

JAVA ASSIGNMENT 1

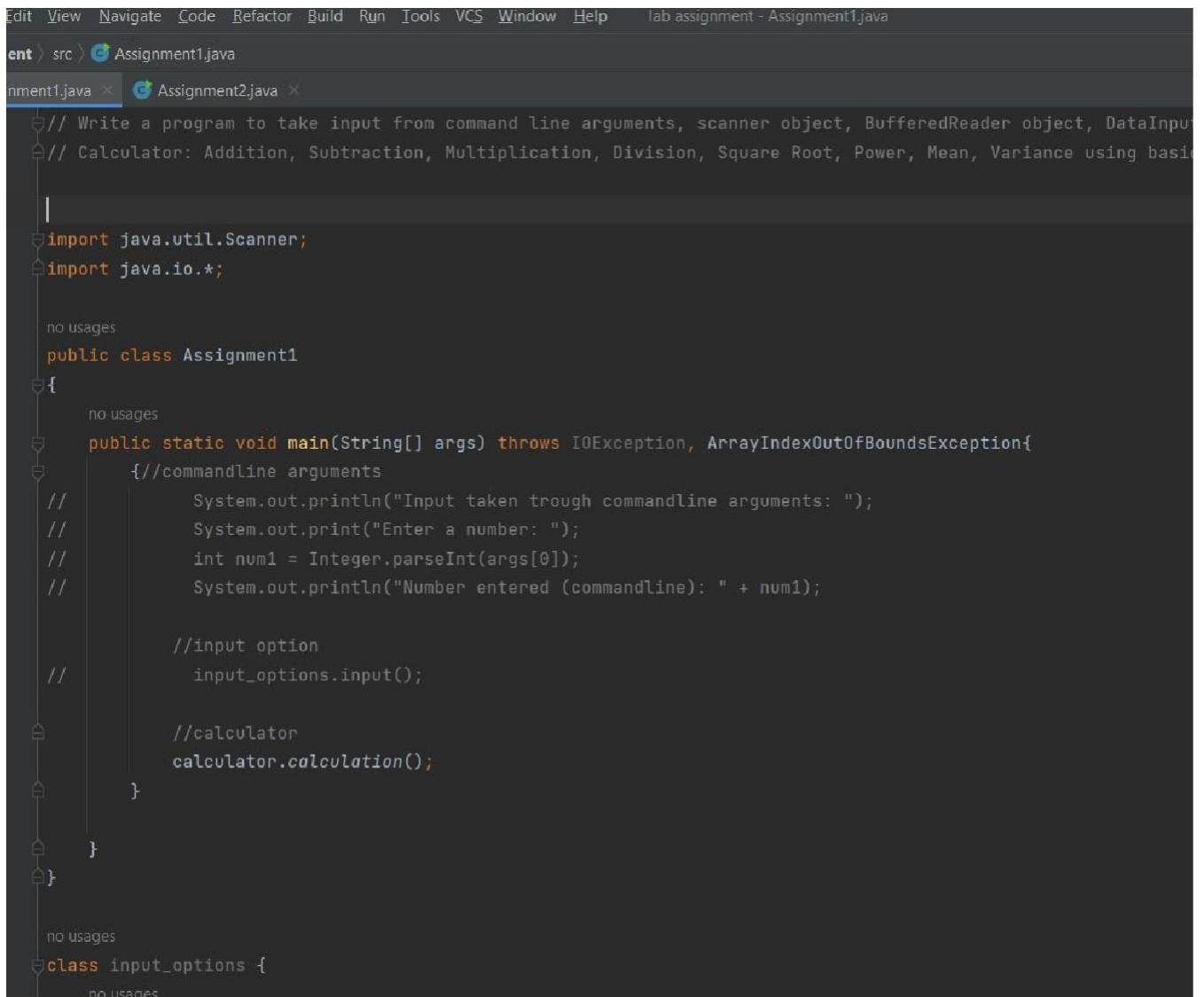
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BATCH : AIML A1

