LAB 2: PROGRAMS ON BASIC PROGRAMMING CONSTRUCTS LIKE BRANCHING AND LOOPING

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Decision Making

Q 1. Write a Program to check if the Triangle can be drawn or not if yes give the type of triangle.

CODE:

chkTriangle - Notepad

File Edit Format View Help

```
import java.util.Scanner;
class chkTriangle
{ public static void main(String args[])
{       Scanner s=new Scanner(System.in);
        System.out.println("Enter the length of three sides of triangle");
        int a=s.nextInt();
        int b=s.nextInt();
        int c=s.nextInt();

        if(a+b>c && b+c>a && c+a>b)
        {System.out.println("Triangle can be formed");
         if(a==b&&b==c&&a==c)
         System.out.println("Triangle formed is equilateral");
         else if(a==b || b==c || c==a)
         System.out.println("Triangle formed is isoceles");
         else
         System.out.println("Triangle formed is scalene");
        }
        else
        System.out.println("Triangle cannot be formed");

}
}
```

Ln 1, Col 1 100% Windows (CRLF) UTF-8

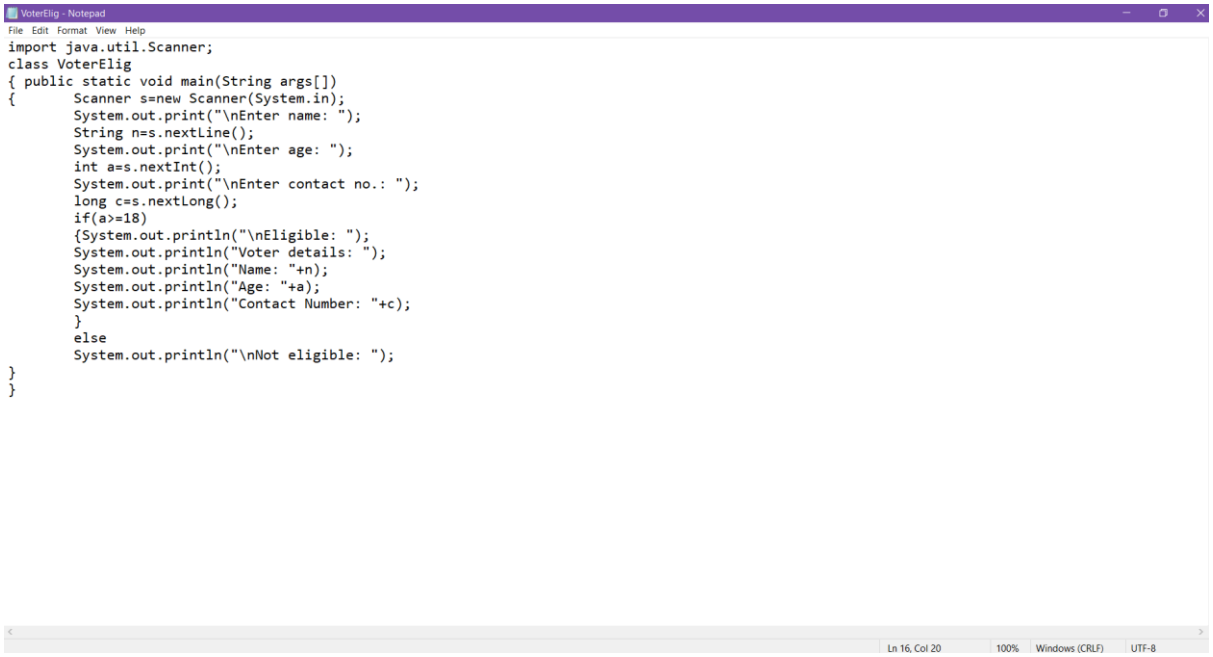
OUTPUT

C:\Windows\System32\cmd.exe

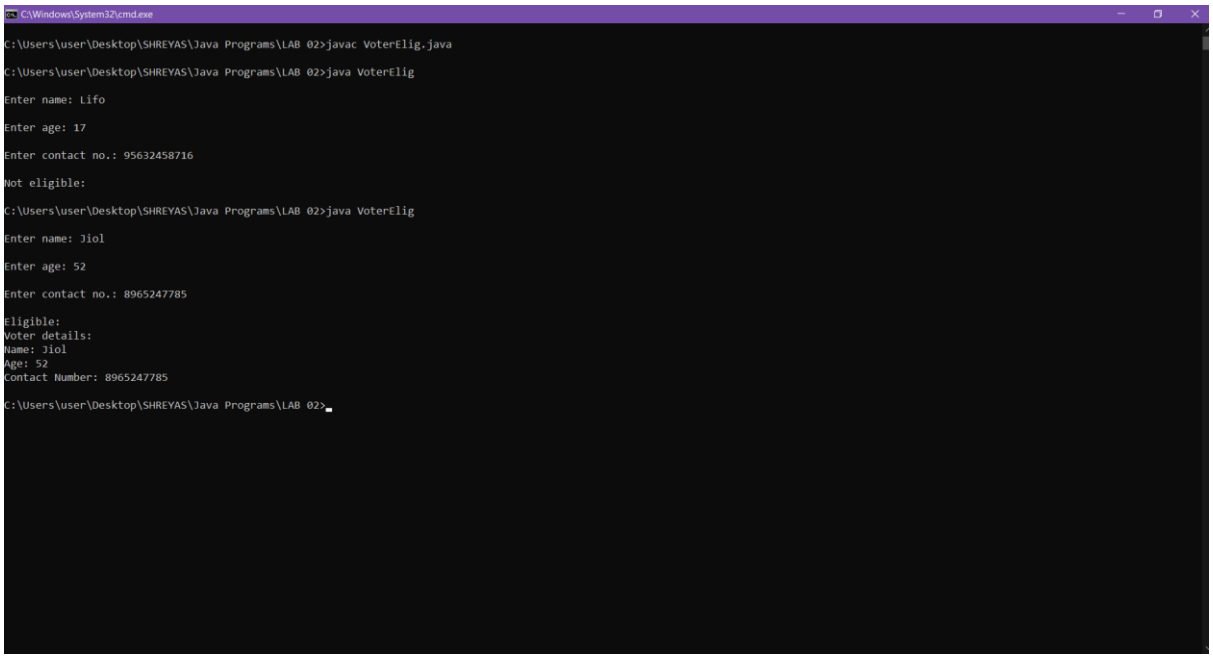
```
C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>javac chkTriangle.java

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>java chkTriangle
Enter the length of three sides of triangle
52
63
12
Triangle can be formed
Triangle formed is scalene

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>java chkTriangle
Enter the length of three sides of triangle
1
2
6
Triangle cannot be formed

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>java chkTriangle
Enter the length of three sides of triangle
45
45
45
Triangle can be formed
Triangle formed is equilateral

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>java chkTriangle
Enter the length of three sides of triangle
30
30
20
Triangle can be formed
Triangle formed is isoceles

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>
```

Q 2. Write a Program to check if the Voter is eligible for voting or not if yes print the details like name, age, contact no. etc.

CODE:




OUTPUT:



Q3. Write a Program to print the grade of students given aggregate percentage of marks: above 80 print Merit, between 70-80 print distinction, between 60-70 print first class and so on...use else-if ladder.

CODE:

