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Assignment 5

Ques 2 Definition class: Equation, Application class: Equation Demo

a, b, c
void setCoefficients(int, int, int);
void findRoots();

EquationDemo.java

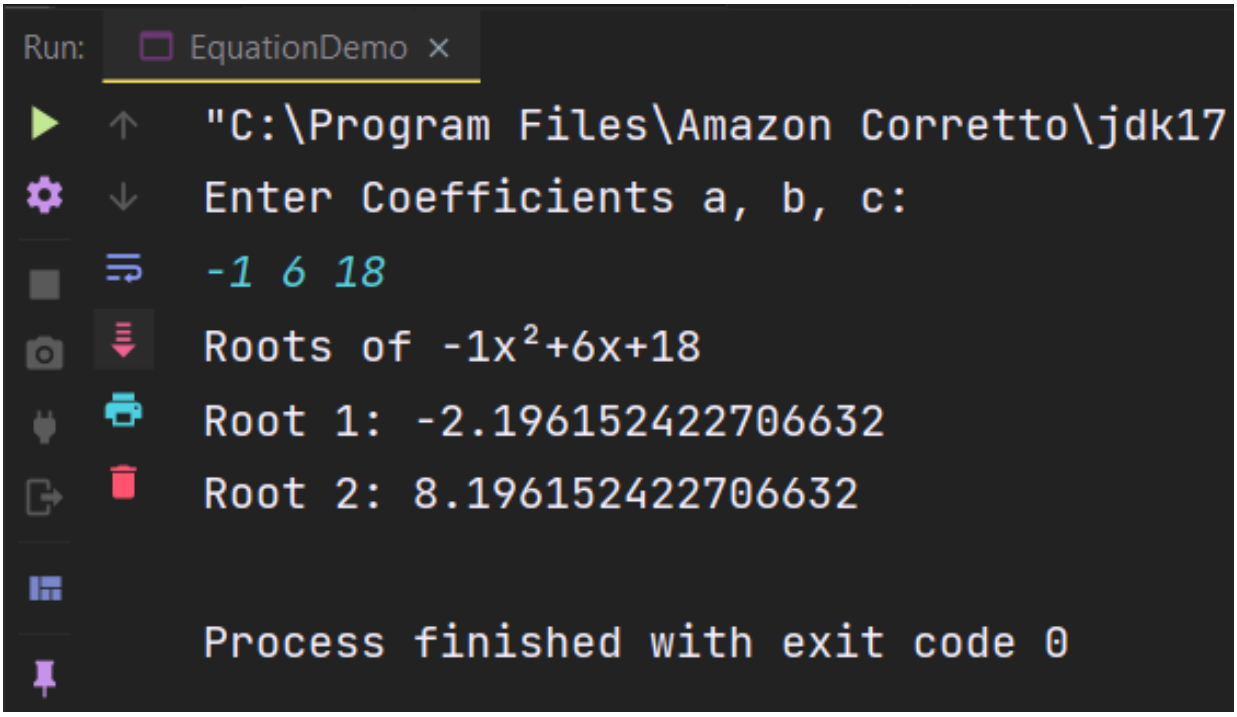
```
import java.util.scanner;

public class EquationDemo {
    public static void main(String[] args)
    {
      int a, b, c;
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter Coefficient a, b, c: ");
```

```
a= sc.nextInt();
b= sc.nextInt();
c= sc.nextInt();

Equation eq = new Equation();

eq.setCoefficient(a,b,c)
eq.findRoots();
```

Equation.java

```
public class Equation {
    int coeff1, coeff2, coeff3;
    void setCoefficient(int a, int b, int c)
    {
        coeff1 = a;
        coeff2 = b;
        coeff3 = c;
    }
    void findRoots()
    {
      double d = (coeff2 * coeff2) - (4 * coeff1 * coeff3);
      if (d < 0)
      {
        System.out.println("Roots are not real Numbers");
      }
```

```
else
{
    double x1 = (-coeff2 + Math.sqrt(d)) / (2 * coeff1);
    double x2 = (-coeff2 - Math.sqrt(d)) / (2 * coeff1);

System.out.println("Roots of " + coeff1 + "x²" + "+" +
                                    coeff2 + "x" + "x" + coeff3);

System.out.println("Root1: " + x1);
System.out.println("Root2: " + x2);
```



Ques 1 Definition Class : Circle , Application class: CircleDemo

radius

void setDim(float)

void findArea();

