Day 1

Basics of Java Programming Language

Objectives

1. What is Java
2. Where it Used
3. Types of Java Applications
4. Java Features
5. Hello World Program
6. Understanding First Java Program
7. Variables and Data Types

What is Java ?

Java is a **programming language** and a **platform**.

Java is a high level, robust, secured and object-oriented programming language.

Platform: Any hardware or software environment in which a program runs, is known as a platform. Since Java has its own runtime environment (JRE) and API, it is called platform.

Java Example:

```
class Simple{

    public static void main(String args[]){

     System.out.println("Hello Java");

    }

}
```

Where it Used ?

According to Sun, 3 billion devices run java. There are many devices where Java is currently used. Some of them are as follows:

1. Desktop Applications such as acrobat reader, media player, antivirus etc.

2. Web Applications such as irctc.co.in, javatpoint.com etc.

3. Enterprise Applications such as banking applications.

4. Mobile

5. Embedded System

6. Smart Card

7. Robotics

8. Games etc.

Types of Java Applications ?

There are mainly 4 types of applications that can be created using java programming:

1) Standalone Application

It is also known as desktop application or window-based application. An application that we need to install on every machine such as media player, antivirus etc. AWT and Swing are used in java for creating standalone applications.

2) Web Application

An application that runs on the server side and creates dynamic page, is called web application. Currently, servlet, jsp, struts, jsf etc. technologies are used for creating web applications in java.

3) Enterprise Application

An application that is distributed in nature, such as banking applications etc. It has the advantage of high level security, load balancing and clustering. In java, EJB is used for creating enterprise applications.

4) Mobile Application

An application that is created for mobile devices. Currently Android and Java ME are used for creating mobile applications.

Java Features

According to Sun, 3 billion devices run java. There are many devices where Java is currently used. Some of them are as follows:

There is given many features of java. They are also known as java buzzwords. The Java Features given below are simple and easy to understand.
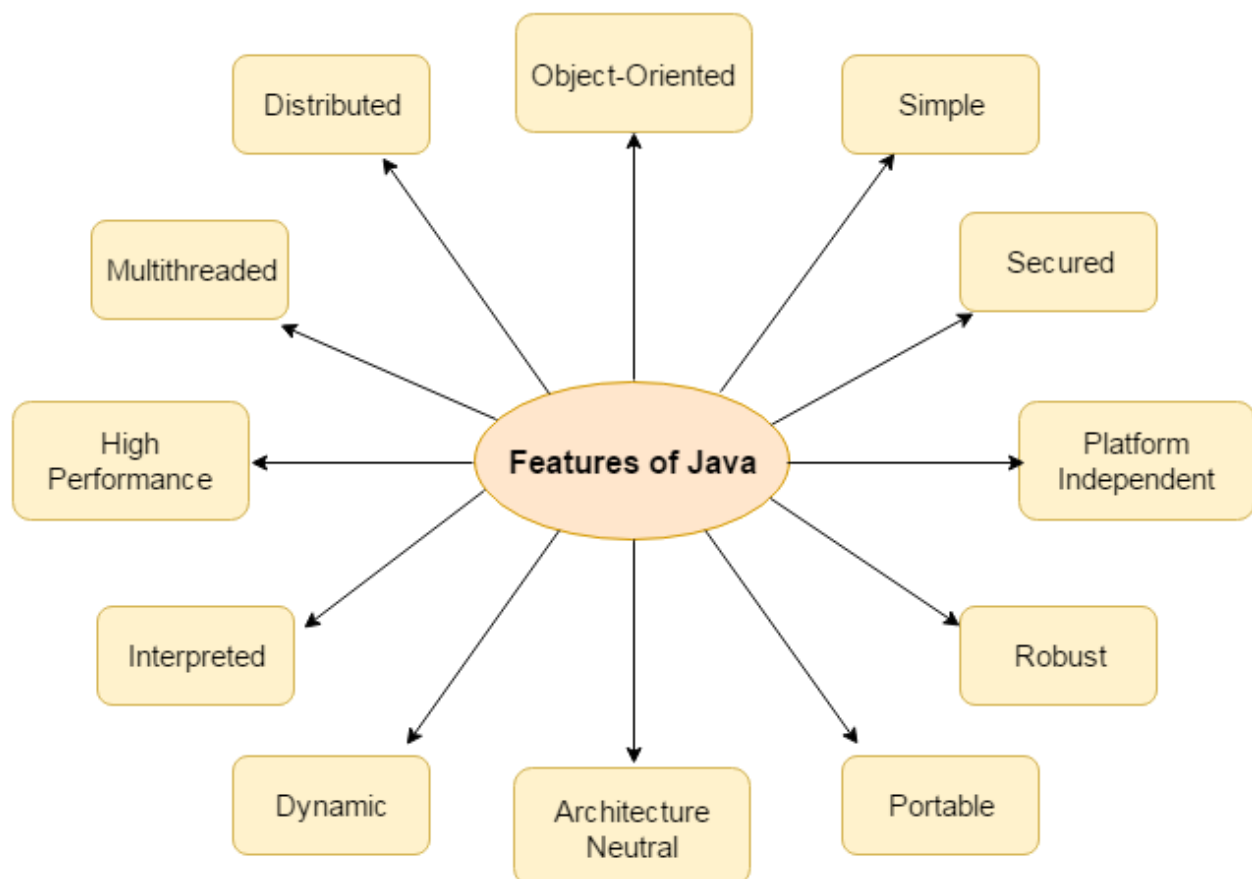
Understanding First Java Program

```java
class Simple{
    public static void main(String args[]){
     System.out.println("Hello Java");
    }
}
```

