DAY ONE

Name _____ Date _____ Block _____

Read the article “10 Reasons Why…” and answer the following questions.

Name and DESCRIBE the ten (10) reasons why you should study programming.

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10 REASONS WHY YOU SHOULD LEARN PROGRAMMING

Table of Contents

The accelerating technological developments characterize the 21st century. Wherever we look at, whatever we use has something to do with technology. From the alarm clock on our phones that wake us up in the morning, the coffee machine that makes us coffee at the push of a button, to the smartphones and internet that make our life easier, all those are using some technology.

Behind most everything we see on the internet—every word, picture, chart, layout, etc.—there is someone who programmed it to look as such to us. So why should you learn to program? Here's a list of some of the reasons.

1. It Guarantees You a Job

We're living in the era of technology, and technological growth is nowhere near stopping. As the use of technological devices is growing every year, there will always be a high demand for programmers. The Bureau of Labor Statistics stated that within this decade, computer programming jobs would mostly be available to those outside the United States. This due to the fact that companies are considering employing people all around the world since they would pay them lower wages.

However, jobs such as software developing, web developing, computer system analysts, and others show a good career outlook for the next 10 years. Their estimated growth is from 9% and up to 21% for software development jobs.

2. No Need for a Four-Year Degree

While one of the paths to becoming a programmer is to earn a computer science degree, you can still become one without a degree. Many programming jobs don't require a computer science or an IT degree; instead, they're interested in your coding abilities. This means that even though a degree would be useful and open several doors for you, it isn't a must.

However, there are other options other than a degree, that could potentially help you land a job. For instance, if you were to get a software development or cybersecurity diploma, it would certainly look good in the eyes of the hiring manager. The same goes for a certificate too; if your CV has relevant certificate programs in it, such as network security management for example, that along with your skills will leave a good impression.

3. You Get to Work From Home

Since the job only requires a computer with an internet connection, employees often have the opportunity to work remotely. That being said, that depends on the company's policy, but many offer such an option. Moreover, if you work as a freelancer, your job will always be done remotely.

This advantage makes programming a highly sought-after job for people who want to balance their work and family life and feel like commuting wastes their precious time they could have spent differently. It also allows them to apply for jobs across the country without the need to relocate and worry about the distance of the office.

4. You Can Create Anything You Want

Computer programming, like no other job, gives you the opportunity to digitize your ideas. This idea can include an app you wanted to create and thought that would go viral once you put in the market. However, creating an app, it's not an easy task as it requires effort, time, and money. While in other scenarios, you would pay a developer to put to life your plans and ideas, being a programmer yourself, you would spare your money and get to develop the app exactly how you want it. Especially since, let's be honest, no one can implement your idea exactly how you want it to be.

5. High Income Potential

Money can be motivation in most jobs and the case with programming is no different. Most jobs you can get with programming skills tend to have higher than average salaries. While the salary of a programmer depends on the state and the type of job, the median salary of a computer programmer is $84,280, while a software developer's median salary is $103,620.

6. You Understand How Software Works

When we use the computer, we interact with it through mouse and keyboard, but we don't really stop and think about the program running in the background. Programming will get you familiar with the software, programs, devices, and websites and will help you understand them. Due to this familiarization, you will grasp and adopt new technology tools much more quickly.

7. It Teaches You Persistence

Learning computer programming teaches you to see the problems in the light of solutions. For every problem you may face, you start to brainstorm ideas on how to solve it. Fruitful results that come out of brainstorming and fixing problems will give you a positive outlook, and toughen you up to act on the problem however hard it may be. You become determined to find a way to work out a solution, becoming this way a solution-driven person.

8. You Learn To Combine Technical Skills and Creativity

Not all industries will give you the opportunity to use both your technical and creative skills as programming will. This is possible due to the nature of the job. It focuses on identifying issues and resolving them. However, there won't always be the same problems to solve, that's why you'll get to solve them while also finding new solutions each time. This makes programming a very challenging and exciting career.

