

# Fundamentals of Java

## 1.What is programming language?

A programming language is a **computer language** that is used by **programmers (developers) to communicate with computers**. It is a set of instructions written in any specific language ( C, C++, Java, Python) to perform a specific task.

A programming language is mainly used to **develop desktop applications, websites, and mobile applications**.

Category of programming language:1-Machine Level Language

2-Assembly Level Language

3-High-Level Language

## 2.Why do you need a programming language?

The programming language enables us to write efficient programs and develop online solutions such as-mobile applications, web applications, and games,etc. Programming is used to automate,maintain,assemble,measure and interpret the processing of the data and information.

- Not just for academics, but for the real world as well, all programming is done.

- due to programmes developed by computer programming, you can conduct online banking and purchase your ticket while travelling by train or aeroplane. It's true that your washing machine has a few different kinds of computer programs.

Programming makes it possible for all of these things and many more.

## 3.What are the features of java?

**1-Simple:-** Java is very easy to learn, and its syntax is simple, clean and easy to understand.

**2-Object-oriented:-**Java is an Object-oriented programming language. Everything in Java is an object. Object-oriented means we organise our software as a combination of different types of objects that incorporate both data and behaviour

**3-Portable:-**Java is portable because it facilitates you to carry the Java bytecode to any platform. It doesn't require any implementation.

**4-Platform independent**-java is platform independent because it is different from other languages like C, C++, etc. which are compiled into platform specific machines while Java is a write once, run anywhere language. A platform is the hardware or software environment in which a program runs.

**5-Robust:-**It assists us in identifying potential errors as soon as feasible during program development.

**6-Distributed:-**Java maintains the TCP/IP protocol and is therefore suitable for distributed Internet environments.

## 4.What is an objects?

Objects are key to understanding *object-oriented* technology. Look around right now and you'll find many examples of real-world objects: your dog, your desk, your television set, your bicycle.

An object has three characteristics

- 1- State: represents an object's data (value)
- 2- Behaviour: represents how an object behaves (or how it functions), such as when you deposit or withdraw money
- 3-Identity: Usually, a distinct ID is used to implement an object's identification. The external user cannot see the value of the ID. However, the JVM uses it internally to uniquely identify each object.

## 5.What is a class?

A class is a collection of items with similar characteristics. It serves as a model or blueprint from which things can be made. It makes sense as a whole. It cannot be bodily.

For example, an Employee class may contain all the employee details in the form of variables and methods. If the class is instantiated i.e. if an object of the class is created (say e1), we can access all the methods or properties of the class.

**In Java, a class is include;**

- Fields
- Methods
- Constructors
- Blocks main
- Nested class and interface

## 6.Explain about the main() Method in java?

### **The Java main method is usually**

The java main method is usually the first method you learn about when you start programming in Java because its the entry point for executing a Java program.the main method can contain code to execute or call other methods,and it can be placed in any class that's part of program.more complex programs usually have a class that contains only the main method. The class that contains the main method can have any name,although typically you can just call the main.