

4. Writing a program in Java to verify the implementations of constructor types.

Source Code:

```
package FirstPackage;

public class Constructor {
    private String name;
    private int P_Number;

    // default constructor
    public Constructor() {
        this.name = "Alexa";
        this.P_Number = 789090893;
    }

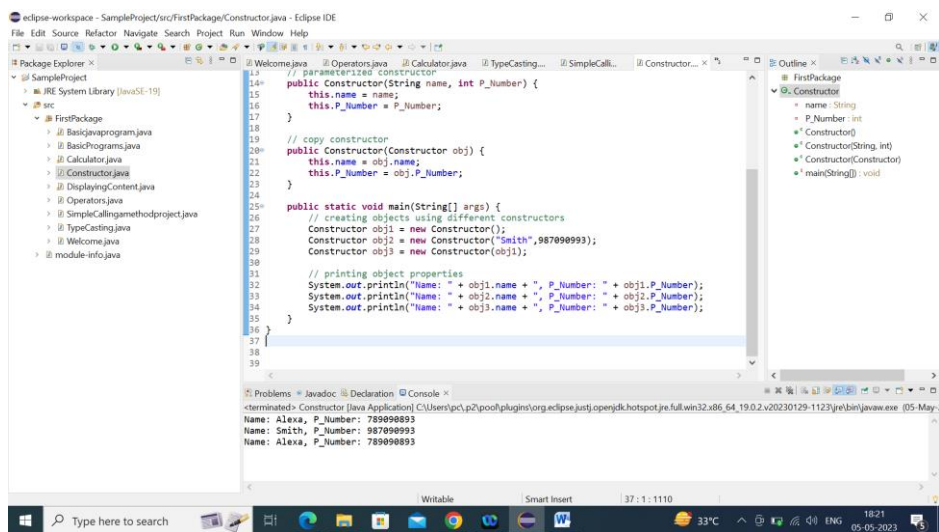
    // parameterized constructor
    public Constructor(String name, int P_Number) {
        this.name = name;
        this.P_Number = P_Number;
    }

    // copy constructor
    public Constructor(Constructor obj) {
        this.name = obj.name;
        this.P_Number = obj.P_Number;
    }

    public static void main(String[] args) {
        // creating objects using different constructors
        Constructor obj1 = new Constructor();
        Constructor obj2 = new Constructor("Smith", 987090993);
        Constructor obj3 = new Constructor(obj1);

        // printing object properties
        System.out.println("Name: " + obj1.name + ", P_Number: " + obj1.P_Number);
        System.out.println("Name: " + obj2.name + ", P_Number: " + obj2.P_Number);
        System.out.println("Name: " + obj3.name + ", P_Number: " + obj3.P_Number);
    }
}
```

Output:



The screenshot shows the Eclipse IDE interface. The Package Explorer on the left shows a project named 'SampleProject' with a package 'FirstPackage' containing several Java files, including 'Constructor.java'. The main editor displays the code for 'Constructor.java'.

```
14 // parameterized constructor
15 public Constructor(String name, int P_Number) {
16     this.name = name;
17     this.P_Number = P_Number;
18 }
19 // copy constructor
20 public Constructor(Constructor obj) {
21     this.name = obj.name;
22     this.P_Number = obj.P_Number;
23 }
24
25 public static void main(String[] args) {
26     // creating objects using different constructors
27     Constructor obj1 = new Constructor();
28     Constructor obj2 = new Constructor("Smith", 987989893);
29     Constructor obj3 = new Constructor(obj1);
30
31     // printing object properties
32     System.out.println("Name: " + obj1.name + ", P_Number: " + obj1.P_Number);
33     System.out.println("Name: " + obj2.name + ", P_Number: " + obj2.P_Number);
34     System.out.println("Name: " + obj3.name + ", P_Number: " + obj3.P_Number);
35 }
36
37
38
39
```

The Outline view on the right shows the class structure for 'FirstPackage' and 'Constructor', listing attributes 'name' (String) and 'P_Number' (int), and methods 'Constructor()', 'Constructor(String, int)', 'Constructor(Constructor)', and 'main(String[]) void'.

The Console view at the bottom shows the output of the program:

```
terminated: Constructor [Java Application] C:\Users\pc\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64.19.0.2.v20230129-1123\jre\bin\java.exe (05-May-2023 18:21:11)
Name: Alexa, P_Number: 789898893
Name: Smith, P_Number: 987989893
Name: Alexa, P_Number: 789898893
```