Question 1:

Person.java

```
      package MyPackage;


public class Person{
    private String firstName;
    private String middleName;
    private String lastName;
    private String  address;
    private int age;

    public String getfirstName()
    {
        return firstName;
    }
    public void setfirstName(String firstName)
    {
            this.firstName = firstName;

    }
     public String getmiddleName()
    {
        return middleName;
    }
    public void setmiddleName(String middleName)
    {
            this.middleName = middleName;

    }

     public String getlastName()
    {
        return lastName;
    }
    public void setlastName(String lastName)
    {
            this.lastName = lastName;

    }
      public String getaddress()
    {
        return address;
```

```
    }
    public void setaddress(String address)
    {
            this.address =  address;

    }
       public int getage()
    {
        return age;
    }
    public void setage(int age)
    {
            this.age =  age;
    }
    public String  toString()
    {
      return "First name of person is " + getfirstName() +"\n"
         + "Middle name of person is " + getmiddleName() +"\n"
          + "last name of person is " + getlastName() + "\n"
           + "Address of person is " + getaddress() +"\n"
             + "Age  of person is " + getage();
    }



}
```

Employee.java

```
      package MyPackage;

import MyPackage.Person;


public class Employee extends Person{
    //id da hra netsalary
    private int id;
    private double DA;
    private double HRA;
    private double netSalary;

    public int getId()
    {
        return id;
```

```
    }
    public void setId(int  id)
    {
            this.id = id;

    }
     public double getDA()
    {
        return DA;
    }
    public void setDA(double DA)
    {
            this.DA = DA;

    }

     public double getHRA()
    {
        return HRA;
    }
    public void setHRA(double HRA)
    {
            this.HRA = HRA;

    }
     public double getnetSalary()
    {
        return netSalary;
    }
    public void setnetSalary(double netSalary)
    {
            this.netSalary = netSalary;

    }
    public String  toString()
    {
        System.out.println("FirstName of the Employee is " +
super.getfirstName());
        System.out.println("MiddleName of the Employee is " +
super.getmiddleName());
        System.out.println("LastName of the Employee is " + super.getlastName());
        System.out.println("Address of the Employee is " + super.getaddress());
        System.out.println("Age of the Employee is " + super.getage());
        return "ID of Employee is " + getId() +"\n"
            + "DA of Employee is " + getDA() +"\n"
```

```
            + "HRA  of Employee is " + getHRA() + "\n"
            + "Net salary of Employee in " + getnetSalary();

    }
    public int compareTo(Employee other)
    {
        return Double.compare(this.netSalary, other.netSalary);
    }
}
```

Student.java

```
package MyPackage;
import MyPackage.Person;

public class Student  extends Person{
    //rollno division dob
    private int rollNo;
    private char division;
    private String dob;


    public int getrollNo()
    {
        return rollNo;
    }
    public void setrollNo(int  rollNo)
    {
            this.rollNo = rollNo;

    }
     public char getdivision()
    {
        return division;
    }
    public void setdivision(char division)
    {
            this.division = division;

    }
```

```
     public String getdob()
    {
        return dob;
    }
    public void setdob(String dob)
    {
            this.dob = dob;

    }

    public String  toString()
    {
        System.out.println("FirstName of the student is :" +
super.getfirstName());
        System.out.println("MiddleName of the student is :" +
super.getmiddleName());
        System.out.println("LastName of the student is :" + super.getlastName());
        System.out.println("Address of the student is :" + super.getaddress());
        System.out.println("Age of the student is :" + super.getage());
        return "RollNo of Student is :" + getrollNo() +"\n"
            + "Division of Student is :" + getdivision() +"\n"
            + "D.O.B of Student is :" + getdob();

    }
    public int compareTo(Student other) {
        return Integer.compare(this.rollNo, other.rollNo);
    }



}
```

MAIN FILE

```
      import MyPackage.Person;

import MyPackage.Student;
import MyPackage.Employee;

import java.util.ArrayList;
import java.util.InputMismatchException;
import java.util.Scanner;
```

```java
public class Q1 {
    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        ArrayList<Student> students = new ArrayList<>();
        ArrayList<Employee> Employees = new ArrayList<>();
        try {
            for (int i = 0; i < 5; i++) {
                System.out.println("Enter the First Name of student " + (i + 1));
                String fname = sc.next();
                System.out.println("Enter the Middle Name of student " + (i +
1));
                String mname = sc.next();
                System.out.println("Enter the Last Name of student " + (i + 1));
                String lname = sc.next();
                System.out.println("Enter the Address  of student " + (i + 1));
                String addressos = sc.next();
                System.out.println("Enter the age of student " + (i));
                int ageos = sc.nextInt();
                if (ageos < 0 || ageos > 130) {
                    throw new InvalidAgeException("Age can not be less than 0");
                }
                System.out.println("Enter the RollNo. of student " + (i));
                int rollNo = sc.nextInt();
                System.out.println("Enter the Division of student " + (i));
                char div = sc.next().charAt(0);
                System.out.println("Enter the D.O.B of student " + (i));
                String Dob = sc.next();

                Student s1 = new Student();
                s1.setfirstName(fname);
                s1.setmiddleName(mname);
                s1.setlastName(lname);
                s1.setaddress(addressos);
                s1.setage(ageos);
                s1.setrollNo(rollNo);
                s1.setdivision(div);
                s1.setdob(Dob);

                students.add(s1);

                System.out.println("Do you want to continue ? (Y /N)");
                char ans = sc.next().charAt(0);
                if (ans == 'N' || ans == 'n') {
```

```
                    break;
                } else {
                    continue;
                }

            }

            students.sort(Student::compareTo);// This line state that sort the
students list by using compare to  method of Student class REMeMBer It!.
            System.out.println("Student Details");
            System.out.println();
            System.out.println("\nSorted Students (by Roll No):");
            for (Student student : students) {
                System.out.println(student);
                System.out.println();
            }
            System.out.println();
        } catch (InvalidAgeException e) {
            System.out.println("Age cannot be negative");
        } catch (InputMismatchException e) {
            System.out.println("Your Input is Invalid");
        } catch (Exception e) {
            System.out.println(e);

        }

        try {
            for (int i = 0; i < 5; i++) {
                System.out.println("Enter the First Name of Employee" + (i + 1));
                String fnameofe = sc.next();
                System.out.println("Enter the Middle Name of Employee " + (i +
1));
                String mnameofe = sc.next();
                System.out.println("Enter the Last Name of Employee " + (i + 1));
                String lnameofe = sc.next();
                System.out.println("Enter the Address  of Employee " + (i + 1));
                String addressofe = sc.next();
                System.out.println("Enter the age of Employee " + (i));
                int ageofe = sc.nextInt();
                if (ageofe < 0 || ageofe > 120) {
                    throw new InvalidAgeException("Age can not be Negative");
                }
                System.out.println("Enter the ID of Employee " + (i));
                int IDofe = sc.nextInt();
                System.out.println("Enter the DA of Employee " + (i));
```

```
            double Daofe = sc.nextDouble();
            System.out.println("Enter the HRA of Employee " + (i));
            double HRAofe = sc.nextDouble();
            System.out.println("Enter the Net salary of Employee " + (i));
            double netsalaryofe = sc.nextDouble();

            Employee emps = new Employee();
            emps.setfirstName(fnameofe);
            emps.setmiddleName(mnameofe);
            emps.setlastName(lnameofe);
            emps.setaddress(addressofe);
            emps.setage(ageofe);
            emps.setId(IDofe);
            emps.setDA(Daofe);
            emps.setHRA(HRAofe);
            emps.setnetSalary(netsalaryofe);

            Employees.add(emps);

            System.out.println("Do you want to continue ? (Y /N)");
            char ans = sc.next().charAt(0);
            if (ans == 'N' || ans == 'n') {
                break;
            } else {
                continue;
            }

        }

        // Employees.sort(Employee::compareTo);
        Employees.sort(Employee :: compareTo);
        System.out.println("Employee Details");
        System.out.println("\nSorted Employee (by net Salary):");
        for (Employee e1 : Employees) {
            System.out.println(e1);
            System.out.println();
        }
        System.out.println();
    } catch (InvalidAgeException e) {
        System.out.println("Age cannot be negative");
    } catch (InputMismatchException e) {
        System.out.println("Your Input is Invalid");
    } catch (Exception e) {
        System.out.println(e);
```

```
        }

        for (int i = 0; i < Employees.size(); i++) {
            Employee e1 = Employees.get(i);
            System.out.println("Employee" + " " + (i + 1) + " " + "Details :");
            System.out.println(e1);
            System.out.println();
        }

    }
}

class InvalidAgeException extends Exception {
    public InvalidAgeException(String message) {
        super(message);
    }
}
```