StuRank - Notepad

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```
import java.util.Scanner;
class StuRank
{ public static void main(String args[])
{       Scanner s=new Scanner(System.in);
        System.out.print("\nEnter the student aggregate percentage: ");
        int n=s.nextInt();
        if(n>80)
        System.out.println("\nMerit");
        else if(n>70 && n<=80)
        System.out.println("\nDistinction");
        else if(n>60 && n<=70)
        System.out.println("\nFirst Class");
        else if(n>50 && n<=60)
        System.out.println("\nPass");
        else
        System.out.println("\nFail");
}
}
```

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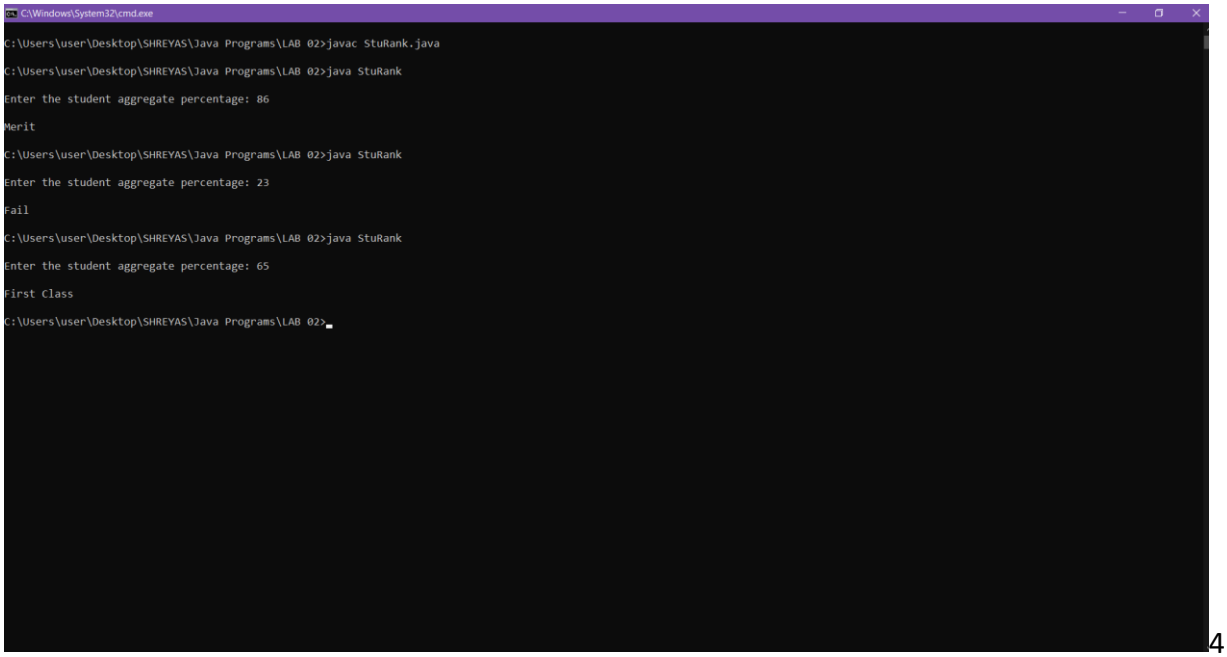
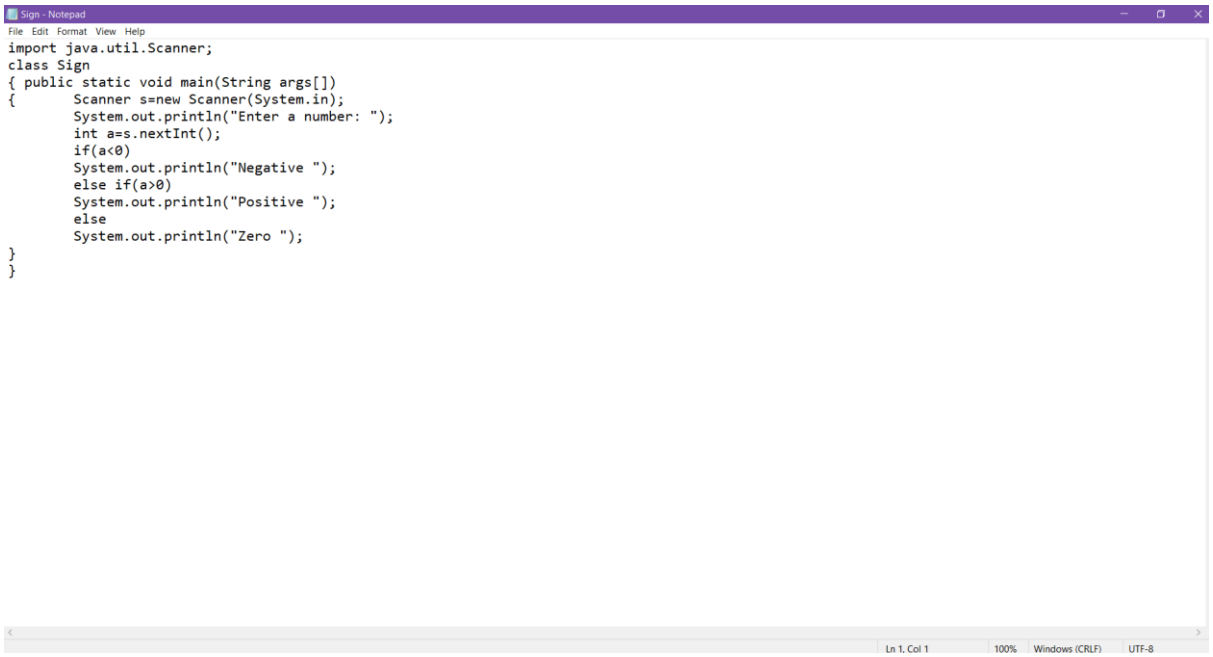
OUTPUT:



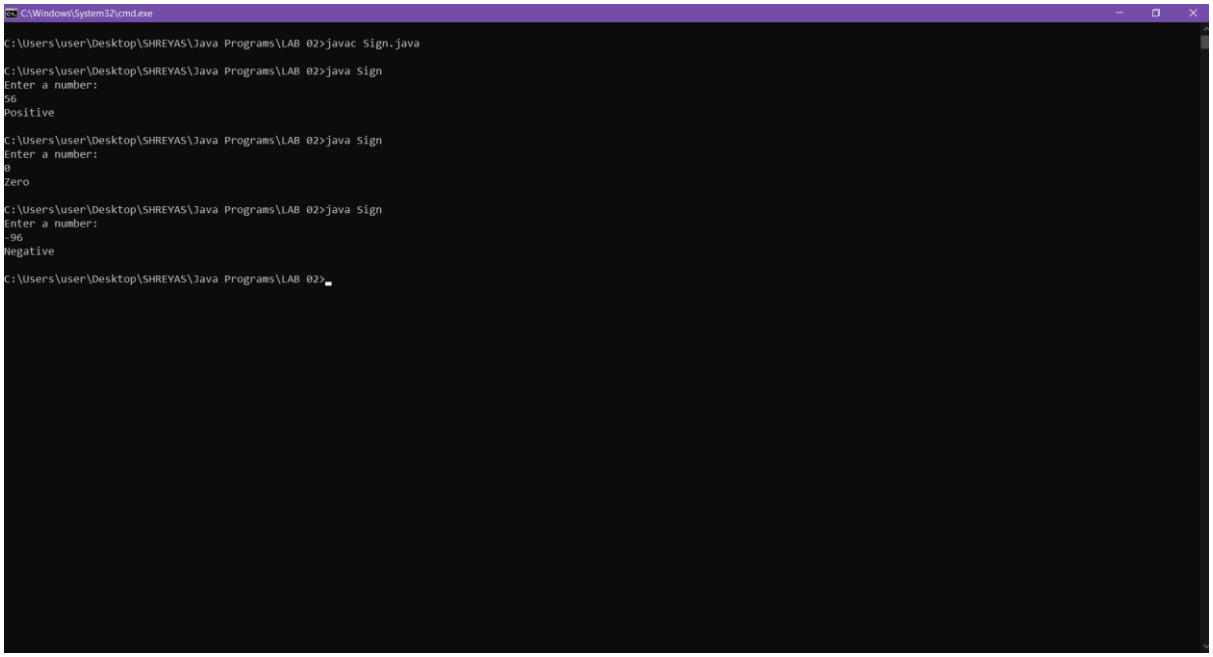

4.

Q.4 Write a Program to check if the given number is positive, negative or zero.

CODE:



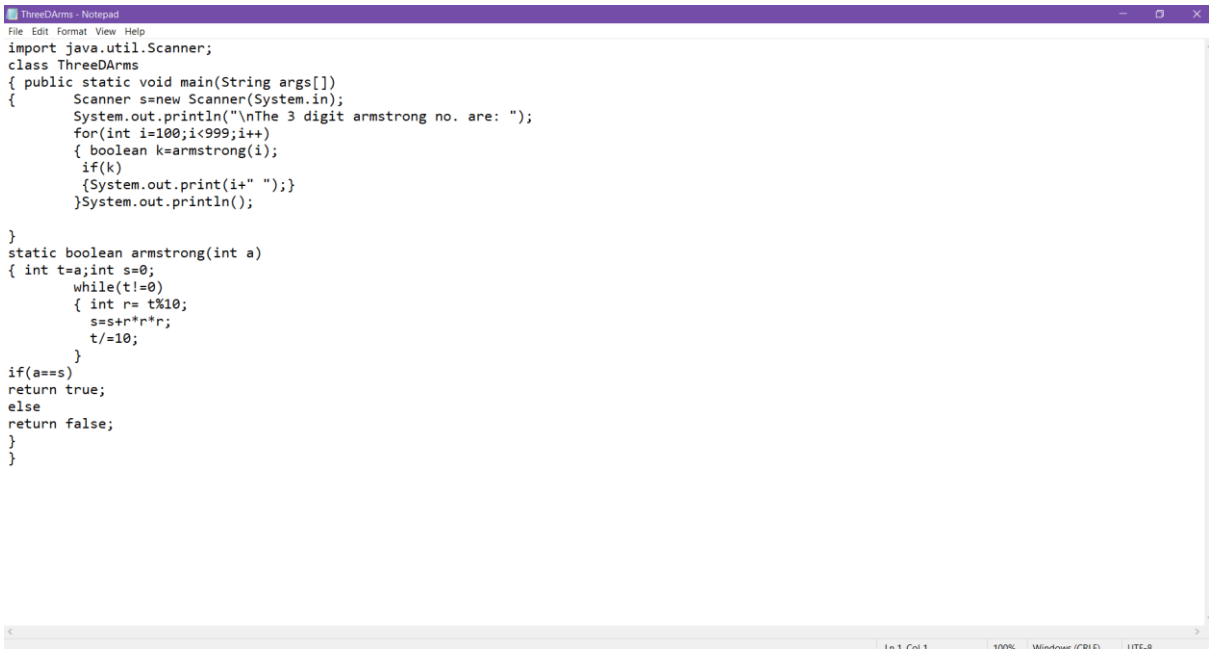

OUTPUT:



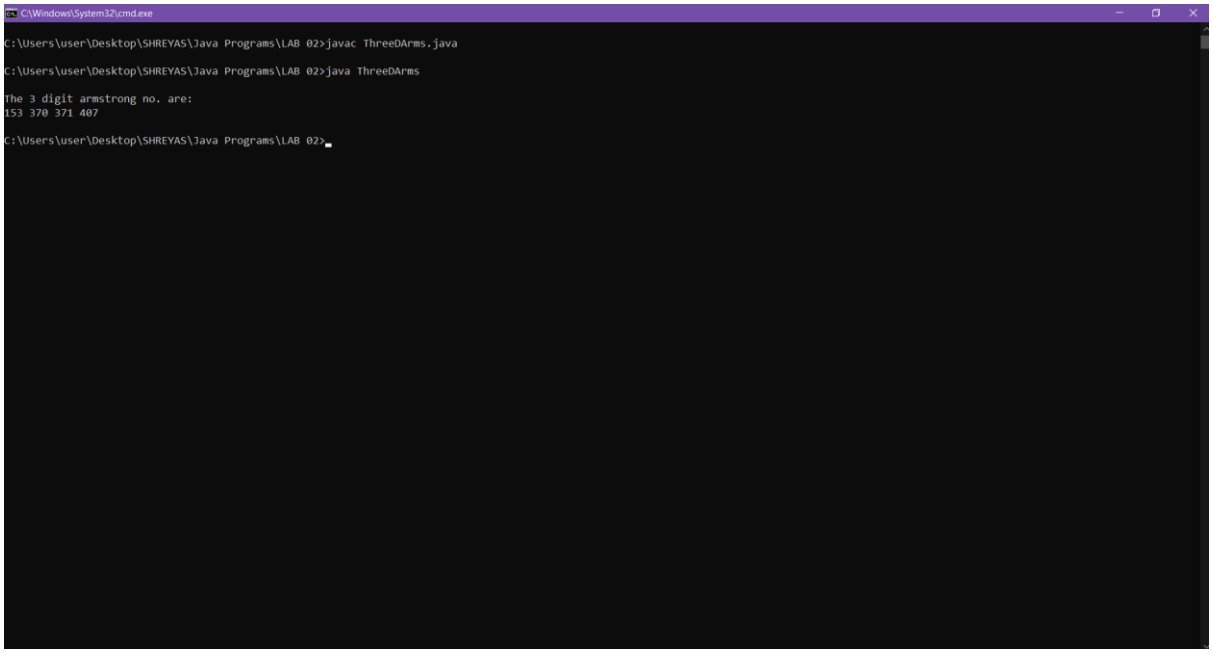
Looping

Q.1 Write a Program print all 3 digits Armstrong nos.

CODE:




OUTPUT:



Q.2 Write a Program print first n prime numbers.

CODE:

PrimeTillN - Notepad

File Edit Format View Help

