JAVA PROGRAM

July 16, 2024

Task 1

Create a simple Java application that simulates a basic calculator. The calculator should be able to perform addition, subtraction, multiplication, and division operations based on user input.

program

```
import java.util.Scanner;

public class Calculator {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Simple Calculator");
        System.out.println("Choose an operation: +, -, *, /");
        char operation = scanner.next().charAt(0);

        System.out.println("Enter the first number:");
        double num1 = scanner.nextDouble();

        System.out.println("Enter the second number:");
        double num2 = scanner.nextDouble();

        double result = 0;
        boolean validOperation = true;

        switch (operation) {
            case '+':
                result = num1 + num2;
                break;
            case '-':
                result = num1 - num2;
```

```
                break;
            case '*':
                result = num1 * num2;
                break;
            case '/':
                if (num2 != 0) {
                    result = num1 / num2;
                } else {
                    System.out.println("Error: Division by zero is not allowed.");
                    validOperation = false;
                }
                break;
            default:
                System.out.println("Error: Invalid operation.");
                validOperation = false;
                break;
        }

        if (validOperation) {
            System.out.println("The result is: " + result);
        }

        scanner.close();
    }
}
```

output

```
C:\Users\acer>cd C:\Users\acer\Documents\My_java

C:\Users\acer\Documents\My_java>javac Calculator.java

C:\Users\acer\Documents\My_java>java Calculator
Simple Calculator
Choose an operation: +, -, *, /
+
Enter the first number:
35
Enter the second number:
74
The result is: 109.0
```

Task 2

Create a Java program that calculates the grade based on marks entered by the user. Requirements Input: Prompt the user to enter marks obtained (out of 100)., Allow the user to enter multiple sets of marks until they choose to stop. Output: Display the grade based on the following criteria:

- Marks >= 90: Grade A
- Marks >= 80 and < 90: Grade B
- Marks >= 70 and < 80: Grade C
- Marks >= 60 and < 70: Grade D
- Marks < 60: Grade F (Fail)
- After each calculation, display the grade and ask if the user wants to continue or stop.

program

```
import java.util.Scanner;

public class GradeCalculator {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        char continueChoice;

        do {
            System.out.println("Enter the student's mark (out of 100):");
            int mark = scanner.nextInt();

            char grade;
            if (mark >= 90) {
                grade = 'A';
            } else if (mark >= 80 && mark < 90) {
                grade = 'B';
            } else if (mark >= 70 &&  mark < 80) {
                grade = 'C';
            } else if (mark >= 60 && mark < 70) {
                grade = 'D';
            } else {
                grade = 'F';
            }

            System.out.println("The grade  obtained for " + mark +" is: " + grade);

            System.out.println("Do you want to continue? (y/n):");
            continueChoice = scanner.next().charAt(0);
        } while (continueChoice == 'y' || continueChoice == 'Y');
```

```
        scanner.close();
    }
}
```

output