Let's see what is the meaning of class, public, static, void, main, String[], System.out.println().

- **class** keyword is used to declare a class in java.

- **public** keyword is an access modifier which represents visibility, it means it is visible to all.

- **static** is a keyword, if we declare any method as static, it is known as static method. The core advantage of static method is that there is no need to create object to invoke the static method. The main method is executed by the JVM, so it doesn't require to create object to invoke the main method. So it saves memory.

- **void** is the return type of the method, it means it doesn't return any value.

- **main** represents startup of the program.

- **String[] args** is used for command line argument. We will learn it later.

- **System.out.println()** is used print statement. We will learn about the internal working of System.out.println statement later.

Variables and Data Types

Variable is a name of memory location. There are three types of variables in java: local, instance and static.

There are two types of data types in java: primitive and non-primitive.

Variable is name of *reserved area allocated in memory*. In other words, it is a *name of memory location*. It is a combination of "vary + able" that means its value can be changed.

int data=50;//Here data is variable

Types of Variable

There are three types of variables in java:

- local variable
- instance variable
- static variable
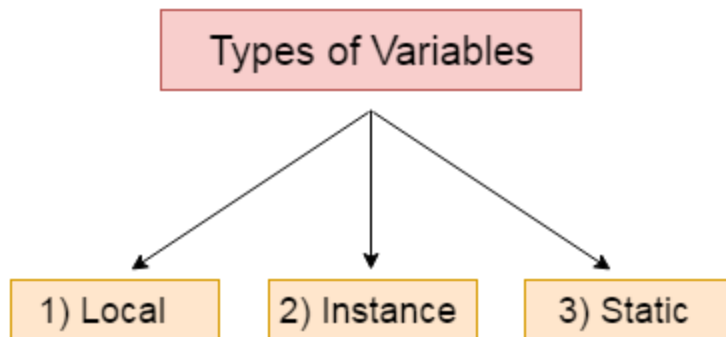
1) Local Variable

A variable which is declared inside the method is called local variable.

2) Instance Variable

A variable which is declared inside the class but outside the method, is called instance variable . It is not declared as static.

3) Static variable

A variable that is declared as static is called static variable. It cannot be local.

We will have detailed learning of these variables in next chapters.

Example :

```
class A{
int data=50;//instance variable
static int m=100;//static variable
void method(){
int n=90;//local variable
}
}//end of class
```