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OOPs

1) what is Inheritance in Java?

Ans) Inheritance is a fundamental features of object - Oriented programming (OOP) in java. It allows a class to inherit properties and methods from another class, known as the parent or superclass. It is achieved using "extends" keyword

2) What is Superclass and Subclass?

Ans) A class from where subclass inherits features is called Superclass. It is also Called base class or parent class.

A class that inherits all the members (fields, methods, & nested classes) from another class is Called a subclass. It is also called a derived, child or extended class.

3) How is Inheritance implemented/ achieved?

Ans) by using two keywords:-

i) extends - used for developing the inheritance b/w two Classes & two interface.

ii) implements - used for develaping the inheritance b/w a class & interface.

4) What is polymorphism?

Ans) Polymorphism in OOPs is the ability of an entity to take several forms. In other words, it refers to the ability of an object to take different form of objects.

5) Difference b/w Overloading and method Overridi

Ans) Method Overloading is a feature that allows a class to have multiple methods with same name but different parameters. The method call is determined at Compile time.

Method ~~overl~~ overriding - that allows a subclass to provide its own implementat of a method that is already defined in its superclass. The purpose of overriding is to modify or extend behaviour of a superclass method in the subclass.

6) What is an abstraction ? Explain with Example.

Ans) Abstraction concept ~~that~~ allows a programmer to focus on essential features of an object while hiding unnecessary details.

Eg

```
Abstract class Sports {
        Abstract Void jump();
}
```

7) Difference b/w an abstract and final method ?

Ans) The abstract method is incomplete while the final method is regarded as Complete. The Only way to use an abstract method is by overriding it, but you Cannot override a final method in java.

8) What is the final class ?

Ans) A final class is a class that Cannot be subclassed. Once a class is marked as final, it Cannot be extended or inherited by any other class. This means that a final class cannot be used as a superclass by any other class.

9) Difference b/w abstraction & encapsulation

Ans) Abstraction is the process of focusing on essential features of an object, while hiding unnecessary details. An abstract class is a class that Cannot be instantiated & is meant to be subclassed.

Encapsulation is the process of hiding the implementation details of an object from the outside world & restricting access to the iternal state of the object. Achieved through (public, private, protected) & getter & setter methods.

10) Difference b/w Complime time and run time polymorphism.

Ans) ~~Complii~~ Compile time Polymorphism, also known as method overloading, occurs when multiple methods in a class have the same name but different parameters.

Eg -
```
piiblic class Calc {
        public int add (int x, int y) {
              return x+y;
        }
        public double add (double x, double y){
              return x + y; }

    Calc   Ca = new Calc();
    int res1 =     ~~Calc.add~~ Ca.add(2,3);
    double res~~x~~2 =     Ca.add ( 2.3, 4.3);
```

* Runtime polymorphism, also known as method overriding, occurs when a subclass provides a different implementation of a method that is defined in it's Superclass.

Eg-

```
Public class Animal {
        public Void speak() {
            System.out.println ("An animal")
        }
    }
Public class Cat extends Animal {
   @ Override
      public Void speak() {
            S.o.P ("Meow!!");
      } }
```

```
Animal an1 = new Animal();
Animal an2 = new Cat();
an1. speak(); → method of animal
an2. speak(); → method of Cat i.e
                        overridden.
```