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Batch CSE-6

Branch CSE

Subject Web Tech

Assignment 6

Ques 1 Implement a class Point having data members x & y . Include the following constructor.

Point()

Point(int, int)

Point(Point)

Find Distance() - distance from origin (0, 0)

Find Distance(int x_1 , int y_1) - distance from origin
(x_1 , y_1)

findDistance(Point P1)

void show()

Point.java

```
point class Point {
```

```
    int x, y;
```

```
    Point()
```

```
{
```

```
    x=10;
```

```
    y=10;
```

```
}
```

```
    Point(int a, int b)
```

```
{
```

```
    x=a;
```

```
    y=b;
```

```
}
```

```
    Point(Point o)
```

```
{
```

```
    x=o.x;
```

```
    y=o.y;
```

```
}
```

```
    void findDistance()
```

```
{
```

```
        double distance = Math.sqrt(Math.pow(x, 2) + Math.pow(y, 2));
```

```
System.out.println(" Distance : " + distance);
```

```
}
```

```
void findDistance (int x1, int y1)
```

```
{  
    double distance = Math.sqrt(Math.pow((x - x1), 2) +  
        Math.pow((y - y1), 2));
```

```
System.out.println(" Distance : " + distance);
```

```
}
```

```
void findDistance (Point p1)
```

```
{  
    double distance = Math.sqrt(Math.pow((x - p1.x), 2) +  
        Math.pow((y - p1.y), 2));
```

```
System.out.println(" Distance : " + distance);
```

```
}
```

```
void show()
```

```
{
```



```
System.out.println("Data Members x = " + x + " y = " + y);
```















```
}
```

```
}
```

Point Demo.java

```
public class PointDemo {  
    public static void main (String[] args)  
    {  
        Scanner sc = new Scanner(System.in);  
        Point pnt = new Point();  
  
        System.out.println("Value of x1 : ");  
        int x1 = sc.nextInt();  
  
        System.out.println("Value of y1 : ");  
        int y1 = sc.nextInt();  
  
        System.out.println("Value of x2 : ");  
        int x2 = sc.nextInt();  
  
        System.out.println("Value of y2 : ");  
        int y2 = sc.nextInt();  
  
        Point pnt1 = new Point(x1, y1);  
        Point pnt2 = new Point(x2, y2);  
  
        pnt1.show();  
        pnt2.show();  
  
        pnt.findDistance();  
        pnt1.findDistance(x2, y2);  
        pnt1.findDistance(pnt2);  
    }  
}
```

Run:  Array2D x  PointDemo x

  "C:\Program Files\Amazon Corretto\jdk17.0.2_8\bin\java.exe"
  Enter the value x1:
  2
  Enter the value y1:
  5
  Enter the value x2:
 5
 Enter the value y2 :
6
Data membersx = 2
y = 5
Data membersx = 5
y = 6
Distance: 14.142135623730951
Distance: 3.1622776601683795
Distance: 3.1622776601683795

Process finished with exit code 0

Ques 2 Implement a class Rational

```
public class RationalDemo {  
    public static void main (String[] args)  
    {  
        Scanner sc = new Scanner (System.in);  
        System.out.println ("Enter Number 1: ");  
        System.out.println ("Enter value of x: ");  
        int x1 = sc.nextInt();  
        System.out.println ("Enter value of y: ");  
        int y1 = sc.nextInt();  
        System.out.println ("Enter Number 2: ");  
        System.out.println ("Enter value x: ");  
        int x2 = sc.nextInt();  
        System.out.println ("Enter Value y: ");  
        int y2 = sc.nextInt();  
        Rational r1 = new Rational (x1, y1);  
        Rational r2 = new Rational (x2, y2);  
        Rational result = new Rational (0, 0);  
        result = r1.add(r2);  
        System.out.println ("Addition is: " + result.p + " + "
```

```
+ result.q);
```

```
result = r1.subtract(r2);
```

```
System.out.println("Subtraction: " + result.p + " - " +  
result.q);
```

```
result = r1.multiply(r2);
```

```
System.out.println("Multiplication: " + result.p + " * " +  
result.q);
```

```
result = r1.divide(r2);
```

```
System.out.println("Divide: " + result.p + " / " + result.q);
```

```
}
```

```
}
```