OUTPUT : ::::: ---: ---:

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_1> javac Q1.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_1> java Q1

Enter the First Name of student 1

bharat

Enter the Middle Name of student 1

prajapati

Enter the Last Name of student 1

u

Enter the Address of student 1

ahmedabad

Enter the age of student 0

12

Enter the RollNo. of student 0

1003

Enter the Division of student 0

a

Enter the D.O.B of student 0

30-10-2001

Do you want to continue ? (Y /N)

y

Enter the First Name of student 2

vvvbdfdf

Enter the Middle Name of student 2

dffdfds

Enter the Last Name of student 2

fdsfsdsf

Enter the Address of student 2

dsfsfeefssdvds

Enter the age of student 1

12

Enter the RollNo. of student 1

1001

Enter the Division of student 1

b

Enter the D.O.B of student 1

20-10-2001

Do you want to continue ? (Y /N)

n

Student Details

Sorted Students (by Roll No):

FirstName of the student is :vvvbdfdf

MiddleName of the student is :dffdfds

LastName of the student is :fdsfsdsf

Address of the student is :dsfsfeefssdvds

Age of the student is :12

RollNo of Student is :1001

Division of Student is :b

D.O.B of Student is :20-10-2001

FirstName of the student is :bharat

MiddleName of the student is :prajapati

LastName of the student is :u

Address of the student is :ahmedabad

Age of the student is :12

RollNo of Student is :1003

Division of Student is :a

D.O.B of Student is :30-10-2001

Enter the First Name of Employee1

sfdfsd

Enter the Middle Name of Employee 1

sdfsdfsd

Enter the Last Name of Employee 1

sfdfsf

Enter the Address of Employee 1

sfds

Enter the age of Employee 0

34

Enter the ID of Employee 0

2002

Enter the DA of Employee 0

2.00

Enter the HRA of Employee 0

4000.00

Enter the Net salary of Employee 0

450000

Do you want to continue ? (Y /N)

y

Enter the First Name of Employee2

fdf

Enter the Middle Name of Employee 2

dfdfdf

Enter the Last Name of Employee 2

dfdfd

Enter the Address of Employee 2

sdfsd

Enter the age of Employee 1

21

Enter the ID of Employee 1

2001

Enter the DA of Employee 1

2.00

Enter the HRA of Employee 1

4000.00

Enter the Net salary of Employee 1

300000

Do you want to continue ? (Y /N)

n

Employee Details

Sorted Employee (by net Salary):

FirstName of the Employee is fdf

MiddleName of the Employee is dfdfdf

LastName of the Employee is dfdfd

Address of the Employee is sdfsd

Age of the Employee is 21

ID of Employee is 2001

DA of Employee is 2.0

HRA of Employee is 4000.0

Net salary of Employee in 300000.0

FirstName of the Employee is sfdfsd

MiddleName of the Employee is sdfsdfsd

LastName of the Employee is sfdfsf

Address of the Employee is sfds

Age of the Employee is 34

ID of Employee is 2002

DA of Employee is 2.0

HRA of Employee is 4000.0

Net salary of Employee in 450000.0

Employee 1 Details :

FirstName of the Employee is fdf

MiddleName of the Employee is dfdfdf

LastName of the Employee is dfdfd

Address of the Employee is sdfsd

Age of the Employee is 21

ID of Employee is 2001

DA of Employee is 2.0

HRA of Employee is 4000.0

Net salary of Employee in 300000.0

Employee 2 Details :

FirstName of the Employee is sfdfsd

MiddleName of the Employee is sdfsdfsd

LastName of the Employee is sfdfsf

Address of the Employee is sfds

Age of the Employee is 34

ID of Employee is 2002

DA of Employee is 2.0

HRA of Employee is 4000.0

Net salary of Employee in 450000.0

Question 2:

Person.java

```
package MyPackage;

public class Person {
    private String firstName;
    private String lastName;
    private int age;

    public Person(String firstName , String lastName  , int age)
    {
        this.firstName = firstName;
        this.lastName = lastName;
        if(age < 0)
        {
            throw new IllegalArgumentException("Age must be positive");
        }
        this.age=  age;
    }
    public String getfirstName()
    {
        return firstName;
    }
    public void setfirstName(String firstName)
    {
```

```
        this.firstName = firstName;
    }
    public String getlastName()
    {
        return lastName;
    }
    public void setlastName(String lastName)
    {
        this.lastName= lastName;
    }

    public int getage()
    {
        return age;
    }
    public void setage(int age)
    {

            this.age = age;

    }

    public void display()
    {
        System.out.println("First Name of the Person is " + getfirstName());
        System.out.println("Last Name of the Person is " + getlastName());
        System.out.println("Age of the Person is " + getage());

    }
}
```

Student.java

```
package MyPackage;
import MyPackage.Person;

public class Student extends Person{
    private int rollNo;
    private String address;
    private double percentage;

    public Student(String firstName , String lastName  , int age , int rollNo ,
String address , double percentage)
```

```
{
    super(firstName, lastName, age);
        this.rollNo = rollNo;
        this.address = address;
        this.percentage = percentage;

}

public int getrollNo()
{
    return rollNo;
}
public void setrollNo(int rollNo)
{

    this.rollNo = rollNo;
}
public String getAddress()
{
    return address;
}
public void setAddress(String address)
{
    this.address= address;
}

public double getpercentage()
{
    return percentage;
}
public void setpercentage(double percentage)
{
    this.percentage = percentage;
}

public void display()
{
    System.out.println("First Name of the Student is " + getfirstName());
    System.out.println("Last Name of the Student is " + getlastName());
    System.out.println("Age of the Student is " + getage());
    System.out.println("ID of the Student is " + getrollNo());
    System.out.println("Designation of the Student is " + getAddress());
    System.out.println("salary of the Student is " + getpercentage());

}
```

```
    public void setage(int age) {
        try {
            super.setage(age);
        } catch (IllegalArgumentException e) {
            System.out.println("Invalid age for a student: " + e.getMessage());
        }
    }
}
```

Employee.java

```
package MyPackage;

import MyPackage.Person;

public class Employee  extends Person{
    private int empId;
    private String designation;
    private double salary;

    public Employee(String firstName , String lastName  , int age , int empId ,
String designation , double salary)
    {
        super(firstName, lastName, age);
            this.empId = empId;
            this.designation = designation;
            this.salary = salary;

    }

    public int getempId()
    {
        return empId;
    }
    public void setempId(int empId)
    {

        this.empId = empId;
```

```
    }
    public String getdesignation()
    {
        return designation;
    }
    public void setdesignation(String designation)
    {
        this.designation= designation;
    }

    public double getsalary()
    {
        return salary;
    }
    public void setsalary(double salary)
    {
        this.salary = salary;
    }

    public void display()
    {
        System.out.println("First Name of the Employee is " + getfirstName());
        System.out.println("Last Name of the Employee is " + getlastName());
        System.out.println("Age of the Employee is " + getage());
        System.out.println("ID of the Employee is " + getempId());
        System.out.println("Designation of the employee is " + getdesignation());
        System.out.println("salary of the employee is " + getsalary());

    }
}
```

Test.java

```
import MyPackage.Person;
import MyPackage.Student;
import MyPackage.Employee;

 public class Test  {
    public static void main(String[] args) {
       Student s1 = new Student("Prajapati", "vraj", -1, 1066, "Goa", 75.00);
```

```
        s1.display();

        Employee e1 = new Employee("Patel", "Annirudh", 21, 3053, "Developer",
50000);
        e1.display();

    }
}
```

Output::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_2> javac -d . Person.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_2> javac -d. Employee.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_2> javac -d . Student.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_2> javac Test.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_2> java Test

Exception in thread "main" java.lang.IllegalArgumentException: Age must be positive

    at MyPackage.Person.<init>(Person.java:15)

    at MyPackage.Student.<init>(Student.java:11)

    at Test.main(Test.java:8)

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_2> javac Test.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_2> java Test

First Name of the Student is Prajapati

Last Name of the Student is vraj

Age of the Student is 11

ID of the Student is 1066

Designation of the Student is Goa

salary of the Student is 75.0

First Name of the Employee is Patel

Last Name of the Employee is Annirudh

Age of the Employee is 21

ID of the Employee is 3053

Designation of the employee is Developer

salary of the employee is 50000.0

Question 3 :

Rectangle.java

```java
package MyPakcage;

public class Rectangle{
    private double length;
    private double width;
    int count = 0;
    public Rectangle()
    {
         count++;
    }
    public Rectangle(double length , double width)
    {
        this.length = length;
        this.width = width;
        count++;
    }
    public Rectangle(Rectangle other)
    {
        this.length = other.length;
        this.width = other.width;
        count++;

    }
    public void area()
    {
        System.out.println("the area of rectangel is" + (length*width));
    }
```

```
    static{
        System.out.println("This is static Intializer block ");
    }
    {
        System.out.println("This is intizializer block ");
    }
    public String toString()
    {
        return "The length of Rectangle is" + length + "Width of Rectangel is" +
width;

    }
    public int totalcount()
    {
        return count;
    }

}
```

Question3.java

```
import MyPakcage.Rectangle;

public class Question3 {
    public static void main(String[] args) {

        try{
        Rectangle r1 = new Rectangle();
        System.out.println(r1);
        r1.area();
        r1.toString();
        Rectangle r2 = new Rectangle(10 , 10);
        System.out.println(r2);
        r2.area();
        r2.toString();
        Rectangle r3 = new Rectangle(r2);
        System.out.println(r3);
        r3.area();
        r3.toString();
        }
        catch(Exception e)
        {
            System.out.println(e);
```

```
        }
    }
}
```

OUTPUT::::::::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_3> javac -d . Rectangle.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_3> javac Question3.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_3> java Question3

This is static Intializer block

This is intizializer block

The length of Rectangle is0.0Width of Rectangel is0.0

the area of rectangel is0.0

This is intizializer block

The length of Rectangle is10.0Width of Rectangel is10.0

the area of rectangel is100.0

This is intizializer block

The length of Rectangle is10.0Width of Rectangel is10.0

the area of rectangel is100.0

QUESTION 4:

SHAPE.JAVA

```
package MyPackage;

public abstract class Shape{
     public abstract void area();
    public abstract String toString();
```

```
}
```