9. You Develop Problem Solving Skills

In the world of programming, it is often said that coding is all about solving problems, and computer programs should solve problems for us. Learning programming is more or less coding and determining how to tackle the issues that arise during coding and finding solutions for them. The more you get to solve these problems, the more practical it becomes. You might even start applying this problem-solving mindset in different aspects of your professional life and not only while coding.

10. Open Your Own Business

Becoming self-employed is the path that many programmers eventually chose. Knowing how to code allows you to look into opening a business of your own. This could be an online shop, having your own website designing company, building mobile applications, offering online coding courses and tutoring, and many more. The opportunities are endless. What makes it even better is that the demand for these kinds of businesses is also high.

Programming is a skill that comes with numerous benefits. Some of the advantages that come with knowing code are a guaranteed job, getting to create interesting applications, developing problem-solving skills, and sometimes even the opportunity to work from home. We hope we convinced you to start learning to code. Happy coding!

DAY TWO

Name _____ Date _____ Block _____

Read the article “What is a Programming Language and Different Types” and answer the following questions.

Name and DESCRIBE the different programming languages and their differences.

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What is a Programming Language and Different Types

January 5, 2021 By admin



Different Programming Languages

Nowadays, there are numerous programming languages are becoming more general and all-purpose, but these languages have their specialties, and each language has its own advantages and disadvantages. Usually, programming languages can be classified into a few types, however, these languages support multiple programming style. Every year there are a number of programming languages are implemented, but few languages are becoming very popular which may used by a professional programmer in their career.

Programming languages are used to control the performance of the computer or machine. At present, computer programmer has many choices to choose the language, but there are many differences between programming languages. So, this article gives a brief information regarding what are the different types of programming languages, differences between programming languages and types of programming languages in useful ways.

What is Programming Language?

A programming language is a notation designed to connect instructions to a machine or a computer. Programming languages are mainly used to control the performance of a machine or to express algorithms. At present, thousand programming languages have been implemented. In the computer field, many languages need to be stated in an imperative form, while other programming languages utilize declarative form. The program can be divided into two forms such as syntax and semantics. Some languages are defined by an SO standard like C language.

Types of Programming Languages

The different types of programming languages are discussed below.

Procedural Programming Language

The procedural programming language is used to execute a sequence of statements which lead to a result. Typically, this type of programming language uses multiple variables, heavy loops and other elements, which separates them from functional programming languages. Functions of procedural language may control variables, other than function's value returns. For example, printing out information.

Functional Programming Language

Functional programming language typically uses stored data, frequently avoiding loops in favor of recursive functions.The functional programing's primary focus is on the return values of functions, and side effects and different suggests that storing state are powerfully discouraged. For example, in an exceedingly pure useful language, if a function is termed, it's expected that the function not modify or perform any o/p. It may, however, build algorithmic calls and alter the parameters of these calls. Functional languages are usually easier and build it easier to figure on abstract issues, however, they'll even be "further from the machine" therein their programming model makes it difficult to know precisely, but the code is decoded into machine language (which are often problematic for system programming).

Object-oriented Programming Language

This programming language views the world as a group of objects that have internal data and external accessing parts of that data. The aim this programming language is to think about the fault by separating it into a collection of objects that offer services which can be used to solve a specific problem. One of the main principle of object oriented programming language is encapsulation that everything an object will need must be inside of the object. This language also emphasizes reusability through inheritance and the capacity to spread current implementations without having to change a great deal of code by using polymorphism.

Scripting Programming Language

These programming languages are often procedural and may comprise object-oriented language elements, but they fall into their own category as they are normally not full-fledged programming languages with support for development of large systems. For example, they may not have compile-time type checking. Usually, these languages require tiny syntax to get started.

Logic Programming Language

These types of languages let programmers make declarative statements and then allow the machine to reason about the consequences of those statements. In a sense, this language doesn't tell the computer how to do something, but employing restrictions on what it must consider doing.

