Program-1

Create one superclass HillStations and three subclasses Manali, Mussoorie, Gulmarg. Subclasses extend the superclass and override its location() and famousFor() method. i.call the location() and famousFor() method by the Parent class’, i.e. Hillstations class. As it refers to the base class object and the base class method overrides the superclass method; the base class method is invoked at runtime. ii.call the location() and famousFor() method by the all subclass’,and print accordingly.

Code-

//Superclass

class HillStations {

// Method to be overridden by subclasses

void location() {

System.out.println("Location is:");

}

// Method to be overridden by subclasses

void famousFor() {

System.out.println("Famous For:");

}

}

//Subclass Manali

class Manali extends HillStations {

// Overriding location method

void location() {

System.out.println("Manali is in Himachal Pradesh.");

}

// Overriding famousFor method

public void famousFor() {

System.out.println("It is Famous For Snow-capped mountains and adventure sports.");

}

}

//Subclass Mussoorie

class Mussoorie extends HillStations {

// Overriding location method

void location() {

System.out.println("Mussoori is in Uttarakhand.");

}

// Overriding famousFor method

void famousFor() {

System.out.println("It is Famous For Beautiful landscapes and serene environment.");

}

}

//Subclass Gulmarg

class Gulmarg extends HillStations {

// Overriding location method

void location() {

System.out.println("Gulmarg is in Jammu and Kashmir.");

}

// Overriding famousFor method

void famousFor() {

System.out.println("It is Famous For Skiing.");

}

}

//Main class to test the functionality

class Abstraction {

public static void main(String[] args) {

HillStations hill = new HillStations();

HillStations manali = new Manali();

HillStations mussoorie = new Mussoorie();

HillStations gulmarg = new Gulmarg();

hill.location();

hill.famousFor();

manali.location();

manali.famousFor();

mussoorie.location();

mussoorie.famousFor();

gulmarg.location();

gulmarg.famousFor();

}

}

Output-

Location is:

Famous For:

Manali is in Himachal Pradesh.

It is Famous For Snow-capped mountains and adventure sports.

Mussoori is in Uttarakhand.

It is Famous For Beautiful landscapes and serene environment.

Gulmarg is in Jammu and Kashmir.

It is Famous For Skiing.

Problem-2

Write a Java program that demonstrates method overriding by creating a superclass called Animal and two subclasses called Dog and Cat. ● The Animal class should have a method called makeSound(), which simply prints "The animal makes a sound." ● The Dog and Cat classes should override this method to print "TheCat/The dog meows/barks" respectively. ● The program should allow the user to create and display objects of each class.

Code-

//Superclass

class Animal {

// Method to be overridden by subclasses

public void makeSound() {

System.out.println("The animal makes a sound.");

}

}

//Subclass Dog

class Dog extends Animal {

// Overriding makeSound method

public void makeSound() {

System.out.println("The dog barks.");

}

}

//Subclass Cat

class Cat extends Animal {

// Overriding makeSound method

public void makeSound() {

System.out.println("The cat meows.");

}

}

//Main class to test the functionality

public class Main1 {

public static void main(String[] args) {

// Create objects of the subclasses

Animal animal = new Animal(); // Parent class object

Animal dog = new Dog(); // Dog subclass object

Animal cat = new Cat(); // Cat subclass object

animal.makeSound(); // Calls Animal class method

dog.makeSound(); // Calls Dog class method

cat.makeSound(); // Calls Cat class method

}

}

Output-

The animal makes a sound.

The dog barks.

The cat meows.