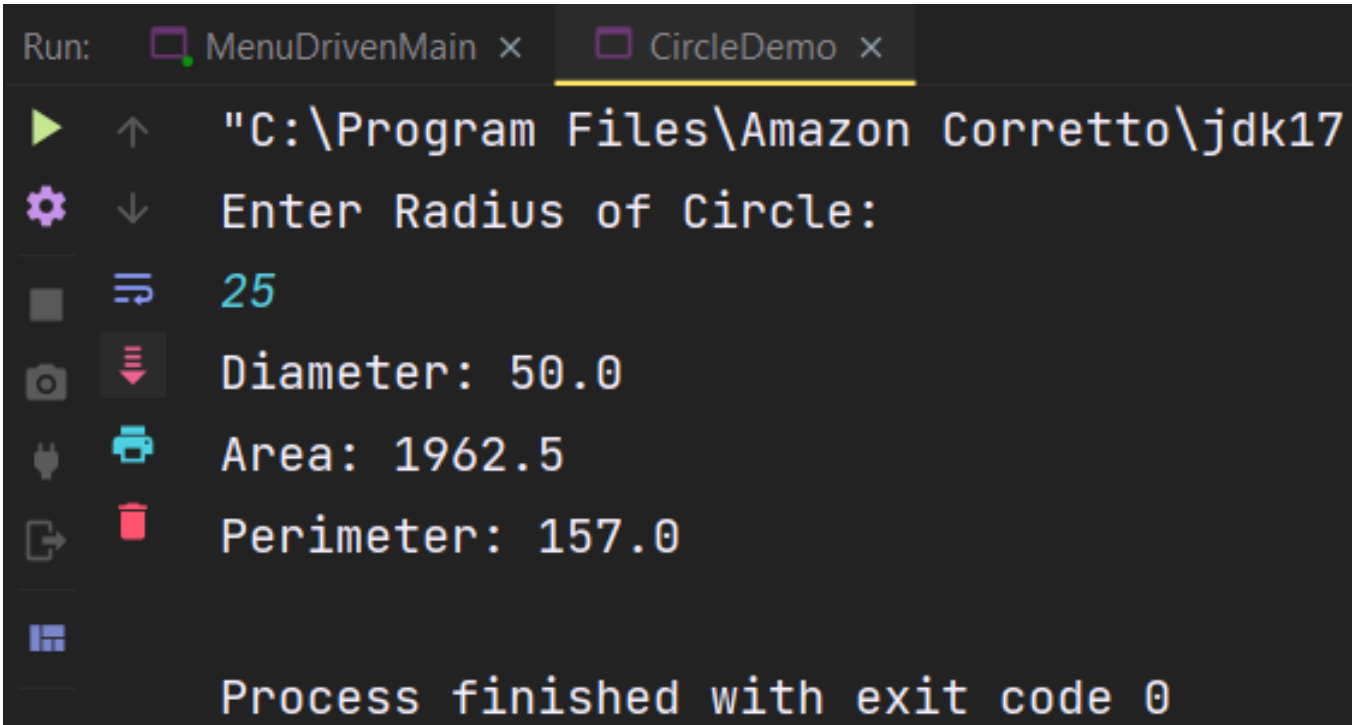
void findPerimeter();

CircleDemo.java

```
import java.util.Scanner;

public class CircleDemo {

    public static void main(String[] args)
    {
     Scanner sc = new Scanner(System.in);
     System.out.println("Enter Radius of Circle: ");
     int rad;
     Circle cir= new Circle();
     rad= sc.nextInt();
     cir.setDim(rad);
     cir.findArea(rad);
     cir.perimeter(rad);
    }

}
```

Circle.java

```
Public class circle
{
    float area, dim, perimeter;
 void setDim(float rad)
  {
        dim = 2 * rad;
        System.out.println("Diameter:  "+dim);
  }
 void findArea(int rad)
  {
     area = (float)(3.14 * rad * rad);
     System.out.println("Area: "+ area);
  }
 void perimeter(int rad)
  {
     perimeter = (float)(2* 3.14 * rad);
     System.out.println("Perimeter: "+perimeter );
  }
}
```


Run:
MenuDrivenMain
CircleDemo
"C:\Program Files\Amazon Corretto\jdk17
Enter Radius of Circle:
25
Diameter: 50.0
Area: 1962.5
Perimeter: 157.0
Process finished with exit code 0