Write a program to take input from command line arguments, scanner object, BufferedReader object, DataInputStream object, console object and perform the following operations:

Calculator: Addition, Subtraction, Multiplication, Division, Square Root, Power, Mean, Variance using basic math based functions.



```

// Write a program to take input from command line arguments, scanner object, BufferedReader object, DataInputStream object, console object and perform the following operations:
// Calculator: Addition, Subtraction, Multiplication, Division, Square Root, Power, Mean, Variance using basic math based functions.

import java.util.Scanner;
import java.io.*;

no usages
public class Assignment1
{
    no usages
    public static void main(String[] args) throws IOException, ArrayIndexOutOfBoundsException{
        //commandline arguments
        //      System.out.println("Input taken trough commandline arguments: ");
        //      System.out.print("Enter a number: ");
        //      int num1 = Integer.parseInt(args[0]);
        //      System.out.println("Number entered (commandline): " + num1);

        //input option
        //      input_options.input();

        //calculator
        calculator.calculation();
    }
}

no usages
class input_options {
    no usages
}
```

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Assignment1.java x Assignment2.java x

no usages
class input_options {
    no usages
    static void input() throws IOException{

        // scanner object
        Scanner sc = new Scanner(System.in);
        System.out.println("Input taken through scanner object: ");
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        System.out.println("Number entered (scanner): " + num);

        //BufferedReader object
        InputStreamReader r= new InputStreamReader(System.in);
        BufferedReader br = new BufferedReader(r);
        System.out.println("Input taken through BufferedReader object: ");
        System.out.print("Enter a number: ");
        String n = br.readLine();
        int num2 = Integer.parseInt(n);
        System.out.println("Number entered (BufferedReader): " + num2);

        //DataInputStream object
        DataInputStream data = new DataInputStream(System.in);
        System.out.println("Input taken through DataInputStream object: ");
        System.out.print("Enter a number: ");
        int num3 = Integer.parseInt(data.readLine());
        System.out.println("Number entered (DataInputStream): " + num3);

        //console object
        Console c = System.console();
```

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src > Assignment1.java
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Console c = System.console();
System.out.println("Input taken through console object: ");
System.out.print("Enter a number: ");
int num4 = Integer.parseInt(c.readLine());
System.out.println("Number entered (console): " + num4);
}
}

1 usage
class calculator {
    1 usage
    static void calculation() {
        Scanner sc = new Scanner(System.in);

        while (true) {
            System.out.println("Menu:");
            System.out.println("1. Addition");
            System.out.println("2. Subtraction");
            System.out.println("3. Multiplication");
            System.out.println("4. Division");
            System.out.println("5. Square Root");
            System.out.println("6. Power");
            System.out.println("7. Mean");
            System.out.println("8. Variance");
            System.out.println("9. Exit");
            System.out.print("Enter your choice: ");
            int choice = sc.nextInt();

            switch (choice) {
                case 1:
```

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int choice = sc.nextInt();

