industry is growing twice as
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> fast as the economy. Prime Minister Theresa May has said her government will focus on
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> the tech sector and "expand the scope of our digital tech industries, funding artificial
>
> intelligence, robotics, 5G, smart energy, and more."

Britain's technology industry is improving and upgrading its sectors because innovative sources

bring the better future for the country. All the countries have their own advantages and

drawbacks, but one thing is for sure, technology is moving forward and bringing a big

improvement in many fields. Let's imagine getting a good degree in the USA and then exploring

other countries with work opportunities. What is more, IT specialists can work in the USA and

cooperate with companies around the world by online options. Working for these kinds of

companies is a great chance to make good money as well as be proud of making something

important.

Java language is used in many fields and the popularity of its use is big. However, there

are still people who are not convinced of Java and don't support using it. Maryna Ivakhnenko

says,

> Any high-level language has to deal with poor performance due to the compilation and
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> abstraction level of a virtual machine. However, it's not the only reason for Java's often
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> criticized speed. Take garbage collector, a useful feature that unfortunately can lead to
>
> significant performance problems if it takes more than 20 percent of CPU time.

 A Java virtual machine allows a computer to write programs and compile them to Java bytecode.
It means, the virtual machine enables a computer to write programs and process them into
specific Java code language. Poor performance of speed is not comfortable for people who work
with coding. Because of some features, a Java virtual machine works slower than the other
machines. Also, paid commercial license is an issue here. Many people were not happy about
having to stop using Java for free. Ivakhnenko says, "Oracle recently announced that they will
start charging Java SE 8 for 'business, commercial, or production' use starting in 2019. To get all
new updates and bug fixes, you'll need to pay by the number of users or per processor." Now,
the current version of Java is free and available for everybody. As soon as Java becomes paid, the
industries will have to estimate their expenses and check if company budgets will allow them to
use Java. Some of them may look for alternative technology if it turns out that the price won't
allow them to use it. But overall, Java is not as bad as it seems to be. There are positive sides,
too.

Here's the question: Is Java coding safe and worth it? The answer is simple. Java has
many positive features: simple, object-oriented, portable, platform independent, secured, robust,
architecture neutral, interpreted, high performance, multithreaded, distributed and dynamic. But
what exactly do all these words mean to people who use them? According to the *CoreJavaGuru*
website, simple means that Java "can be programmed without extensive programmer training"

(Vivek). To program in Java, there is no need to have a high degree and a lot of training because this language is simple to learn. The same website also asserts that Java was "designed to be object oriented from the ground up" and "provides a clean and efficient object-based development platform." This means that programming is focused on objects, not only on data and actions. Java is considered a familiar language in the computer world because it is similar to another popular and much used language, C++. Java has many object-oriented features that are familiar to C++ language, which is good for programmers because they "can migrate easily to the Java platform and be productive quickly'' (Vivek). This ability makes the work easier and less complicated. Robust and secure features mean that Java is reliable and safe to use. The security of Java language is on high level and making apps or software can be secured from outside sources, too. Moreover, the design and portability of Java Virtual machine is an amenity for people who work with it. The *CoreJavaGuru* website says,

> The architecture-neutral and portable language platform of Java technology is known as the Java virtual machine. It's the specification of an abstract machine for which Java programming language compilers can generate code. Specific implementations of the Java virtual machine for specific hardware and software platforms then provide the concrete realization of the virtual machine (Vivek).

 If it is about the usability, Java achieved greater performance which improved the interpreter's speed. "The Java interpreter can execute Java bytecodes directly on any machine to which the interpreter and run-time system have been ported" (Vivek). Thanks to the Java interpreter, code can be transferred to machine, and that way it can work. Multithreading is also a known feature because "We can write Java programs that deal with many tasks at once by defining multiple threads.'' Everything works together when the structure is set well. This means that one program

can perform more than one task which is impressive. Vivek says, "While the Java Compiler is strict in its compile-time static checking, the language and run-time system are dynamic in their linking stages." Java's compiler being in checking stage allows the language and software tools to still be active and well-organized.