RECTANGLE.JAVA

```
package MyPackage;
import MyPackage.Shape;



public class Rectangle  extends Shape {
    private double length;
    private double width;
    double area =0;

    public Rectangle(double length , double width)
    {
        this.length = length;
        this.width = width;

    }
    public void area()
    {
        try{
            if(length <= 0 || width <= 0)
            {
                throw new IllegalArgumentException("length and  width must be
Greater than 0.");
            }
            area = length *width;
        }catch(IllegalArgumentException e)
        {
            System.out.println("Invalid Input");
        }
        finally{
            System.out.println("The area of the Rectagnle is" + area);
        }
    }
    public String toString()
    {
        return "The Length is" + " "+ length + "The Width is" + " " + width;
    }

}
```

TRIANGLE.JAVA

```java
package MyPackage;
import MyPackage.Shape;

public class Triangle extends Shape{
    private double breadth;
    private double height;
    private double area = 0.0;

    public Triangle(double breadth , double height)
    {
        this.breadth  = breadth;
        this.height = height;

    }
   public void area()
    {
        try{
            if(breadth <= 0 || height <= 0)
            {
                throw new IllegalArgumentException("Height and Width must be
Greater than 0.");
            }
            area = 0.5 *( breadth *height);
        }catch(IllegalArgumentException e)
        {
            System.out.println("Invalid Input");
        }
        finally{
            System.out.println("The area of the triangle is" + area);
        }

    }
    public String toString()
    {


        return "Height of Triangel is " + " " + height + "Width of Triangel is "
+ " " + breadth;
    }
}
```

CIRCLE.JAVA

```java
package  MyPackage;
import MyPackage.Shape;


public  class Circle extends  Shape{
    private double radius;
    private double area;

    public Circle(double radius)
    {
        this.radius = radius;
    }
    public void area()
    {
        try{
                if(radius <=0)
                {
                    throw new IllegalArgumentException("Radius must be
positive");
                }

            area = 3.14*radius *radius;
        }
        catch(IllegalArgumentException e)
        {
            System.out.println("Invalid Input");
        }
        finally{
            System.out.println("The area of the circle is " + area);
        }
    }
    public String toString()
    {
        return "The Radius of Circle is" + radius;

    }
}
```

QUESTION4.JAVA

```java
import MyPackage.Triangle;
import MyPackage.Rectangle;
import MyPackage.Circle;
import MyPackage.Shape;

public class Question4 {
   public static void main(String args[])
    {

            // Creating objects from the Shape reference
            Shape triangle = new Triangle(10,10);
            Shape rectangle = new Rectangle(10 ,10 );
            Shape circle = new Circle(0.1);
            triangle.area();
            System.out.println(triangle.toString());

            rectangle.area();
            System.out.println(rectangle.toString());

            circle.area();
            System.out.println(circle.toString());

    }
}
```

OUTPUT::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_4> javac -d . Shape.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_4> javac -d . Rectangle.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_4> javac -d . Circle.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_4> javac -d . Triangle.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_4> javac Question4.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_4> java Question4

The area of the triangle is50.0

Height of Triangel is 10.0Width of Triangel is 10.0

The area of the Rectagnle is100.0

The Length is 10.0The Width is 10.0

The area of the circle is 0.031400000000000004

The Radius of Circle is0.1

QUESTION 5::

FINAL.JAVA

```java
package MyPackage2;

// Interface Exam
interface Exam {
    boolean pass(int mark);
}

// Interface Classify
interface Classify {
    String division(int average);
}

// Class Result implementing both Exam and Classify
public class Final implements Exam, Classify {
    private int marks;
    private int average;

    public Final(int marks, int average) {
        this.marks = marks;
        this.average = average;
    }

    // Getters and Setters
    public int getMarks() {
        return marks;
    }

    public void setMarks(int marks) {
        this.marks = marks;
    }
```

```java
    public int getAverage() {
        return average;
    }

    public void setAverage(int average) {
        this.average = average;
    }

    // Implementing the pass method from Exam interface
    @Override
    public boolean pass(int mark) {
        if (mark >= 50) {
            return true;
        } else {
            return false;
        }
    }

    // Implementing the division method from Classify interface
    @Override
    public String division(int average) {
        if (average >= 60) {
            return "First";
        } else if (average >= 50 && average < 60) {
            return "Second";
        } else {
            return "No division";
        }
    }

    // Override the toString() method
    @Override
    public String toString() {
        return "Result [marks=" + marks + ", average=" + average + "]";
    }

    public static void main(String[] args) {
        try {
            Final result = new Final(65, 55);

            // Using pass method
            boolean isPass = result.pass(result.getMarks());
            System.out.println("Pass: " + isPass);

            // Using division method
```

```
            String division = result.division(result.getAverage());
            System.out.println("Division: " + division);

            // Using toString method
            System.out.println(result);
        } catch (IllegalArgumentException e) {
            System.out.println("An error occurred: " + e.getMessage());
        }
    }
}
```

OUTPUT :::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_5> javac Final.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_5> java Final

Pass: true

Division: Second

Result [marks=65, average=55]

