# Comparative Studies OF Six Programming Languages

The study of programming languages is important. Often, computer researchers developed new programming languages. In recent years, many of new languages have been developed. There are pros and cons to each language. The couples of popular programming languages are C++, PHP, C#, Java, Python, VB. Many developers use these languages. Software developers and designers should be careful when making logical decisions and be aware of the advantages and disadvantages each language may bring to their software solution. Reusability, dependability, portability, availability of compilers and tools, readability, efficiency, familiarity, and expressiveness are the criteria used to compare these languages.

PHP is a server-side programming language created for web development. The main aim to create these scripts was to improve personal website and boost its performance. Most of the PHP's language is derived from C, Java, and Perl. Native Boolean types are available in PHP, same as in Java and C++. Additionally, PHP shares keywords and syntax with the majority of high-level languages that use the C style. PHP is a flexible language. Troubleshooting and rewriting could become a headache, however. Everywhere and on all browsers and platforms, PHP is usable. When compared to other scripting languages, it is viewed as the quickest. PHP is a weak language with dynamic typing. Since variables in PHP must always be specified before usage, PHP is dynamic. This suggests that before a variable is utilized, PHP does not require its explicit definition. For PHP applications, memory management is essential. PHP should use a garbage collection technique to release memory and remove circularly referenced variables in order to reduce memory use. Both PHP and C++ have a variety of IDEs that are available. The open-source Eclipse + PHP Eclipse plugin is an addition to the Eclipse framework that offers PHP tools. The operating systems Windows, Mac, and Linux all support it. PHP support to eclipse IDE and combine HTML tags and PHP code in one file

C++ is a high-level general-purpose programming language. C++ added several features likes: Virtual functions, Operator overloading, Function name , References , Constants , Improved type checking ,One line comments support. C++ is a multi-paradigm language: procedural, object oriented and generic. C++ procedures are also called routines, methods, or functions and they define a computational to be carried out by the program. More user-friendly than other types of low-level languages is the high level language C++ (i.e. assembly). C++ requires much more space than low-level languages it is easier to both learn and use, and it is compatible with C code.

Visual Basic was first invented by two mathematicians. The main goal in creating this new language was to make it simple to learn and utilize for college students. The language was initially developed as a FORTRAN component. The two programming paradigms, object-based and object-oriented, were primarily used in Visual Basic. Visual Basic was originally an object-based programming language. Thus, it has the concepts of objects, classes, data abstraction, and strong type checking. Now a part of the.NET framework is Visual Basic. As a result, the developer can use VB.net to construct apps for Windows, the Web, and console. With VB.NET, programmers can produce robust, high-quality apps.

Java is a programming language with a strong emphasis on static typing, however it also allows dynamic typing for some OOPs principles like polymorphism. A large number of the constructs were impacted by their equivalents in the C and C++ computer languages. A great OOPs language is Java. It provides encapsulation with access modifiers like private, public, protected, etc., greatly enhancing the code's dependability and security. Additionally, Java offers procedural programming. Java, however, restricts the use of global variables and outside class methods. JVM executes Java. Because the JVM manages all the resources required by the programmed, it is also known as a managed language. Java is a good OOPs programming language since it includes most OOPs ideas like inheritance, polymorphism, and encapsulation and removes some complex ideas like multiple inheritance.

Python is a dynamically typed programming language. The readability of the code was given a higher priority as the primary design principle. Multiple paradigms are supported by Python, including Object-Oriented, Imperative, Functional, Procedural, and Reflective. Because of the flexibility it offers due to its dynamically typed nature, Python is frequently used as a scripting language in the development of small applications that are being developed with static-typed languages. Python's preference for rapid application development makes it suitable for prototyping. Python is used in the development of websites to a certain level.

Microsoft released the C# programming language and the.Net platform simultaneously, and the various C# versions were released concurrently with the Microsoft. In addition to being an object-oriented programming language and drawing inspiration from the C-family of computer languages, C# also borrowed several aspects of functional programming languages, such as anonymous types and lambda expressions. C# was created with the intention of utilizing the best aspects of other programming languages like Java and C++ while avoiding their flaws. C# is a powerful programming language that increases programmers' productivity by streamlining the development process and lowering the probability that they will make the most common programming faults.

To compare our chosen programming languages, a number of experiments have been conducted and a number of specific criteria have been taken into account. Each language excels in a particular area of application. In terms of GUI design, C# has performed admirably. Java and desktop apps have both shown Java to be more suitable for web programming. Because C# and Java are tightly typed, they make it easier to write secure programmed. All the languages tested performed better than C++ in terms of database connectivity and execution speed. This demonstrates the language's immense strength and how frequently it is used in the software industry. Similar to Java, PHP is more suited for developing websites and connecting to databases than C++. Python is a good starter language.