**Basics of Java**

**What is Java?**

Java is programming language which help to create a program to simulate real world problem in programing.

**How Java Works?**

Program.java file – compiler compile it (javac) – convert to byte code (Program.class) – JVM – Run anywhere.

**Features of Java?**

Simple

Object-Oriented

Portable

Platform Independent

Secure

Robust

Architectural Nature

Interpreted

High Performance

Multithreaded

Distributed

Dynamic

**Difference between C++ and Java?**

|  |  |
| --- | --- |
| C++ | Java |
| Platform Dependent | Platform Independent |
| Support Multiple Inheritance | Not Support multiple Inheritance |
| Pointer are there | Dose not support Pointers |
| Mainly use for System Designing | Mainly Use for Web application, Mobile and window based application. |

**JDK, JRE, JVM**

**JDK – Java Development Kit**

JDK is software to provide environment to run the java code and it will to be installed in machines.

JDK contains JRE+JVM.

SE – Standard Edition

EE –Enterprise Edition

ME – Micro Edition

**JRE – Java Runtime Environment**

JRE It is set of software tool which are used to develop java application and provide run time environment.

JRE contains some libraries + some other files used at runtime.

**JVM – Java Virtual Machine**

JVM is use for run the byte code or machine code.

JVM is to responsible for load the code and run the code.

JVM main task is Load code – Verifies Code – Executes Code – Provide Runtime Environment.

**What are Java Variables?**

Local variable

Instance Variable

Static variable

**Local Variable** – Inside in method – Static keyword not allowed on Local variable.

**Instance Variable** – Inside Class but outside Method

**Static Variable** – Declare with Static keyword but Inside in class and outside of method – Class level variable.

**What are Java Data Type?**

Primitive type – byte, int, char, short, long, double, float, Boolean.

Non Primitive type – Interface, Class, Array.

**What is Wrapper Class?**

Wrapper class is provide a way to use primitive data types as objects.

Each primitive data type has a corresponding wrapper class.

Wrapper class provide a method to convert primitive data type to object (Boxing) and Object into primitive (unboxing).

We are use wrapper class in situation where we need Object such as Collection like ArrayList or working with generic which does not support directly primitive data type.

**What is Boxing in Java?**

Boxing means the process of converting primitive data type to non-primitive data type.

**What is Unboxing in Java?**

Unboxing means the process of converting non-primitive data type to primitive data type.

**What is Widening in Java?**

The process of converting narrower type to Wider type.

For example int to double.

**What is Narrowing in Java?**

The process of converting to wider type to narrower type.

For example double to int.