```
import java.util.Scanner;
class PrimeTillN
{public static void main(String args[])
{Scanner s=new Scanner(System.in);
        System.out.println("\nEnter n till which prime numbers are to be printed: ");
        int n=s.nextInt();
        System.out.println("The prime numbers till "+n+" are: ");
        for(int i=2;i<=n;i++)
        {if(isPrime(i))
         {System.out.print(i+" ");}
        }System.out.println();
}
static boolean isPrime(int a)
{int k=0;
for(int i=2;i<a;i++)
{if(a%i==0)
        {k=1;break;}
}
if(k==0)
return true;
else
return false;
}
}
```

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OUTPUT:

C:\Windows\System32\cmd.exe

```
C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>javac PrimeTillN.java

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>java PrimeTillN

Enter n till which prime numbers are to be printed:
123
The prime numbers till 123 are:
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103 107 109 113

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>java PrimeTillN

Enter n till which prime numbers are to be printed:
200
The prime numbers till 200 are:
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103 107 109 113 127 131 137 139 149 151 157 163 167 173 179 181 191 193 197 199

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>
```

Q.3 Write a Program to simulate a simple calculator using switch case and do-while loop.

CODE:

Calculator - Notepad

File Edit Format View Help

```
import java.util.Scanner;
class Calculator
{public static void main(String args[])
{       Scanner s=new Scanner(System.in);char ch;
        do{System.out.println("\nEnter two numbers on which the operations are to be performed: ");
        double a=s.nextDouble();
        double b=s.nextDouble();
        System.out.println("\n1.Addition\n2.Subtraction\n3.Multiplication\n4.Division ");
        System.out.println("Enter choice that is to be performed on the numbers from above list from the list: ");
        int c=s.nextInt();
        switch(c)
        {case 1:
                {System.out.println("\n"+a+" + "+b+" = " +a+b);
                        break;}

         case 2:
                {System.out.println("\n"+a+" - "+b+" = " +(a-b));
                        break;}
         case 3:
                {System.out.println("\n"+a+" * "+b+" = " +a*b);
                        break;}
         case 4:
                {//System.out.println(a+" / "+b);
                 System.out.println("\nQuotient= "+a/b);
                 System.out.println("Remainder= "+a%b);
                        break;}
         default:
         System.out.println("Invalid Choice");
         }
         System.out.println("Enter y to continue: ");
         ch=s.next().charAt(0);
        }while(ch=='y');
}
}
```

Ln 1, Col 1 100% Windows (CRLF) UTF-8

OUTPUT:

Select C:\Windows\System32\cmd.exe

```
C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>javac Calculator.java

C:\Users\user\Desktop\SHREYAS\Java Programs\LAB 02>java Calculator

Enter two numbers on which the operations are to be performed:
56
45

1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter choice that is to be performed on the numbers from above list from the list:
4

Quotient= 1.2444444444444445
Remainder= 11.0
Enter y to continue:
y

Enter two numbers on which the operations are to be performed:
23
12

1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter choice that is to be performed on the numbers from above list from the list:
3

23.0 * 12.0 = 276.0
Enter y to continue:
y

Enter two numbers on which the operations are to be performed:
78.23
96.53

1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter choice that is to be performed on the numbers from above list from the list:
1

78.23 + 96.53 = 78.2396.53
Enter y to continue:
cls
```