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Assignment -11

1 write a Java Program to implement Polymorphism.
Note:- Consider a scenario Bank is a class that provides methods to get the rate of interest. But rate of interest may differ according to banks. For example SBI, ICICI and AXIS are providing 8.4%, 7.3% and 9.7% rate of interest.

2 write a java program to demonstrate multiple inheritance through default method (using interface).

3 write a Program to demonstrate the use of this keyword.

4 write a Program to implement the static keyword and represent all its uses.

5 write a Program to demonstrate the hybrid inheritance by combining multilevel and single inheritance.

Output:-

1
```
import java.lang.*;
import java.util.*;

abstract class Bank {
    abstract double getROI();
}

class SBI extends Bank {
    double getROI() {
        return 8.4;
    }
}
```

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```
class ICICI extends Bank {
    double getROI() {
        return 7.3;
    }
}
class AXIS extends Bank {
    double getROI() {
        return 9.7;
    }
}
public class ScenarioBank {
    static double principal, years;
    static int n;
    static void calCI (String bank, double rate) {
        double amount = principal * Math.pow((1+rate/
                        (100 * n)), n * years);
        System.out.printf("%s :- %.2f \n", bank, amount);
    }
    public static void main (String args[]) {
        Scanner sc = new Scanner (System.in);
        System.out.print("Enter principal amount :- ");
        principal = sc.nextDouble();
        System.out.print ("Enter number of years :- ");
        years = sc.nextDouble();
        System.out.print ("Enter number of times
                interest is compounded per year :- ");
        n = sc.nextInt();

        System.out.println ("\nReturn amounts from
                different banks (compound Interest) :- ");
```

```
        SBI s = new SBIC();
        calCI("SBI", s.getROI());
        ICICI i = new ICICIC();
        calCI("ICICI", i.getROI());
        AXIS a = new AXISC();
        calCI("AXIS", a.getROI());
        sc.close();
    }
}
```

OUTPUT:-

```
Enter principal amount :- 20000
Enter number of years :- 2
Enter number of times interest is compounded per year :- 1

Return amounts from different banks (Compound Interest):-
SBI :- 23501.12
ICICI :- 23026.58
AXIS :- 24068.18
```

2

```
~~import java.lang.*;~~
interface A {
    default void print(){
        System.out.println("Inside interface A");
    }
}
interface B {
    default void print(){
        System.out.println("Inside interface B");
    }
}
```

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```
Public class multiInheritance implements A, B {
    Public void Print() {
        A.super.Print();
        B.super.Print();
        System.out.Println("Inside class multiInheritance");
    }
    public static void main (String args[]) {
        multiInheritance obj = new multiInheritance();
        obj.Print();
    }
}
```

output:-

```
Inside interface A
Inside interface B
Inside class multiInheritance.
```

```
} import java.lang.*;
class ThisKeyword {
    String name;
    int age;
    ThisKeyword (String name, int age) {
        this.name = name;
        this.age = age;

        this.display();
    }
    void display() {
        System.out.Println("Name :- " + name +
                           ", Age :- " + age);
    }
```

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```
ThisKeyword(){
        this("unknown", 0);
    }
    public static void main(String args[]){
        ThisKeyword s1 = new ThisKeyword();
        ThisKeyword s2 = new ThisKeyword("Rajesh",
                                         20);
    }
}
```

Output:-
Name :- Unknown, Age :- 0
Name :- Rajesh, Age :- 20

4
```
import java.lang.*;
public class StaticExample{
    String name;
    int age;
    static int stdCount = 0;

    StaticExample (String name, int age){
        this.name = name;
        this.age = age;
        studentCount++;
        showDetails();
    }
    static void displayCount(){
        System.out.println("Total students created:"
                           + studentCount);
    }
```

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```
    static {
        System.out.println("Inside static block.");
    }
    void showDetails() {
        System.out.println("Name:- " + name +
                           ", Age:- " + age);
    }
    public static void main(String args[]) {
        StaticExample s1 = new StaticExample("Rajesh",
                                             20);
        StaticExample s2 = new StaticExample("Subha",
                                             19);
        displayCount();
    }
}
```

output:-

```
Inside static block.
Name:- Rajesh, Age:- 20
Name:- Subha, Age:- 19
Total students created:- 2
```

```
import java.lang.*;
class Person {
    void displayPerson() {
        System.out.println("I am a person");
    }
}
class Student extends Person {
    void displayStudent() {
        System.out.println("I am a student");
    }
}
```

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```
class GraduateStudent extends Student {
    void displayGraduate() {
        System.out.println("I am a Graduate Student");
    }
}
class Teacher extends Person {
    void displayTeacher() {
        System.out.println("I am a Teacher");
    }
}

public class Hybrid {
    public static void main(String args[]) {
        GraduateStudent gs = new GraduateStudent();
        gs.displayPerson();
        gs.displayStudent();
        gs.displayGraduate();
        System.out.println();
        Teacher t = new Teacher();
        t.displayPerson();
        t.displayTeacher();
    }
}
```

Output :-

```
I am a Person
I am a Student
I am a Graduate Student

I am a Person
I am a Teacher
```