To call these groups ” types of language ” is really a bit confusing. It’s easy to program in an object-oriented style in C language. In truth, most of the languages include ideas and features from various domains, which only helps to increase the usefulness of these types of languages. Nevertheless, most of the programming languages do not best in all styles of programming.

The Difference Between Different Programming Languages

C++ Language

The C++ language has an object oriented structure which is used in large projects. Programmers can collaborate one program into different parts or even one individual work on each part of the program. The structure of object oriented also permit code to be reused many times.This language is an efficient language. But, many programmers will disagree

C Language

The C language is a basic programming language and it is a very popular language, particularly used in game programming, Because C language includes the additional packing of the C++, Every programmer uses this language because it makes programs faster . However the value of this language gives the reusability of C++ to get the slight increase in performance with C language.

Pascal Language

Pascal language is mostly a teaching language and few industries uses this language to write the programs. This language tends to use keywords instead of symbols and braces in C language. So this language is very easy for beginners to understand than a programming language like C, C++. Borland is a compiler software company, which is using Delphi programming language for industrial strength. Delphi is an object oriented language of Pascal, and presently Borland compilers only use it.

Fortran Language

Fortran language is a number crunching language and still it is used by scientists. This language allows different sizes of variables up to the memory limit in the machine. This language is suitable for engineers, who have to calculate values with high precision. Program in Fortran is inflexible and sometimes it makes difficult to read.

Java Language

The Java language is a multi platform language that’s particularly helpful in networking. Of course, mostly this language is used on the web with Java applets. However, this language is used to design cross platform programs, Since it similar to C++ in structure and syntax. For C++ programmers, Java language is very easy to learn and it offers some advantages provided by object oriented programming. Like reusability and it can be

difficult to write efficient code in Java. But, nowadays the speed of the Java language has increased and 1.5 version offers some good features for easy program making.

Perl Language

Perl language is a file management language for UNIX. But it is more popular for its common gateway interface programming (CGI). It is a term for programs that web servers can perform to allow additional capabilities of web pages. Pearl language is a method for searching text and it is used for useful server functions and other databases, and it is very easy to pick up the fundamentals if you have any experience in any language. As a CGi language, web hosting services select Perl language over C++ language. Because, the web hosts can review Perl script files. Since they are text files, when C++ is compiled.

PHP Language

The PHP language is used to design web pages and sometimes it is also used as scripting language. This language is designed to develop a rapid website, and as a result comprises features which make it easy generate HTTP headers and link to databases. As a scripting language, it includes a set of components permit the programmer to easily get up to speed. However, it has more sophisticated object oriented features.

LISP Language

LISP language is mostly used in computer science research and it stores all data in lists such as arrays. The syntax of list is very simple and easy to make for developers to implement structures.

Scheme Language

The scheme language is an alternate of LISP language, and it has a simpler syntax and features. Any project under the scheme language will result in the re implementation of most of the LISP language. But, this is very popular introductory language in the computer science department of MIT's. This language easily solves the problems instead of worrying about syntaxes of programming language.

This is all about the differences between programming languages and few major programming languages are discussed. And, the remaining languages like Tcl, Python, Smalltalk, COBOL, C# and Prolog are similar to the above languages which are discussed. But selecting the suitable language for developing a program or application is very important

DAY THREE

Name _____ Date _____ Block _____

Read the article “6 Types of Programming Jobs…” and answer the following questions.

Name and DESCRIBE the six (6) types of programming jobs. Include any salary information.

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6 Types of Programming Jobs

By Indeed Editorial Team

Updated March 26, 2021 | Published January 3, 2020

The Indeed Editorial Team comprises a diverse and talented team of writers, researchers and subject matter experts equipped with Indeed's data and insights to deliver useful tips to help guide your career journey.

The computer programming industry creates and maintains computer programs and systems for clients. People use these programs in almost every industry for both professional and personal purposes. There are many specific job titles you can have as a computer programming professional. Positions are available at all levels of the computer programming industry and companies are hiring programmers around the world.

