

1.What is Inheritance in Java?

Ans: When we construct a new class from existing class in such a way that the new class access all the features and properties of the existing class is called Inheritance.

2. What is superclass and subclass?

Ans: A class from where a subclass inherits the features and properties is called superclass. It is also known as base class or parent class.

A class that inherits all the features like- methods, variables from another class is called subclass. It is also called a derived class or child class.

3. How is inheritance implemented in Java?

Ans: in java we can implement inheritance using extends keyword.

4. What is Polymorphism?

Ans: polymorphism is a concept of OOPS programming, it is a Greek word where Poly means many and morphism means structures of forms.

If one thing exists in more than one form, then it is called polymorphism.

5. Difference between method overloading and overriding.

Ans:

Method Overloading	Method Overriding
Method overloading is known as compile-time polymorphism.	Method overriding is known as runtime polymorphism.
For overloading to come into picture, there must be at least two methods of the same name.	For overriding to work, we need to have at least one method with the same name in both the parent class as well as the child class.
The methods must have different number of parameters. If both the methods have the same number of parameters, then their type must be different.	Both the methods must have the same number of parameters with the same type.

6. What is an abstraction explained with example?

Ans: It is a process of hiding the implementation details from the user, only the highlighted set of services provided to the user.

Ex: Abstract class AeroPlane{
 Abstract public void fly(){
}
}

7. Difference between an abstract method and final method in Java.

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 in Java?

Ans: The final class is a class that is declared with the final keyword. We can restrict class inheritance by making use of the final class. Final classes cannot be extended or inherited. If we try to inherit a final class, then the compiler throws an error during compilation.

```
final class Super {  
    private int data = 30;  
}  
  
public class Sub extends Super{  
    public static void main(String args[]){  
    }  
}  
  
// it will throw an error
```

9. Difference between abstraction and encapsulation.

Ans:

S.No	Abstraction	Encapsulation
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1.	It is the process of gaining information.	It is a method that helps wrap up data into a single module.
2.	The problems in this technique are solved at the interface level.	Problems in encapsulation are solved at the implementation level.
3.	It helps hide the unwanted details/information.	It helps hide data using a single entity, or using a unit with the help of method that helps protect the information.
4.	It can be implemented using abstract classes and interfaces.	It can be implemented using access modifiers like public, private and protected.
5.	The complexities of the implementation are hidden using interface and abstract class.	The data is hidden using methods such as getters and setters.
6.	Abstraction can be performed using objects that are encapsulated within a single module.	Objects in encapsulation don't need to be in abstraction.

10. Difference between runtime and compile time polymorphism in Java.

Ans: Compile-time polymorphism allows us to use many methods with the same name but differing signatures and return types. Method overriding can be used to demonstrate run-time polymorphism. Run-time polymorphism is associated with different classes, but it allows us to use the same method with different signature names.