QUESTION 6::::::

```
class Account1{
    public int acNo;
    public double balance;
    public Account1(int acNo , double balance)
    {
        this.acNo = acNo;
        this.balance = balance;
    }
    public int getAcNo()
    {
        return acNo;
    }
    public double getBalance()
    {
        return balance;
    }
     public String toString() {
```

```
        return "Account Number: " + acNo + "\nBalance: " + balance;
    }

}

class Saving extends Account1{
    private double interestRate;

    public Saving(int acNo , double balance , double interestRate){
     super(acNo, balance);
        this.interestRate = interestRate;
    }
    public void checkBalance()
    {
        System.out.println(this.balance);
    }
    public void deposit(double amount)
    {
        this.balance += amount;
        System.out.println("Amount Inserted");
       System.out.println("Available Balance for now is : " + this.balance);
    }
    public void withdraw(double amount)
    {
        if(this.balance < 0)
        {
            System.out.println("Insufficient Balance");
        }
        else{

            this.balance -= amount;
            System.out.println("Amount withdrwed");
              System.out.println("Available Balance for now is : " +
this.balance);
        }
    }
    public void interestRate()
    {
        double interest  = (interestRate * this.balance)/100;
        this.balance += interest;
        System.out.println("Your interest on your savings is : " + interest);
        System.out.println("After apllying interest rate your final balance is "
+ this.balance);

    }
```

```
     public String toString() {
        return "Account Number: " + acNo + "\nBalance: " + balance + "\nInterest
Rate" + interestRate;
    }

    }

    class Current extends Account1{

        private double overdraftLimit;
         private double interestRate;

    public Current(int acNo , double balance , double interestRate , double d){
     super(acNo, balance);
     this.interestRate = interestRate;
        this.overdraftLimit = d;
    }
        public void checkBalance()
    {
        System.out.println(this.balance);
    }

    public void deposit(double amount)
    {
        this.balance += amount;
        System.out.println("Amount Inserted");
       System.out.println("Available Balance for now is : " + this.balance);
    }
    public void withdraw(double amount)
    {
        if(this.balance < 0)
        {
            System.out.println("Insufficient Balance");
        }
         else if (balance + overdraftLimit < amount) {
            System.out.println("Exceeding overdraft limit. Withdrawal failed.");
        }
        else{

            this.balance -= amount;
            System.out.println("Amount withdrwed");
              System.out.println("Available Balance for now is : " +
this.balance);
        }
    }
```

```
     public void interestRate()
    {
        double interest  = (interestRate * this.balance)/100;
        this.balance += interest;
        System.out.println("Your interest on your savings is : " + interest);
        System.out.println("After apllying interest rate your final balance is "
+ this.balance);

    }
     public String toString() {
        return "Account Number: " + acNo + "\nBalance: " + balance + "\noverdraft
Limit" + overdraftLimit;
    }
}
public class Account  {
    public static void main(String[] args) {
        try{
        Saving s1  = new Saving(1212121212, 50000.00 ,5.0 );
        s1.checkBalance();
        s1.deposit(5000.00);
        s1.withdraw(5000.00);
        s1.interestRate();
        s1.toString();


        Current c1   = new Current(1212121213, 55000.00 ,2.0  ,10000.0);
        c1.checkBalance();
        c1.deposit(5000.00);
        c1.withdraw(5000.00);
        c1.interestRate();
        c1.toString();
    }
    catch(Exception e)
    {
        System.out.println("An error occured");
    }
}
    }
```

OUTPUT :::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_6> javac Account.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_6> java Account

50000.0

Amount Inserted

Available Balance for now is : 55000.0

Amount withdrwed

Available Balance for now is : 50000.0

Your interest on your savings is : 2500.0

After apllying interest rate your final balance is 52500.0

55000.0

Amount Inserted

Available Balance for now is : 60000.0

Amount withdrwed

Available Balance for now is : 55000.0

Your interest on your savings is : 1100.0

After apllying interest rate your final balance is 56100.0

QUESTION 7 :

CIRCLE.JAVA

```java
package Geometry;
import Geometry.Figure;

public class Circle extends Figure{
    public double radius;
    public Circle(double radius)
    {
        this.radius= radius;
    }
    public void area()
    {
        System.out.println("The area of circle is "+ (pi *radius *radius));
    }
    public void perimeter()
    {
```

```
        System.out.println("The perimeter of the circle is " + (2*(pi *radius)));
    }
}
```

FIGURE.JAVA

```
package Geometry;

public abstract class Figure{
    public final double pi = 3.14;
    public abstract void area();
    public abstract void perimeter();

}
```

RECTANGLE.JAVA

```
package Shape;
import Geometry.Figure;


public class Rectangle extends Figure{
    public double length;
    public double width;
    public Rectangle(double d , double  e)
    {
        this.length = d;
        this.width = e;
    }
    public void area()
    {
        System.out.println("Area of Rectangle is"+ (length * width));
    }
     public void perimeter()
    {
        System.out.println("Perimeter of Rectangle is"+ (2*(length + width)));
    }

}
```

TEST.JAVA(MAIN FILE)

```java
package Shape;

import java.util.Scanner;

import Geometry.Circle;
import Geometry.Figure;
import Shape.Rectangle;

public class Test {
    public static void main(String[] args) {
        System.out.println("Enter the values max 4");
        Scanner sc=  new Scanner(System.in);
        try{
        for(int  i = 0;i<4;i++)
        {
        System.out.println("Press 'C' for Calculating stuff of circle");
        System.out.println("Press 'R' for Calculating stuff of Rectangle");

        char choice = sc.next().charAt(0);
            if(choice != 'C' && choice != 'R')
            {
                throw new IllegalArgumentException("Please Enter valid input");
            }
        switch (choice) {
            case 'C':
                System.out.println("Enter the radius for circle");
                double radius = sc.nextDouble();
                    Figure circle = new Circle(radius);
                    circle.area();
                    circle.perimeter();
                break;

             case 'R':
               System.out.println("Enter the length for circle");
                double length = sc.nextDouble();
                  System.out.println("Enter the width for circle");
                double width = sc.nextDouble();
                Figure rectangle = new Rectangle(length , width);
                rectangle.area();
                rectangle.perimeter();
                break;
```

```
            default:
                break;
        }
        }
    }
    catch(IllegalArgumentException e)
    {
        System.out.println("Invalid Input ,Please Enter valid input");
    }
    finally{

        sc.close();
    }
    }
}
```

Output::::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_7> javac -d . Test.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_7> java Shape.Test

Enter the values max 4

Press 'C' for Calculating stuff of circle

Press 'R' for Calculating stuff of Rectangle

c

Invalid Input ,Please Enter valid input

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_7> java Shape.Test

Enter the values max 4

Press 'C' for Calculating stuff of circle

Press 'R' for Calculating stuff of Rectangle

C

Enter the radius for circle

4.0

The area of circle is 50.24

The perimeter of the circle is 25.12

Press 'C' for Calculating stuff of circle

Press 'R' for Calculating stuff of Rectangle

R

Enter the length for circle

10

Enter the width for circle

10

Area of Rectangle is100.0

Perimeter of Rectangle is40.0

Press 'C' for Calculating stuff of circle

Press 'R' for Calculating stuff of Rectangle

QUESTION 8 :

