Assignment-1

```
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// Batch: [AIML-A3]

public class Main {
    public static void main(String[] args) {
        UserInput ui = new UserInput();
        Calculator calc = new Calculator();

        System.out.println("Welcome to the calculator program!");

        int choice = ui.getMenuChoice();
        while (choice != 0) {
            switch (choice) {
                case 1:
                    double num1 = ui.getNumberInput();
                    double num2 = ui.getNumberInput();
                    double result = calc.add(num1, num2);
                    System.out.println(num1 + " + " + num2 + " = " + result);
                    break;
                case 2:
                    // subtraction logic
                    break;
                case 3:
                    // multiplication logic
                    break;
                case 4:
```

```
                // division logic
                break;
            case 5:
                double[] nums = ui.getArrayInput();
                double sum = calc.sum(nums);
                System.out.println("Sum of array = " + sum);
                break;
            case 6:
                double[] nums2 = ui.getArrayInput();
                double var = calc.variance(nums2);
                System.out.println("Variance of array = " + var);
                double sd = calc.standardDeviation(nums2);
                System.out.println("Standard deviation of array = " + sd);
                break;
            default:
                System.out.println("Invalid choice.");
                break;
        }
        choice = ui.getMenuChoice();
    }

    System.out.println("Goodbye!");
  }
}
```

UserInput.java:

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

```
public class UserInput {
    private Scanner scanner;

    public UserInput() {
        scanner = new Scanner(System.in);
    }

    public int getMenuChoice() {
        System.out.println("\nPlease select an operation:");
        System.out.println("1. Addition");
        System.out.println("2. Subtraction");
        System.out.println("3. Multiplication");
        System.out.println("4. Division");
        System.out.println("5. Sum of array");
        System.out.println("6. Variance and standard deviation of array");
        System.out.println("0. Exit");
        int choice = scanner.nextInt();
        scanner.nextLine(); // consume newline character
        return choice;
    }

    public double getNumberInput() {
        System.out.print("Please enter a number: ");
        double num = scanner.nextDouble();
        scanner.nextLine(); // consume newline character
        return num;
    }
```

```
    public double[] getArrayInput() {
        System.out.print("Please enter the size of the array: ");
        int size = scanner.nextInt();
        scanner.nextLine(); // consume newline character
        double[] nums = new double[size];
        for (int i = 0; i < size; i++) {
            System.out.print("Please enter element " + (i+1) + ": ");
            nums[i] = scanner.nextDouble();
            scanner.nextLine(); // consume newline character
        }
        return nums;
    }
}
```

Calculator.java:

```
public class Calculator {
    public double add(double num1, double num2) {
        return num1 + num2;
    }

    public double subtract(double num1, double num2) {
        return num1 - num2;
    }

    public double multiply(double num1, double num2) {
        return num1 * num
```

https://github.com/DK2653/Calculator.git