Name: CHINMAYA GARNAIK

Course: FYMCA

Division: B

PRN: 1132220942

ADVANCE JAVA ASSIGNMENT 2

1) Write a program that crates a class student. Display student information. Calculate his result and show it. Use Constructor, methods.

```
class Student {
    public String name;
    public int Registration_Number;
    public float physics;
    public float chemistry;
    public float mathematics;
    public float percentage;

    // constructor
    public Student(
            String name,
            int Registration_Number,
            float physics,
            float chemistry,
            float mathematics) {
        this.name = name;
        this.Registration_Number = Registration_Number;
        this.physics = physics;
        this.chemistry = chemistry;
        this.mathematics = mathematics;
    }

    // method to calcluate the percentage
    public void calculateresult() {
        percentage = ((physics + chemistry + mathematics) / 3);
```

```
    }

    // method to display the student details
    public void detaildisplay() {
        System.out.println("Name = " + name);
        System.out.println("Registration Number = " +
Registration_Number);
    }

    // method to display the Result
    public void resultdisplay() {
        System.out.println("Percentage received = " + percentage);
    }
}

class question1 {

    public static void main(String args[]) throws Exception {
        Student student = new Student("Chinamya", 112, 98, 90,
99);
        student.calculateresult();
        student.detaildisplay();
        student.resultdisplay();
    }
}
```

Output:

```
Name = Chinamya
Registration Number = 112
Percentage received = 95.666664
```

2) Write a Program that implements multilevel inheritance. Use Method Overriding.

```
//Multilevel inheritance and method overriding.
import java.util.Scanner;

// Base class A
class A {
    int a;
    Scanner sc = new Scanner(System.in);

    void variablea() {
        System.out.println("Please enter first number for
addition");
        a = sc.nextInt();
    }

    void overmessage() {
        System.out.println(" Welcome to the base class A");
    }
}

// Derived class B
class B extends A {
    int b;

    void getvariable() {
        System.out.println("Please enter the second number for
addition");
        b = sc.nextInt();
    }

    void overmessage() {
        System.out.println("Welcome to the derived class B that
extends A");
    }
}

// Derived class C
class C extends B {
```

```
    void addition() {
        System.out.println("Addition of the variables you entered
is " + (a + b));
    }

    void overmessage() {
        System.out.println("Welcome to the derived class C that
extends B which extends A");
        System.out.println("Hence,  Method overridden");
    }
}

// Main class
class question2 {
    public static void main(String args[]) {
        System.out.println("Method overridding and multi level
inheritance");
        C c = new C();
        c.variablea();
        c.getvariable();
        c.addition();
        c.overmessage();
    }
}
```

Output:

```
Method overridding and multi level inheritance
Please enter first number for addition
45
Please enter the second number for addition
90
Addition of the variables you entered is 135
Welcome to the derived class C that extends B which extends A
Hence,  Method overridden
```

3) Write a program that implements abstract class.

```
abstract class shape {
    abstract void area();

    abstract void perimeter();
}

class square extends shape {
    void area() {
        System.out.println("Area of Square= Side * Side");

    }

    void perimeter() {
        System.out.println("Perimeter of Square= 4 * Side");
    }
}

class rectangle extends shape {

    void area() {
        System.out.println("Area of Rectangle= Length * Breadth");

    }

    void perimeter() {
        System.out.println("Perimeter of rectangle= 2 * (Length +
Breadth)");

    }
}

class question3 {
    public static void main(String args[]) {
        square sq = new square();
        sq.area();
        sq.perimeter();
        rectangle r = new rectangle();
        r.area();
```

```
        r.perimeter();
    }
}
```

Output:

```
Area of Square= Side * Side
Perimeter of Square= 4 * Side
Area of Rectangle= Length * Breadth
Perimeter of rectangle= 2 * (Length + Breadth)
```

4) Write a program that implements interface.

```
interface perimeter {

    float calculate(float x, float y);
}

class rectangle implements perimeter {
    public float calculate(float x, float y) {
        return (2 * (x + y));
    }
}

class square implements perimeter {
    public float calculate(float x, float y) {
        return 4 * x;
    }
}

class question4 {
    public static void main(String args[]) {
        square s = new square();
        rectangle rc = new rectangle();
        perimeter p;
        p = s;
        System.out.println("Area of square with side length of 4
is " + p.calculate(4, 0));
        p = rc;
        System.out.println("Area of rectangle with length 7 and
breadth 3 is " + p.calculate(7, 3));
    }
}
```

Output:

```
Area of square with side length of 4 is 16.0
Area of rectangle with length 7 and breadth 3 is 20.0
```

5) Write an program that creates package named EMP. Add Class EMP_Dtls in it and display emp information.

```
class shape {
    String defcolor = "yellow";
}

class square extends shape {
    String defcolor = "red";

    void supertest() {
        System.out.println(defcolor);
        System.out.println(super.defcolor);
    }
}

class question5 {
    public static void main(String[] abs) {
        square sq = new square();
        sq.supertest();
    }
}
```

Output:

```
red
yellow
```

6) Implement inheritance. Use Super keyword.

```
import emp.Emp_Dtls;

class question6 {
    public static void main(String args[]) {
        System.out.println(" EMPLOYEE Details :");
        var em1 = new emp.Emp_Dtls(1, "Chinmaya");
        em1.Display();
        var em2 = new emp.Emp_Dtls(2, "Gaurav");
        em2.Display();

    }
}
```

Output:

```
 EMPLOYEE Details :
 Employee ID: 1
Employee Name: Chinmaya
 Employee ID: 2
Employee Name: Gaurav
```