STUDENT.JAVA

```
package MCA;

public class Student{
    private int Student_id;
    private String Student_name;
    private String address;
    int[] marks = new int[3];
    private String Grade;
    public Student(int Student_id , String Student_name , String address , int[]
marks )
    {
        this.Student_id = Student_id;
        this.Student_name = Student_name;
        this.address = address;
        this.marks = marks;
        Cal_grade();
```

```
    }
    public void Cal_grade()
    {
        double average = marks[0] + marks[1] + marks[2] /3.0;
        if (average > 90) {
            Grade = "A+";
        } else if (average > 80) {
            Grade = "A";
        } else if (average > 70) {
            Grade = "B+";
        } else if (average > 60) {
            Grade = "B";
        } else if (average > 50) {
            Grade = "C";
        } else {
            Grade = "C";
        }
    }

    public String toString() {
        return "Student ID: " + Student_id +
               "\nStudent Name: " + Student_name +
               "\nAddress: " + address +
               "\nGrade: " + Grade;
    }



}
```

SUBJECT.JAVA

```
package MCA;

import java.util.Scanner;
import MCA.Student;


public class Subject extends Student{
     private int subject_id;
    private String subject_name;
    private boolean elective;
```

```
    public Subject(int student_id, String student_name, String address, int[]
marks, int subject_id, String subject_name, boolean elective) {
        super(student_id, student_name, address, marks);
        this.subject_id = subject_id;
        this.subject_name = subject_name;
        this.elective = elective;
    }

    @Override
    public String toString() {
        return super.toString() +
                "\nSubject ID: " + subject_id +
                "\nSubject Name: " + subject_name +
                "\nElective: " + (elective ? "Yes" : "No");
    }
}
```

QUESTION8.JAVA

```
import MCA.Subject;

import java.util.Scanner;

import MCA.Student;


public class Question8  {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        try{

             System.out.println("Enter Student Information:");
            System.out.print("Student ID: ");
            int student_id = sc.nextInt();
            sc.nextLine();  // Consume the newline character
            System.out.print("Student Name: ");
            String student_name = sc.nextLine();
            System.out.print("Address: ");
            String address = sc.nextLine();
            System.out.print("Marks for 3 subjects (comma-separated): ");
            String marksStr = sc.next();
            int[] marks = parseMarks(marksStr);
```

```
            Student student = new Student(student_id, student_name, address,
marks);

            System.out.println("Enter Subject Information:");
            System.out.print("Subject ID: ");
            int subject_id = sc.nextInt();
            sc.nextLine();  // Consume the newline character
            System.out.print("Subject Name: ");
            String subject_name = sc.nextLine();
            System.out.print("Is it an elective subject? (true/false): ");
            boolean elective = sc.nextBoolean();

            Subject subject = new Subject(student_id, student_name, address,
marks, subject_id, subject_name, elective);
            System.out.println("\nStudent and Subject Information:\n" + subject);

        } catch (Exception e) {
            System.out.println("An error occurred: " + e.getMessage());
        } finally {
            sc.close();
        }
        }


    private static int[] parseMarks(String marksStr) {
        String[] marksArray = marksStr.split(",");
        int[] marks = new int[3];
        for (int i = 0; i < 3; i++) {
            marks[i] = Integer.parseInt(marksArray[i]);
        }
        return marks;
    }

}
```

Output:::::

javac -d . Student.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_8> javac -d . Subject.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_8> javac Question8.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_8> java Question8

Enter Student Information:

Student ID: 1001

Student Name: bharat

Address: ahmdeabad

Marks for 3 subjects (comma-separated): 65,65,65

Enter Subject Information:

Subject ID: 222

Subject Name: english

Is it an elective subject? (true/false): true

Student and Subject Information:

Student ID: 1001

Student Name: fdfss

Address: sfdfa

Grade: A+

Subject ID: 222

Subject Name: english

Elective: Yes

QUESTION 9:

SUPPLIER.JAVA

```
package MyPackage;
public class Supplier{
    private int sup_id;
    private String sup_name;
    private String address;
    private String[] procductname = new String[3];
```

```
    private int[] priceofproduct = new int[3];
    private int totalprice;

    public Supplier(int sup_id , String sup_name  , String address ,String[]
procductname  , int[] priceofproduct )
    {
        this.sup_id = sup_id;
        this.sup_name = sup_name;
        this.address = address;
        this.procductname = procductname;
        this.priceofproduct  = priceofproduct;
        calculatePrice();
    }
    public void calculatePrice()
    {
         totalprice = priceofproduct[0] + priceofproduct[1] + priceofproduct[2];
        System.out.println(totalprice);
    }

    public String toString()
    {
return "The Supplier id is " + sup_id +"\n"
        +"The Supplier name is " + sup_name +"\n"
        +"Address is " + address +"\n"
        +"The Supplier id is " + sup_id +"\n"
        + "total price is" + totalprice;

    }
}
```

QUESTION9.JAVA

```
import java.util.Scanner;

import MyPackage.Supplier;

public class Question9 extends Supplier{
    public Question9(int sup_id, String sup_name, String address, String[]
productname, int[] priceofproduct) {
        super(sup_id, sup_name, address, productname, priceofproduct);
        //TODO Auto-generated constructor stub
    }
```

```
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        try{
            System.out.println("Enter your supplier id" );
            int sup_id = sc.nextInt();
            System.out.println("Enter  supplier name" );
            String sup_name = sc.next();
            System.out.println("Enter the address" );
            String addrss = sc.next();
            String[] productname = new String[3];
           int[] priceofproduct = new int[3];

            System.out.println("Enter the product name");
            for(int  i = 0;i<3;i++)
            {
                productname[i] = sc.next();
            }
             System.out.println("Enter the price of product ");
            for(int  i = 0;i<3;i++)
            {
                priceofproduct[i] = sc.nextInt();
            }
            Supplier s1 = new Supplier(sup_id, sup_name, addrss, productname,
priceofproduct);
            System.out.println(s1);

        }
        catch(Exception e){
            System.out.println("An error occured");
        }

    }
}
```

Output:::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_9> javac Question9.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_9> java Question9