Rational.java

```
public class Rational {
```

```
    int p;
```

```
    int q;
```

```
    Rational(int p, int q)
```

```
    {
```

```
        this.p = p;
```

```
        this.q = q;
```

```
    }
```

```
    Rational add(Rational r1)
```

```
    {
```



```
int denominator = r1.q * q;
```

```
int numerator = q * r1.p + p * r1.q;
```

```
Rational result = new Rational(numerator, denominator);
```

```
return result;
```

```
}
```

```
Rational subtract(Rational r1)
```

```
{
```

```
int denominator = r1.q * q;
```

```
int numerator = q * r1.p - p * r1.q;
```

```
Rational result = new Rational(numerator, denominator);
```

```
return result;
```

```
}
```

```
Rational multiply(Rational r1)
```

```
{
```

```
int numerator = p * r1.p;
```

```
int denominator = q * r1.q;
```

```
Rational result = new Rational(numerator, denominator);
```

```
return result;
```

```
}
```


Rational divide (Rational r)

{

int denominator = p * r.q;

int numerator = q * r.p;

Rational result = new Rational(numerator, denominator);

return result;

}

}

```
Run: Array2D x RationalDemo x
"C:\Program Files\Amazon Corretto\jdk17.0.2_8\bin\java.exe"
Enter the number 1 :
Enter the value of x :
2
Enter the value y :
5
Enter the number 2 :
Enter the value x :
5
Enter the value y :
6
Addition is : 37/30
Subtraction is : 13/30
Multiplication is : 10/30
Divide is : 25/12
```

Ques 3 Array 2D

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

```
public class Array2D {
```

```
    public static void main(String[] args)
```

```
{
```

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

```
    System.out.println("Enter Rows: ");
```

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

```
    System.out.println("Enter Column: ");
```

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

```
    int arr[][] = new int[row][cols];
```

```
    System.out.println("Input Elements in Array: ");
```

```
    for(int i=0; i<row; i++)
```

```
{
```

```
    for(int j=0; j<cols; j++)
```

```
{
```

```
        arr[i][j] = sc.nextInt();
```

```
}
```

```
}
```

```
    System.out.println("2D Array in Matrix: ");
```

```
for(int i=0; i< rows; i++)
```

```
{
```

```
    for(int j=0; j< cols; j++)
```

```
    {
```

```
        System.out.println(arr[i][j] + "\t");
```

```
    }
```

```
    System.out.println();
```

```
}
```

```
}
```

```
}
```

```
Run: Array2D x RationalDemo x
  ▶ ↑ "C:\Program Files\Amazon Corretto\jdk17.0.2_8\bin\java
  ⚙ ↓ Enter rows :
  ▢ ⇌ 3
  📷 ⬇ Enter columns :
  🔌 🖨 3
  📁 🗑 Input Elements in Array:
  📊 10 20 30 40 50 60 70 80 90
  📌 2D array in matrix:
    10 20 30
    40 50 60
    70 80 90
  Git Run TODO Problems Terminal Build
```

Ques 4

Toy.java

```
public class Toy {
```

```
    int ToyID, ToyQuant, ToyPrice;
```

```
    String ToyName;
```

```
    Toy(int id, int price, int quant, int String name)
```

```
    {
```

```
        ToyID = id;
```

```
        ToyPrice = price;
```

```
        ToyQuant = quant;
```

```
        ToyName = name;
```

```
    }
```

```
}
```

ToyDemo.java

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

```
public class ToyDemo {
```

```
    public static void main(String[] args)
```

```
    {
```

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

```
        int totalPrice = 0;
```

```
System.out.println("Total no. of Toys: ");
```

```
int n;
```

```
n = sc.nextInt();
```

```
Toy[] ty = new Toy[10];
```

```
for (int i=0; i < n; i++)
```

```
{
```

```
System.out.println("Info of toy" + i + 1 + " = ");
```

```
System.out.println("Name = ");
```

```
String ToyName = sc.nextLine();
```

```
System.out.println("Toy ID: ");
```

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

```
System.out.println("Toy Quantity: ");
```

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

```
System.out.println("Price: ");
```

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

```
ty[i] = new Toy(ToyID, ToyQuantity, ToyPrice,  
                ToyName);
```

```
}
```

```
System.out.println("ToyID \t ToyName \t Toy Quant \t Toy Price);
```

```
for (int i=0; i<n; i++)
```

```
{
```

```
System.out.println(ty[i].ToyID + "\t" + ty[i].ToyName + "  
 \t" + ty[i].ToyQuant + "\t" + ty[i].ToyPrice);
```

```
totalPrice = totalPrice + (ty[i].ToyQuant *  
 ty[i].ToyPrice);
```

```
}
```

```
System.out.println("Total Price : Rs" + totalPrice);
```

```
}
```

```
Run: ToyDemo x RationalDemo x  
"C:\Program Files\Amazon Corretto\jdk17.0.2_8\bin\java  
Total No of Toys :  
1  
Info of toy 1:  
Name=  
Doll  
ID :  
1479  
Quantity :  
5  
Price :  
500  
ToyID ToyName ToyQuantity ToyPrice  
1479 Doll 5 500  
Total Price: Rs. 2500
```