switch (choice) {
    case 1:
        System.out.print("Enter first number: ");
        double num1 = sc.nextDouble();
        System.out.print("Enter second number: ");
        double num2 = sc.nextDouble();
        System.out.println("Result: " + (num1 + num2));
        break;
    case 2:
        System.out.print("Enter first number: ");
        num1 = sc.nextDouble();
        System.out.print("Enter second number: ");
        num2 = sc.nextDouble();
        System.out.println("Result: " + (num1 - num2));
        break;
    case 3:
        System.out.print("Enter first number: ");
        num1 = sc.nextDouble();
        System.out.print("Enter second number: ");
        num2 = sc.nextDouble();
        System.out.println("Result: " + (num1 * num2));
        break;
    case 4:
        System.out.print("Enter first number: ");
        num1 = sc.nextDouble();
        System.out.print("Enter second number: ");
        num2 = sc.nextDouble();
        System.out.println("Result: " + (num1 / num2));
        break;
}

```

lab assignment > src > Assignment1.java

Assignment1.java × Assignment2.java ×

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112     num1 = sc.nextDouble();
113     System.out.println("Result: " + Math.sqrt(num1));
114     break;
115
116     case 6:
117         System.out.print("Enter base: ");
118         num1 = sc.nextDouble();
119         System.out.print("Enter exponent: ");
120         int exponent = sc.nextInt();
121         System.out.println("Result: " + Math.pow(num1, exponent));
122         break;
123
124     case 7:
125         double sum = 0;
126         int count = 0;
127         String input;
128         System.out.println("Enter numbers one by one, enter 'end' to stop input:");
129         while (true) {
130             input = sc.next();
131             if (input.equalsIgnoreCase("end")) {
132                 break;
133             }
134             sum += Double.parseDouble(input);
135             count++;
136         }
137         System.out.println("Mean: " + (sum / count));
138         break;
139
140     case 8:
141         sum = 0;
142         count = 0;
143         double mean = 0;
144         double variance = 0;
145         System.out.println("Enter numbers one by one, enter 'end' to stop input:");

```

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lab assignment - Assignment1.java

