Lecture- 1 JAVA DT:23/10/21

Java is a **programming language** and a **platform**. Java is a high level, robust, object-oriented and secure programming language.

Java was developed by Sun Microsystems (which is now the subsidiary of Oracle) in the year 1995.

Setting up java:

Java have three components

1. jvm - Helps in compilation and execution of a program
2. jre - jvm runs a program in jre environment
3. jdk - It provides all the library and support to jre

IDE- integretated Development environment

* Jvm-Java virtual machine
* Jre - Java runtime Environment
* Jdk- Java development kit

**Setting up java in windows system :**

* Go to environment variable
* Click environment variable
* Click on new
* Variable name (JAVA\_HOME)
* Variable value (copy jdk path)
* Ok
* Double click on path variable
* New
* %JAVA\_HOME%\bin
* Ok
* Ok
* Close all cmd prompt windows
* Reopen cmd (to check install or not)
* java –version

**How to create a project in eclipse:**

* Click on fire
* New
* Java project
* Project name

**How to create a package:**

* Right click on src
* New
* Package
* Name format: com.name.name

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**Class :**

A class is an entity or a container which consists of data members and methods inside it .

Ex – public Teacher;

**How to create a class:**

* Right click on package
* New
* Class
* Give the name(first letter always be capital)

**Object :**

It is a instance of a class .It contains all the attributes and methods of a class. We can access the members and methods of class through an object.

Ex – public class Student {

Int rollNo=25;

String name = “Aman”;

Public void displayname( ){

system.out.println(name);

}

Student std =new student( );

}

Syntax for creating an object : Class name variable name = new classname( );

**Variables:**

Variables are entities which store some values in it. Variables can be of any type.

**Scope of Variable:**

* Global Variable:

These are the variables which are declared under a class and not inside any method or block. Since they are declared outside methods or blocks, they have a global access by all the methods of the class.

* Local Variable:

These are the variables which are declared inside a method or a block. They cannot be accessed outside the method or block in which they are declared.

Ex:

class Student {

int rollNo = 101; *//global variable*

String name = “Rahul”; *//global variable*

public void display() {

int var = 5; *//local variable*

}

}

**Data types :**

Data types refer to types of data which we use as a variable.

Ex - int a = 10;

char letter = ‘z’;

String name = “Aman”;

float c = 2.15F;

long z =12345678901L;

**There two types of data types :-**

1. Primitive datatypes
2. Non-primitive datatypes

**Primitive datatypes :-**

The primitive data types include **byte,short,char,boolean,int,long,float,double.**

**Non-primitive datatypes :-**

The non-primitive data types include **String,Array,Class,Object,Interface.**

//String = It is an Array of char.

**Methods:-**

Method is a block of code or collection of statements that perform a certain task or operation.

Ex-class Employee {

Public int displayrollNo( ){

}

}

Return statement:-

It returns a certain value to a methods caller.

Ex:- public int displayrollno( ){

return rollno;

}

Access specifier :-

There are three types of access specifier.

1. Public
2. Private
3. Protected

Public :-Public members or methods can be accessed in the same class or any other class even outside the package.

Private :-private members or methods can be accessed in same class.

Protected :-protected members or methods can be accessed in the same class or any other class in the same package.

Decision Control(If-Else):

If-Else blocks are used for execution of statements depending 1 or more conditions.



Syntax: if(condition…) {

----

----

}else{

----

----

}

If-else ladder:

If(condition) {

----

----

}else if(condition){

----

----

}else if(condition) {

----

----

}else{

----

----

}

In the above case, if-else is structured in ladder format. If we have multiple conditions and statements are to be executed on the basis of conditions we can use the above ladder format.

*Example of the same is illustrated in the same github path.*

**String Class:**

String is a class present in java.lang package.

It is immutable which means once a String is created it cannot be changed. But it can be replaced.

There are 2 ways of creating a String:

1. String str1 = new String(“Babu”);

Here, when a String is created using **new** keyword, a new instance/object of String is created in java heap memory. And the literal value is placed in **String Constant pool.**

1. String str2 = “Babu”;

Here, when we create a String with a literal value, a variable of String type is created directly referencing the value in the **Constant Pool.**