Ques 3 Definition Class: MyNumber, Application Class: MyNumberDem

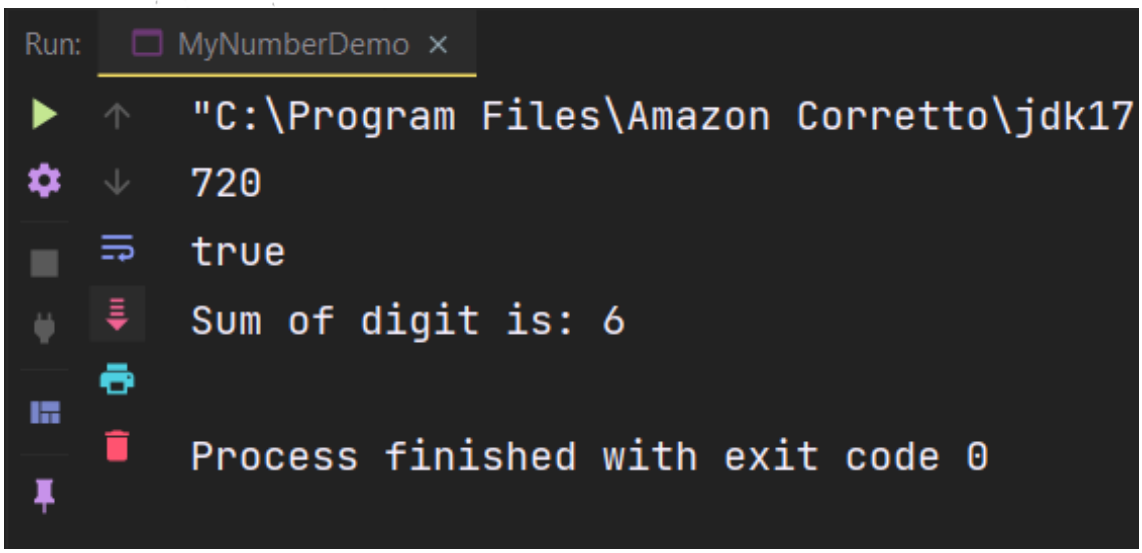
```
Value
Void setValue(int);
Boolean isEven();
int FindFactorial();
Boolean isPrime();
int findSumofDigit()
```

MyNumberDemo.java

```
public class MyNum
    public static void main(String[] args)
    {
      MyNumber myNum = new MyNumber();
      myNum.setValue(6);
      System.out.println(myNum.FindFactorial());
      System.out.println(myNum.isEven());
      System.out.println("SumofDigit is: " + mynum.
                                    .findSumofDigits());
    }
}
```

```
Public class MyNumber
{
   int myNum;

 Void setValue(int a)
 {
     myNum = a;
 }

 boolean isEven()
 {
    return myNum % 2 ==0;
 }

 Long FindFactorial()
 {
     Long Fact = 1 , i;
     for(i = myNum; i>0; --i)
     {
        fact = fact *i;
     }
      return fact;
 }
```

```
int findSumofDigits()
{
    int eachDigit;
    int sum=0;
    while (myNum > 0)
    {
        eachDigit = myNum % 10;
        sum = sum + eachDigit;
        myNum = myNum / 10;
    }
    return sum;
}
}
```



Ques 4 Write a menu driven program in java which will do the following operations using scanner.

