About Computer Programming,Introduction of Java,Java Program Structure,Java Program Compilation and Execution.

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About Computer Programming

- The simplest way to explain computer programming is that it is a way of providing instructions to computers.These instructions tell the computer how to react and what it should do next.
- It is a collaboration between humans and computers, where humans create instructions in a language that computers can understand. The instructions are designed to solve problems and perform specific actions.
- Everything we see on our computers, including software, webpages, images, databases or even simple documents, was created by a computer programmer using code.
- Programmers will start by using a code editor or IDE to write source code. This is a collection of code written in a programming language that other programmers can read.

Types Of Programming Languages

There are hundreds of programming languages in existence. Developers will first consider the needs of the application so they can decide which languages would be appropriate to use.

Here are a few popular programming languages.

- Java
- JavaScript
- C/C++
- Python
- C#
- Ruby
- PHP

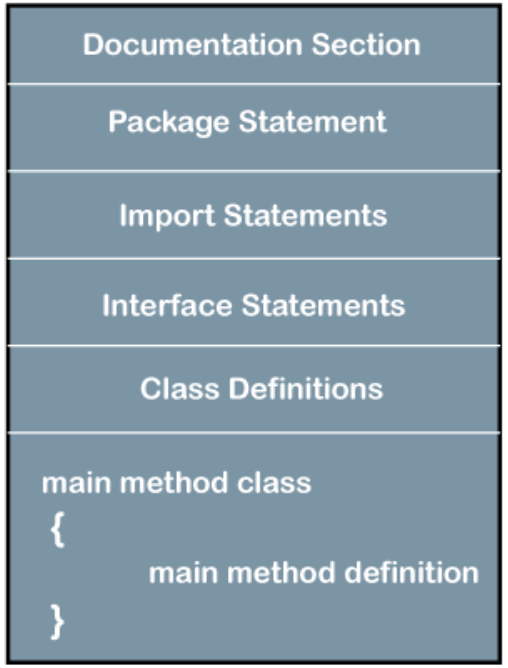
Introduction Of Java

Java is a programming language that James Gosling developed at Sun Microsystems_Inc in 1995. In 2009, Oracle Corporation acquired it. Java is a class-based object-oriented simple programming language. However, we can not consider it to be fully object-oriented as it supports primitive datatypes. It is a general-purpose, high-level programming language that helps programmers and developers to write code once and run it anywhere.

- We can call it a high-level programming language which makes it very convenient for us to write, compile, and debug Java programs.
- Java codes are very similar to C/C++, which makes them easier to understand.
- It is widely-used programming language for coding web applications.

Structure of Java Program

Java is an object-oriented programming, platform-independent, and secure programming language that makes it popular. Using the Java programming language, we can develop a wide variety of applications. So, before diving in depth, it is necessary to understand the basic structure of Java program in detail.



Structure of Java Program

❖ **Documentation section:**It contains basic information about java program with in comment lines.

Ex: 1.Using Single-line comment: //First Java Program

2.Using Multi-line comment: /*It is an example of multiline comment*/

Continue…

- **Package Statement:**In this section we create user defined packages using package keyword.This package declaration is optional.
  Ex: package packagename;
- **Import Statement:**The Package contains no of predefined classes and interfaces.If we want to use any class from particular package we need to import that class.
  Ex:import java.util.Scanner;
  import java.util.*;
- **Interface Statement:**It is also an optional section.We can create an interface in this section if required. We use the interface keyword to create an interface.
  Ex: interface car
  {
  void start();
  void stop();
  }

Continue…

- **Class Definition:**In this section we define class.It is an important part of a java program.Without class we cannot create java program.The class keyword is used to create class.

  Ex:class student
  {
  }

- **Main Method Class:**In this section we define main method.It is essential for all java programs.The main method must be inside the class.

  Ex:public static void main(String args[])
  {
  }

Java Program Compilation and Execution

- The software that is used to execute java applications is JDK(Java Development Kit).The JDK consists of 2 things they are compiler and JRE(Java Runtime Environment).
- The written java program is given to compiler which is .java file and converts it into .class file which is known as byte code.

  For compilation:javac filename.java
- JRE contains JVM(Java Virtual Machine).JVM is operating system dependent i.e each os contains its own JVM but output produced from any os will be same so we can say that java is platform independent.The .class file(byte code) which is produced after compilation is given to JVM and produces output.

  For Execution:java filename