See how your salary compares

Get personalized salary insights with the Indeed Salary Calculator

What is computer programming?

Computer programming is the process of writing code that contains instructions that computers can understand and follow. These instructions are called computer programs, and every function a computer performs is a result of accurately written code. Computer programmers write in unique languages that can only be read and understood if you have studied computer coding.

The field is constantly evolving as technology advances, so a career in computer programming is an exciting opportunity for anyone interested in coding and using computer languages.

6 top computer programming jobs

Here are some popular programming jobs you to consider pursuing:

- Computer programmer
- Web developer
- Programmer analyst

- Computer systems engineer
- Software engineer
- Mobile app developer

1. Computer programmer

National average salary: $57,484 per year

Primary duties: Computer programmers write and edit code for computer software programs and ensure the programs run with no errors. Computer programmers solve any issues or problems that arise during the coding process, and they make sure that the final product meets their clients' standards. They might also be responsible for training others to use their programs once they are complete.

Those who are looking for entry-level jobs that involve coding may want to pursue a career in computer programming. Some requirements for becoming a computer programmer include earning a Bachelor's Degree in Computer Science or Computer Programming. Learning to read and write in a variety of coding languages is also recommended.

2. Web developer

National average salary: $71,088 per year

Primary duties: Web developers design and create websites. They are responsible for both how the site looks and how it functions. They will test and evaluate a site to make sure it meets quality standards before it is released. After the site is published, they monitor the site's continued performance and troubleshoot any technical problems that might arise. They ensure that their websites and programs meet current security standards.

On an average job, a web developer will first meet with a client to discuss their vision for a project. Then they will write code for the site and work with a team of other creators to produce content for the website. Most employers require their web developers to hold a bachelor's degree in computer science or a similar field.

3. Programmer analyst

National average salary: $72,718 per year

Primary duties: Programming analysis can be a compelling career because a career as a programmer analyst combines the jobs of a systems analyst and a computer programmer. Like most programming professionals, programmer analysts design and create computer software and programs. Working with other computer programmers, a programmer analyst then oversees the writing of the code necessary to create and publish the programs.

Employers hire programmer analysts to create specific programs that fit the individual needs of the organization or company. Programmer analysts update existing programs and systems so they are compatible with the latest technologies. They may also write or edit user support documentation that advises their client or employer on how to use the programs. Common requirements for programming analysts are a Bachelor's Degree in Computer Science, proficiency in coding languages and several years of application development experience.

4. Computer systems engineer

National average salary: $83,961 per year

Primary duties: Computer systems engineers work to make sure their clients' computer systems are all fully functional and efficient. They can work directly for an organization to maintain and improve their systems, or they can work for a third-party company that provides these services for several clients. Computer systems engineers are also responsible for the maintenance and security of a company's systems, including protecting the company's privacy and data.

Computer systems engineers also innovate ideas to improve the functionality of their employers' systems. They advise and provide updated information to the company's informational technology departments. They may also advise users directly to help them understand how to use systems efficiently. Computer systems engineers are expected to have a Bachelor's or Master's Degree in Information Technology, Computer Science or a similar field. Most employers prefer more than five years of system engineering or IT experience.

5. Software developer

National average salary: $104,731 per year

Primary duties: Software developers design and create software programs for a variety of computer systems. Different types of programs require unique programming languages, so many professionals in this career might specialize in a

certain coding language. Software developers' work varies depending on their employer. Some create individual applications and programs for specific purposes, while others create systems that manage devices or networks.

The field is rapidly evolving as technology advances, so software developers are constantly learning and adapting. Most software developers hold a Bachelor's Degree in Computer Science. A master's degree is also valuable in this industry and allows candidates to apply for leadership positions soon after graduation.

6. Mobile app developer

National average salary: $110,669 per year

Primary duties: Mobile app development is one of the fastest-growing careers in the world. Mobile app developers design and code software for mobile devices like cell phones and tablets. The programs they create are determined by the needs of their specific clients and are frequently available to the public. Mobile app developers also test and perform quality checks on applications before they are published.