Technology is a widely supported and appreciated sector in today's world. It has been seen for many years that most of the employees are male. There is a smaller percentage of women working in Information Technology fields because of prejudices connected with discrimination that have been present in the past. Females are as smart as males and looking at Ana Redmond's situation we can say that she had a good knowledge and talent. According to Lien, "Ana Redmond launched into a technology career for an exciting challenge and a chance to change the world. She was well-equipped to succeed too: An ambitious math and science wiz, she could code faster, with fewer errors, than anyone she knew." Gender is not what decides about being smart. Higher requirements and unequal rights for women made some of them quit the job even if the job was successful for them. Unfortunately, after 15 years of hard work and almost becoming a manager, Ana Redmond quit the job. Also, other women were following this idea. Lien mentions, "Garann Means became a programmer for similar reasons. After 13 years, she quit too, citing a hostile and unwelcoming environment for women. Neither expects to ever go back." Treating women as a worse employee made them quit the job even if they liked it and making an unpleasant environment for them didn't create a good atmosphere in the work place. This case can be frustrating because all that counts are knowledge and skills, not gender. It is obvious that no company will survive if all hired women will quit their jobs.

Fortunately, the IT field is growing and changing. Nowadays, the fact that women work in IT fields is not shocking. Computer science is open for everybody so there are many

possibilities for people. Of course, there is still a smaller percentage of women working in IT, but the interest of female employees is growing. *Vista College* website reports,

> Although the field of technology has been a traditional male-based environment, women are slowly finding their own niche in the industry. As the industry grows and the demand for qualified employees expands beyond current boundaries, women are being offered more advanced positions within the IT field. ("High Demand")

Now, women can find their own space in the computer science field and feel comfortable with it. Females can have the same rights and get the same positions as men. The companies choose the employees based on skills and adequate information about the job which means there is a need for educated people independently from the gender. What is more, the percent of women hired in IT fields is going up and up:

> Tech-based cities like Washington, D.C., and New Orleans have the highest ratings when it comes to hiring to women for IT positions. Companies in D.C., for example, have more than a 37 percent female-based IT staff, which is the highest among large American cities. ("High Demand")

Depending on the state, the percentage can be different, but one thing is for sure, hiring women in computer science has moved forward, and Information Technology jobs are available for anybody who is interested in this.

Computer specialists and those who are interested in coding language might find Java interesting because of many aptitudes. Also, it needs to be highlighted that the young generation is using all the technology amenities. The fact is they should be aware of what they use. A little knowledge about how the technology works and how it was developed would be a creative lesson for everybody. But where is this programming language leading the great minds? Not only

the history and background mentioned in the introduction are worth paying attention to. Some

interesting facts about the changes from C and C++ that were made in Java language are very

interesting. There are also different versions of Java which are adjusted to the specific software.

What is more, the way the codes are used and what they are based on require logical and smart

thinking. Why does it require a lot of patience and involvement to learn and code an application

using Java? Special codes, techniques, and the whole organization are a big part of this study.

This language uses class-based and object-oriented language. The interesting fact is that Java is

the second most popular programming language. Java developers are very appreciated in the

technology field. This language has a huge application in many devices. Many people probably

don't even realize that they use programs or software that are written in Java language. One

example is Blu-ray, which is used in PlayStations or Xboxes. It is amazing how coding and

writing programs can be useful and helpful in daily life. Even though some people do not

appreciate and do not support the idea of using Java, there is still wide and popular use of this

language. The hard work of Java developers is giving humans an opportunity to use study

programs and run their businesses. Language based on numeric codes is a big convenience in

many companies and enterprises. The whole system is also known as high-level language. It can

be easily written and read by humans. Java is an easily usable but also secure programming

language, so it's worth attention.

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