a. Addition of two Numbers

b. Multiplication of two Number

c. Division of two Numbers

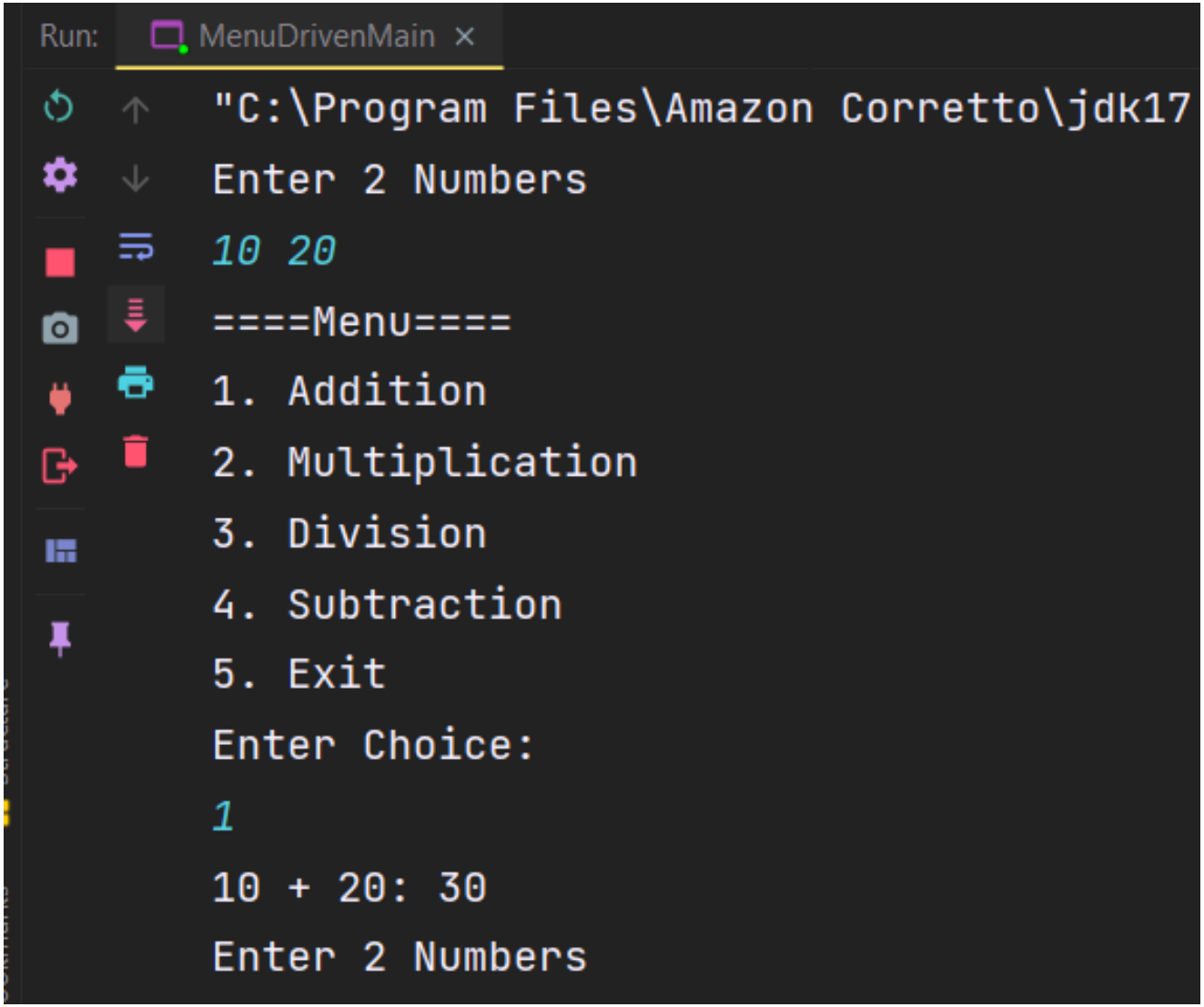
d. Subtractions of two numbers

```
import java.util.Scanner;
Public class MenuDrivenMain {
    Public Static void main(String[] args) {
        int myNum1, myNum2, ~~myNum~~3 choice, result;

    MenuDriven menu = new Menu Driven();

    Scanner Sc = new Scanner(System.in);

    do
      {
       System.out.println("Enter 2 Numbers");
    myNum1 = sc.nextInt();
    myNum2 = sc.next Int();
```

```
System.out.println("====Menu=====");
System.out.println("1. Addition");
System.out.println("2. Multiplication");
System.out.println("3. Division");
System.out.println("4. Subtraction");
System.out.println("5. Exit");
System.out.println("Enter Choice");
choice = sc.nextInt();

switch (choice)
{
  case 1:
      result = menu.Addition(myNum1, myNum2);
      System.out.println(myNum1 + " + " + myNum2 + ": " +
                                          result);
      break;
  case 2:
      result = menu.Multiplication(myNum1, myNum2);
      System.out.println(myNum1 + " * " + myNum2 + ":
                        " + result);
      break;
```

```
case 3:
    result = menu.Division (myNum1, myNum2);
    System.out.println (myNum1 + " / " + myNum2 + " : " + result);
    break;
case 4:
    result = menu.Subtraction (myNum1, myNum2);
    System.out.println (myNum1 + " - " + myNum2 + " : " +
                                                result);
    break;
case 5:
    System.exit (0);
default
    System.out.println("Invalid Choice");
}
}
while(true);
}
}
```

```
Public class MenuDriven {

int Addition(int num1, int num2)
{
   return num1 + num2;
}

int multiplication(int num1, int num2)
{
   return num1 * num2;
}
int division(int num1, int num2)
 {
   return num1 */num2;
 }
int Subtraction(int num1, int num2)
 {
   return num1 - num2;
 }
```


Run:
MenuDrivenMain
"C:\Program Files\Amazon Corretto\jdk17
Enter 2 Numbers
10 20
====Menu====
1. Addition
2. Multiplication
3. Division
4. Subtraction
5. Exit
Enter Choice:
1
10 + 20: 30
Enter 2 Numbers