Enter your supplier id

1001

Enter supplier name

bharat

Enter the address

dsffsdfs

Enter the product name

hockey

bat

badminton

Enter the price of product

1000

1000

1000

3000

The Supplier id is 1001

The Supplier name is bharat

Address is dsffsdfs

The Supplier id is 1001

total price is3000

Question 10.

```
import java.util.Scanner;
```

```java
abstract class Amazon_item{
    public  int item_id;
    public String product_type;
    public String item_name;
    public int display_price;
    public Amazon_item(int item_id , String product_type , String item_name , int
display_price)
    {
        this.item_id = item_id;
        this.product_type  = product_type;
        this.item_name = item_name;
        this.display_price = display_price;
    }
    public abstract void  display_price(int displayprice);
    public  abstract  void net_price(int displayprice);
    public void display(){
          System.out.println("The item id is " + item_id);
        System.out.println("The product type is " + product_type);
        System.out.println("The item name is " + item_name);
        System.out.println("The display price is" + display_price);
    }


}

class Cloth_item extends Amazon_item{
    private String texture_type;
    public Cloth_item(int item_id , String product_type , String item_name
,  String texture_type ,int display_price )
    {
        super(item_id , product_type , item_name , display_price);
        this.texture_type = texture_type;


    }
    public void display_price(int display_price)
    {
        System.out.println(display_price);
    }
    public void net_price(int display_price)
    {
       if(display_price > 5000)
       {
            System.out.println("The net price is " + (display_price -
(display_price * 15)/100));
```

```
       }
       else if(display_price >= 4000 && display_price <= 5000)
       {
            System.out.println("The net price is " + (display_price -
(display_price * 10)/100));

       }
         else if(display_price >= 3000 && display_price <= 4000)
       {
            System.out.println("The net price is " + (display_price -
(display_price * 5)/100));

       }
       else{
        System.out.println("The net price is " + display_price);
       }
    }
    public void display()
    {
          System.out.println("The item id is " + item_id);
        System.out.println("The product type is " + product_type);
        System.out.println("The item name is " + item_name);
        System.out.println("The display price is" + display_price);
        System.out.println("The texture type is " + texture_type);
         net_price(display_price);

    }
}

public class Question10{
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        try{
        Amazon_item[] obj = new Cloth_item[2];
        for(int  i = 0;i<2;i++)
        {
                System.out.println("Enter the Item id ");
                int item_id = sc.nextInt();
                System.out.println("Enter the product type ");
                String product_type = sc.next();
                 System.out.println("Enter the product name ");
                String item_name = sc.next();
                 System.out.println("Enter the texture type");
                 String texture_type = sc.next();
                  System.out.println("Enter the Display Price");
```

```
                int display_price = sc.nextInt();

                obj[i] = new Cloth_item(item_id, product_type, item_name,
texture_type, display_price);
                obj[i].display();
        }

        }
        catch(Exception e )
        {
                System.out.println(e);
        }

    }
}
```

OUTPUT ::::::::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_10> javac Question10.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_10> java Question10

Enter the Item id

10001

Enter the product type

cloth

Enter the product name

tshirt

Enter the texture type

cotton

Enter the Display Price

1500

The item id is 10001

The product type is cloth

The item name is tshirt

The display price is1500

The texture type is cotton

The net price is 1500

Enter the Item id

1002

Enter the product type

cloth

Enter the product name

saree

Enter the texture type

cotton

Enter the Display Price

2000

The item id is 1002

The product type is cloth

The item name is saree

The display price is2000

The texture type is cotton

The net price is 2000

QUESTION 11:

```
import java.util.Scanner;

class Bank_account {
    private int Account_id;
    private String mobile_number;
    private String account_holder_name;
```

```java
    private String account_type;
    private double account_balance;
    private double Credit_limit;

    // Overloaded constructors
    public Bank_account(int Account_id, String mobile_number, String
account_holder_name, String account_type) {
        this(Account_id, mobile_number, account_holder_name, account_type, 0, 0);
    }

    public Bank_account(int Account_id, String mobile_number, String
account_holder_name, String account_type,
            double account_balance, double Credit_limit) {
        this.Account_id = Account_id;
        this.mobile_number = mobile_number;
        this.account_holder_name = account_holder_name;
        this.account_type = account_type;
        this.account_balance = account_balance;
        this.Credit_limit = Credit_limit;
    }

    // Update account details
    public void update_account(double account_balance, double Credit_limit) {
        this.account_balance = account_balance;
        this.Credit_limit = Credit_limit;
    }

    @Override
    public String toString() {
        return "Account ID: " + Account_id + "\nMobile Number: " + mobile_number
+ "\nAccount Holder Name: "
                + account_holder_name + "\nAccount Type: " + account_type +
"\nAccount Balance: " + account_balance
                + "\nCredit Limit: " + Credit_limit;
    }

    public int getAccount_id() {
        return Account_id;
    }
}

public class BankAccountApplication {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
```

```
        // Create an array of Bank_account references
        Bank_account[] accounts = new Bank_account[3];

        // Initialize accounts
        accounts[0] = new Bank_account(1001, "1234567890", "vimal Singh",
"Savings");
        accounts[1] = new Bank_account(1002, "9876543210", "ajay raj",
"Checking");
        accounts[2] = new Bank_account(1003, "5555555555", "Bob Johnson",
"Savings");

        System.out.println("Enter Account ID to display account details: ");
        int accountID = scanner.nextInt();

        // Find and display account details based on Account ID
        Bank_account selectedAccount = null;
        for (Bank_account account : accounts) {
            if (account != null && accountID == account.getAccount_id()) {
                selectedAccount = account;
                break;
            }
        }

        if (selectedAccount != null) {
            System.out.println(selectedAccount.toString());
        } else {
            System.out.println("Account not found.");
        }

        // Close the scanner
        scanner.close();
    }
}
```

OUTPUT::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_11> javac BankAccountApplication.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_11> java BankAccountApplication

Enter Account ID to display account details:

1001

Account ID: 1001

Mobile Number: 1234567890

Account Holder Name: vimal Singh

Account Type: Savings

Account Balance: 0.0

Credit Limit: 0.0

Question 12:

```
import java.util.Arrays;
import java.util.Scanner;


class Bill{
    private int billId;
    private int totalNumberOfItems;
    private int[] itemPrice  = new int[totalNumberOfItems];
    private int totalAmount;
    // int sum = 0;
    public Bill(int billId, int totalNumberOfItems  , int[] itemPrice )
    {
        this.billId = billId;
        this.totalNumberOfItems = totalNumberOfItems;
        this.itemPrice = itemPrice;

    }
    public String toString()
    {
    return "The Bill id is " + billId + "\n"
            +"The total number of items you have enter " + totalNumberOfItems
+"\n"
            + "The item price is "+ Arrays.toString(itemPrice);
    }
    public void calculatTotalAmout()
    {
        for(int i = 0;i<totalNumberOfItems ;i++)
        {
          totalAmount += itemPrice[i];
```

```
        }

        System.out.println("Total Amount is " + totalAmount);
    }

}

public class Question12{
    public static void main(String[] args) {
        Scanner sc=  new Scanner(System.in);
        try{
            System.out.println("Enter the Bill Id :");
            int billId = sc.nextInt();
            System.out.println("Enter the total Number of items");
            int totalNumberOfItems = sc.nextInt();
            System.out.println("Enter the Price for the items");
            int[] itemPrice = new int[totalNumberOfItems];
                for(int i = 0;i<totalNumberOfItems;i++)
                {
                        itemPrice[i] = sc.nextInt();
                }
                Bill b1 = new Bill(billId, totalNumberOfItems, itemPrice);
                System.out.println(b1.toString());
                b1.calculatTotalAmout();
            }
        catch(Exception e)
        {
            System.out.println("An error occured");
        }
    }
}
```

