*/\*  
Override (ghi đè phương thức): nếu như bên class cha cha mà có phương thức nhưng phương thức  
đó không thoar maxn được nhu cu xử lý của class thì class con sẽ định nghĩa lại phương thức đó  
với logic mới giành riêng cho class con.  
Dùng Override  
overload( nạp chồng) : tức là các function có cùng tên nhưng khác nhau số lượng tham số  
hoặc kiểu dữ liệu tham số  
 \*/*

What is the difference between override and overload in JAVA? Give illustrative examples

ChatGPT

In Java, both override and overload are used to change the behavior of methods, but they have different purposes and mechanisms:

Method Overriding:

Method overriding occurs when a subclass provides a specific implementation for a method that is already defined in its superclass. The method signature (name, return type, and parameters) must be exactly the same in the subclass and superclass. This allows the subclass to provide its own implementation of the method while maintaining the same method signature.

Illustrative Example of Method Overriding:

java

Copy code

class Animal {

public void makeSound() {

System.out.println("Animal makes a sound.");

}

}

class Dog extends Animal {

@Override

public void makeSound() {

System.out.println("Dog barks.");

}

}

In this example, the Dog class overrides the makeSound() method of the Animal class to provide its own implementation.

Method Overloading:

Method overloading occurs when multiple methods with the same name are defined in the same class, but with different method signatures (different parameter types or number of parameters). The return type can be the same or different. Overloading allows a method to perform similar operations but with different input parameters.

Illustrative Example of Method Overloading:

java

Copy code

class Calculator {

public int add(int a, int b) {

return a + b;

}

public double add(double a, double b) {

return a + b;

}

}

In this example, the Calculator class has two add methods: one that takes two integers and another that takes two doubles. This demonstrates method overloading, as the same method name is used, but the parameter types differ.

In summary, method overriding is about providing a new implementation for a method in a subclass that is already defined in its superclass, whereas method overloading is about defining multiple methods in the same class with different method signatures to handle different types or numbers of parameters.