MOD -02 -> OOPs

Polymorphism

Polymorphism

Polymorphism means more than one forms

Types of polymorphism

1. Static/compile time polymorphism (by method overloading).
2. Dynamic/run time polymorphism (by method overriding).

Method Overloading In Java

Method overloading is the way of implementing static/compile time polymorphism in java.

Method overloading means :->

1. more than one methods in a class with same name but different parameters.
2. Parameters can be differing in types, numbers or order.
3. Compiler resolve method call by matching method signature at compile time, that's why it is known as static or compile time polymorphism.
4. It is also known as static binding.

Ways to implement method overloading in java:

1. Parameters differ in types.
2. Parameters differ in number.
3. Parameters differ in order.

Why method overloading is not possible by changing return type of the method?

Method overloading is not possible by changing return type of the method. Because, as discussed above compiler resolve method call by matching method signature(method name and parameters). If method signatures are same for two or more methods then how compiler will know which method have to be called.

Assignment

Question : Create a Java class named Calculator that demonstrates method overloading of a method called sum().

main method can also be overloaded.

```java
package polypack;
public class MainOverloadDemo {
    // Overloaded main methods
    public static void main(int num) {
        System.out.println("Overloaded main with int: " + num);
    }
    public void main(String message) {
        System.out.println("Overloaded main with String: " + message);
    }
    public static double main() {
        return 3.14;
    }
    // Standard main method (entry point)
    public static void main(String[] args) {
        System.out.println("Main method with String[] args");

        // Calling overloaded main methods
        main(10); // calls main(int)
        MainOverloadDemo md = new MainOverloadDemo();
        md.main("Hello"); // calls main(String)
        System.out.println("Overloaded main pi value : " + main()); // calls main(double)
    }
}
```

Constructor overloading in java.

The process of defining more than one constructor with different parameters in a class is known as constructor overloading. Parameters can differ in number, type or order.

Assignment

Question : Create a Java class named Employee to demonstrate constructor overloading.

Question: How to copy the values one object into another object using constructor?

Ans: Copy Constructor

Thank you ☺ Happy learning ☺