Assignment - 01

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1.) Explain Features of Java.

Ans Features of Java are as follows :-

1.) Object Oriented
2.) Simple
3.) Secured
4.) Plateform Independent
5.) Robust
6.) Portable
7.) Archidecture Neutral
8.) Dynamic
9.) Intrepreted
10.) High Performance
11.) Multithreaded
12.) Distributed.

2.) Discuss Class, object and Method in Java (with example)

Ans **Class**: A Class describes the contents of the ~~options~~ objects that belongs to it. It describes an aggregate of data fields and defines the operations.

Method:

A is an action which an Object is able to perform. sending message to an object means asking the object to execute or invoke of its methods.

Object :
An object is an element of a class, Objects have the behaviors of their class. The object is the actual component of programs, while the class specifies how instances are created and how they behave.

example :-

```
public class Puppy {
    public Puppy (String name) {
        System.out.println ("Passed Name is : "+name);
    }

    public static void main (String [] args)
    {
        Puppy mypuppy = new Puppy ("tommy");
    }
}
```

Output :-
Passed Name is :- tommy.

3.) Explain inheritance in Java (with example)
Ans When an object acquires all properties and behaviours of parent object i.e. known as inheritance.
* It provides code reusability.
* It is used to achieve runtime polymorphism.
* There are 3 types of inheritance in Java :
  (1) Singal inheritance
  (2) Multilevel inheritance
  (3) Hierarchical inheritance.

Example:-

```
Class Student
{
    void Study()
    {
        System.out.println(" Studying.... ");
    }
}
Class Ram extends Animal {
    void sleep() {
        System.out.println(" Sleeping .... ");
    }
}
Class Testinheritance {
    public static void main (static args[]) {
        Ram a = new Ram();
        a.Sleep();
        a.Study();
    }
}
```

4) Give difference between interface and abstract class.

Ans

Interface :-

* Interface can have only abstract methods.
* It supports multiple inheritance.
* An Interface keyword is used to declare interface
* Interface has only static and final variables

* Interface can be implemented using keyword "implements".

Abstract Class :

* Abstract class can have abstract and non-abstract methods.
* It doesn't support multiple inheritance.
* Abstract keyword is used to declare abstract class.
* Abstract class have final, non-final, static and Non-static variables.
* Abstract class can be extented using keyword "extends".

5.) Give difference between method overriding and method overloading (with Example)

Ans

Method Overriding :-

* Method overriding is used to provide the specific implementation of the method that is already provided by its super class.
* It occurs in two classes that have IS-A relationship.
* In this case, parameter must be same.
* Method Overriding is the example of run time polymorphism

Method Overloading

* Method Overloading is used to increase the readability of the program.
* Method overloading is performed within class.
* In case of method overloading, parameter must be difference.
* Method overloading is the example of compile time polymorphism.

Java Method Overloading example

```
class OverloadingEnample {
    Static int add (int a, int b)
    {
        return a+b';
    }
    Static int add (int a, int b, int c) {
        return a+b+c;
    }
}
```

Java Method overriding example

```
class Animal {
    void eat() {
        System.out.println("eating...");
    }
} class Dog extends Animal {
class Dog extends Animal {
    void eat() {
        System.out.println("eating meat...");
    }
}
```