Mobile app developers can find work around the world and for a wide variety of employers. Most mobile app developers are required to have a Bachelor's Degree in Computer Programming or a related major.

DAY FOUR

Name _____ Date _____ Block _____

Read the article “8 Trends that Define the Future of Information Technology” and answer the following questions.

Name and DESCRIBE the eight (8) trends discussed in this article.

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8 Trends that Define the Future of Information Technology

In the near future, companies will be looking for ways to cut expenses, automate processes, and provide a great user experience. Let’s explore IT trends that will rule the future in more detail.

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1. Automation

Automation will prevail in the future of IT. It aims to reduce manual work and improve business efficiency. Data science is the key sphere that is predicted to benefit from automation the most. Data science automation with machine learning and artificial intelligence will allow scientists to make better data analysis.

Moreover, it’s predicted that automated machines will replace almost half of the global workforce in the years to come.

So, we’ll definitely see some advancements in this direction too.

2. Data Security

The latest trends in information technology clearly show that data security will continue to be in the spotlight of attention. Keeping business data and the data of customers secure will be among the biggest future IT trends and requirements.

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Thus, companies will need to find new ways to ensure data security without huge investments.

3. Data Privacy

General Data Protection Regulation and California’s Consumer Privacy Act sparked new advancements in the sphere of data privacy. Such acts regulate what information businesses can collect, store, and share with third parties.

The future of information technology will be closely interwound with data, driving the need for advanced automated solutions that ensure regulations and legislation compliance.

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4. Big Data & Analytics

Another one of the latest trends in information technology is big data and analytics. Big data analytics uncovers hidden patterns, correlations, and provides other important insights, for example, on customer behavior, etc.

There is no doubt that organizations will rely on big data analytics to harness their business data and use it to explore new opportunities. Big data can be used to reduce costs, make better and faster data-driven decisions, provide clients with the products and services they need, and so on.

5. Software Architecture

The new information technology world is turning from monolithic to microservice architecture. For example, MLSDev states that **mobile app development services** will mostly rely on microservice architecture.

Advertisement

Companies will move from monolithic architectures to those that can be used and reused both inside and outside organizations.

6. Social Media

Top information technology trends also include the growth in the importance of social media. They will continue to gain traction both among businesses and customers.

Even now, social media sharing accounts for 54% of the information that consumers use while making a buying decision. Almost 78% of people say that social media posts by brands influence their buying decision.

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7. User Experience

User experience will play a leading role in the future of information and communication technologies.

Aside from business efficiency, a bigger emphasis will be placed on the experience a company provides and how users interact with its services. This will require a complex approach and a shift to customer-centric business organizations with smooth and simple UX.

8. Cloud Computing

Evolution and trends in information systems will change focus from simple infrastructure solutions to cloud computing. Software-as-a-service (SaaS) and platform-as-a-service (PaaS) solutions will become the future of IT.

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Such solutions will help businesses get better functionality and flexibility in their operations at a reduced cost.

DAY FIVE

Name _____ Date _____ Block _____

Read the article “7 Sneaky Ways Hackers Can Get Your Password” and answer the following questions.

Name and DESCRIBE the seven (7) tricks that can be used to steal your FB password.

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What are the four tips described in the article for protecting your password?

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7 Sneaky Ways Hackers Can Get Your Facebook Password

By **Jennifer Seaton** | Reviewed by **Justin Stoltzfus**
Published: February 4, 2021 | Last updated: August 31, 2021

KEY TAKEAWAYS
On Facebook, not everything is as it seems. No matter how many friends you have, enemies may be lurking there as well.



Source: Tomajestic/Dreamstime

Facebook can be a great way to stay in contact with friends and family. But it can also make you more vulnerable. Your account likely has a ton of personal data and connections that could benefit a hacker. The more you understand about how a hacker can access your password, the savvier you will be at keeping it safe.

Advertisement

Here are seven sneaky ways hackers can access your password and what you can do to stop them.