lab assignment > src > Assignment1.java

Assignment1.java x Assignment2.java x

139     count = 0;
140     double mean = 0;
141     double variance = 0;
142     System.out.println("Enter numbers one by one, enter 'end' to stop input:");
143     while (true) {
144         input = sc.next();
145         if (input.equalsIgnoreCase("end")) {
146             break;
147         }
148         double num = Double.parseDouble(input);
149         sum += num;
150         count++;
151     }
152     mean = sum / count;
153     sc = new Scanner(System.in);
154     System.out.println("Enter numbers one by one, enter 'end' to stop input:");
155     while (true) {
156         input = sc.next();
157         if (input.equalsIgnoreCase("end")) {
158             break;
159         }
160         double num = Double.parseDouble(input);
161         variance += Math.pow((num - mean), 2);
162     }
163     variance = variance / count;
164     System.out.println("Variance: " + variance);
165     break;
166 case 9:
167     System.out.println("Exiting...");
168     System.exit(status: 0);
169     break;
```

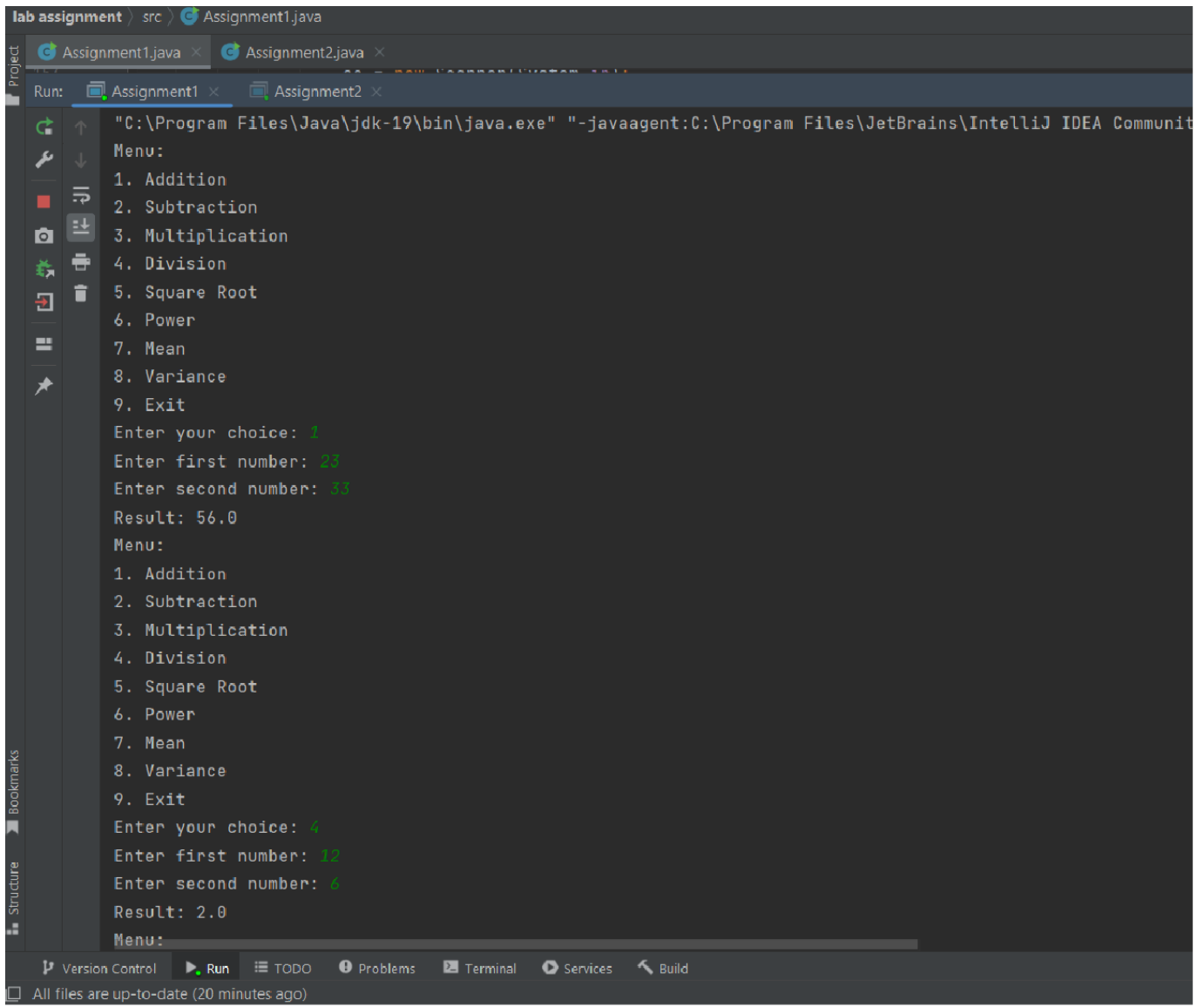
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lab assignment - Assignment1.java

lab assignment > src > Assignment1.java

Assignment1.java x Assignment2.java x

153     sc = new Scanner(System.in);
154     System.out.println("Enter numbers one by one, enter 'end' to stop input:");
155     while (true) {
156         input = sc.next();
157         if (input.equalsIgnoreCase("end")) {
158             break;
159         }
160         double num = Double.parseDouble(input);
161         variance += Math.pow((num - mean), 2);
162     }
163     variance = variance / count;
164     System.out.println("Variance: " + variance);
165     break;
166 case 9:
167     System.out.println("Exiting...");
168     System.exit(status: 0);
169     break;
170 default:
171     System.out.println("Invalid choice!");
172     break;
173 }
174 }
175 }
176 }
177 }
178 }
```

OUTPUT:



```
lab assignment > src > Assignment1.java
Assignment1.java x Assignment2.java x
Run: Assignment1 x Assignment2 x
"C:\Program Files\Java\jdk-19\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Communit
Menu:
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Square Root
6. Power
7. Mean
8. Variance
9. Exit
Enter your choice: 1
Enter first number: 23
Enter second number: 33
Result: 56.0
Menu:
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Square Root
6. Power
7. Mean
8. Variance
9. Exit
Enter your choice: 4
Enter first number: 12
Enter second number: 6
Result: 2.0
Menu:
```

GITHUB URL: https://github.com/ananya2285/Java-Assignment-/blob/20a2f9af0f0dc69d6fa7b6c9864e699eb3d063bc/Assignment_1.java