Output::::::::::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_12> javac Question12.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_12> java Question12

Enter the Bill Id :

1001

Enter the total Number of items

2

Enter the Price for the items

1000

1000

The Bill id is 1001

The total number of items you have enter 2

The item price is [1000, 1000]

Total Amount is 2000

Question 13:

Supplier.java

```
package GTU;


public class Supplier{
    private int supId;
    private String supName;
    private String supAddress;
    public  String[] procutNames = new String[3];
    public int[] productPrice = new int[3];
    private int totalPrice ;

    public Supplier(int supId , String supName , String supAddress , String[]
procutNames , int[] productPrice)
    {
        this.supId = supId;
        this.supName = supName;
        this.supAddress = supAddress;
        this.procutNames  = procutNames;
        this.productPrice = productPrice;

    }
    public void totalPrice()
    {
        totalPrice = productPrice[0] + productPrice[1] + productPrice[2];
        System.out.println("Total price of the products is: " + totalPrice);
```

```
    }

}
```

BookSupplier.java

```
package GTU;
import GTU.Supplier;

public class BookSupplier extends Supplier {
    private int discount;
    private int totalPrice;

    public BookSupplier(int supId , String supName , String supAddress , String[]
procutNames , int[] productPrice , int discount)
    {
        super(supId, supName, supAddress, procutNames, productPrice);
        this.discount = discount;
    }
    public void totalPrice()
    {
        int price1 = productPrice[0] - (productPrice[0] * discount)/100;
        int price2  = productPrice[1] -(productPrice[1] * discount)/100;
        int price3 = productPrice[2 ] -(productPrice[2]  * discount)/100;
        totalPrice = price1 + price2 + price3;
        System.out.println(totalPrice);
    }
}
```

Question 13.java

```
import GTU.Supplier;

import java.util.Scanner;

import GTU.BookSupplier;


public class Question13{
    public static void main(String[] args) {
```

```
        try{
    Scanner sc = new Scanner(System.in);

        String[] procutNames = new String[3];
         int[] productPrice = new int[3];
        System.out.println("Enter the Supplier id");
        int supId = sc.nextInt();
        System.out.println("Enter the Supplier Name");
        String supName = sc.next();
        System.out.println("Enter the Supplier Address");
        String supAddress = sc.next();
        System.out.println("Enter the Product Names");
        for(int i= 0;i<3;i++)
        {
            procutNames[i] = sc.next();

        }
        System.out.println("Enter the Product price");
        for(int i= 0;i<3;i++)
        {
            productPrice[i] = sc.nextInt();

        }

        Supplier bk =  new Supplier(supId, supName, supAddress, procutNames,
productPrice);
        bk.totalPrice();
    }
    catch(Exception e)
    {
        System.out.println("An Error occured");
    }
}
}
```

OUTPUT ::::::::::::::::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_13> javac -d . Supplier.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_13> javac -d . BookSupplier.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_13> javac Question13.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_13> java Question13

Enter the Supplier id

1001

Enter the Supplier Name

bharat

Enter the Supplier Address

goa

Enter the Product Names

bat

badminton

football

Enter the Product price

10000

10000

10000

Total price of the products is: 30000

Question 14:

Person.java

```
package MyPackage;


 public abstract class Person{
    public String name;
    public double salary;
    public Person()
    {
        System.out.println("The Person Object is created");
    }
    public Person(String name , double salary)
```

```
    {
            this.name = name ;
            this.salary  = salary;
    }


    public abstract void hikeSalary(double percentage);
    public abstract void displayData();

}
```

Manager.java

```
package MyPackage;
import MyPackage.Employee;

public class Manager extends Employee{
    public Manager(String name , double salary)
    {
            super(name , salary);
    }
    public void hikeSalary(double percentage)
    {
        if (percentage < 0) {
            throw new IllegalArgumentException("Percentage cannot be negative");
        }
        currentsalary = salary;
      currentsalary +=  (currentsalary *percentage)/100;
      System.out.println(currentsalary + 5000);
    }
    public void displayData() {
        System.out.println("Name: " + name);
        System.out.println("Salary: " + salary);
    }
}
```

Employee.java

```
package MyPackage;
```

```java
import MyPackage.Person;

public class Employee extends Person{
    double currentsalary = 0;
    public Employee(String name , double salary)
    {
     super(name , salary);

    }
    public void hikeSalary(double percentage)
    {
        if (percentage < 0) {
            throw new IllegalArgumentException("Percentage cannot be negative");
        }
        currentsalary = salary;
      currentsalary +=  (currentsalary *percentage)/100;
      System.out.println(currentsalary);
    }
    public void displayData() {
        System.out.println("Name: " + name);
        System.out.println("Salary: " + salary);
    }

}
```

Main.java

```java
import MyPackage.Person;
import MyPackage.Employee;
import MyPackage.Manager;


public class ApplicationPer {
    public static void main(String[] args) {
        Person[] peoples = new Person[3];
        peoples[0] = new Employee("Bhushan Bhatt" , 40000.00);
        peoples[1] = new Manager("Harshad Mehta" , 100000.00);
        for(Person person : peoples)
        {
            try{
                    person.displayData();
                    person.hikeSalary(10);
            }
            catch(Exception e)
```

```
            {
                System.out.println("An error occured");
            }
        }
    }

}
```

OUTPUT ::::::::::::

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_14> javac -d . Person.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_14> javac -d . Employee.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_14> javac -d . Manager.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_14> javac ApplicationPer.java

PS E:\javaprograms\Clg_Assignments\Assignment2\Question_14> java ApplicationPer

Name: Bhushan Bhatt

Salary: 40000.0

44000.0

Name: Harshad Mehta

Salary: 100000.0

115000.0

An error occured