Suspicious Emails

You have probably heard many times by now not to open suspicious emails. This is still true today. But fake emails have become much more sophisticated than in the past. Fake emails might appear to be from Facebook and have all the formatting and logos you expect in a legitimate email. It can be very difficult to determine if an email is fake.

There are a multitude of ways a hacker can use a suspicious email to gain access to your Facebook account. The best way to avoid this is to delete the email and do not click on anything in the email. It is best to not even open suspicious emails.

If Facebook has to reach you, they can do so from your Facebook account. If you get an email from "Facebook", instead of opening the email, log into your account to see if you have a notification there. Do not trust any emails that ask for account information, request money, or threaten to suspend your account.

Phishing

The purpose of many fake emails is phishing. Phishing is when someone asks for personal information that they can use to gain access to your account. A common way to phish is to trick someone to sign in on a fake site.

Some hackers will go through the trouble of creating a fake website that looks the same as Facebook. But, you can avoid this trap. It is always best to go to Facebook rather than click on a link. If you do use a link, carefully read the email address. Does it look correct, or is Facebook misspelled? Finally, check for the secure icon in the web address before signing in.

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Fake Facebook Buttons

You might know not to trust links, but don't forget that "like" and "share" buttons act like links. Clicking on one of these buttons on a fake site might lead you to a fake login page designed to steal your information.

To avoid this, sign in to your Facebook account from a new tab in your browser. Your browser will keep you logged in on other tabs. Now, any likes

or shares will go directly to Facebook. If you still get a prompt to login, it's a good indicator that the button was fake.

Password Spraying

Coming up with a password is hard. It can be tempting to use something like "123456789". Of course, that is a bad idea; it is too easy to guess. But many people do use similar easy passwords. Because of this, many hackers employ password spraying. This is when they guess a password by using the most common passwords.

It is hard to remember a random alphanumeric sequence. So, more people use words, which limits the number of potential passwords available. When creating a password, it is best to use a unique phrase, replace some of the letters with numbers, and vary the capitalization. And definitely avoid any variation of the word "password", including pa$$word123.

Plain Password Grabbing

Once you come up with a good password, make sure you only use it for your Facebook account. If you use the same password everywhere, you leave yourself vulnerable to Plain Password Grabbing. This is when a hacker attacks a more vulnerable and less secure site. Some sites do not properly encrypt passwords. In that case, a hacker can then use the email and password saved in the database to try to access other sites like Facebook.

If you have a lot of accounts that require passwords, consider using a password manager. Often, they will generate strong passwords for you too.

Keylogging

Keylogging is a more advanced hacking technique. It requires installing a program on your device to track everything that you type. This can give hackers far more information than just your Facebook login information. They could even get credit card information using this method.

But, because a hacker needs to install a keylogging program on your device, it is a little easier to protect yourself against this sort of attack. Generally, hackers hide these programs in other software. To stay safe, do not download anything from an untrusted source. Your computer's security software can detect these programs, but you might want to get anti-malware software for your smartphone. Make sure to keep your security software up to date too.

Unsecured Networks

Even if you have the best passwords, and are using the most secure computer, it won't help if the network you are using is not secure. Public Wi-Fi is often unsecured. Unsecure networks allow hackers to snoop through all the data that you send and received from webpages while on that network.

Instead of using free Wi-Fi to access Facebook on the go, sign in using mobile data. It will ensure that your data is more secure. Or consider getting a virtual private network (VPN). Many VPN providers will encrypt your data, which will protect it even if you are connecting to the internet on an unsecured network.

Facebook Security in a Nutshell

Our growing dependence on the internet means that we need to be a little more careful online. All the security information out there can be a little overwhelming. But it all boils down to a couple of simple tips. Use unique passwords for all your accounts. Do not click on any links that you do not trust (even if it looks like they are from Facebook). Do not download anything unless you are certain if it is safe. Do not enter sensitive information on public computers or across public Wi-Fi. If in doubt, error on the side of caution.