# Week 2 REMAINING PROGRAMS

```java
class Counter {
    static int count = 0;

    // Constructor increments count
    Counter() {
        count++;
    }

    // Method to display the count
    void displayCount() {
        System.out.println("Number of objects created: " + count);
    }
}

public class CounterExample {
    Run | Debug | Run main | Debug main
    public static void main(String[] args) {
        Counter c1 = new Counter();
        Counter c2 = new Counter();
        Counter c3 = new Counter();

        c3.displayCount(); // Output: Number of objects created: 3
    }
}
```

PROBLEMS 46 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\VLT-BNT\OneDrive\Documents\Desktop\OOP JAVA> java CounterExample
Number of objects created: 3
```

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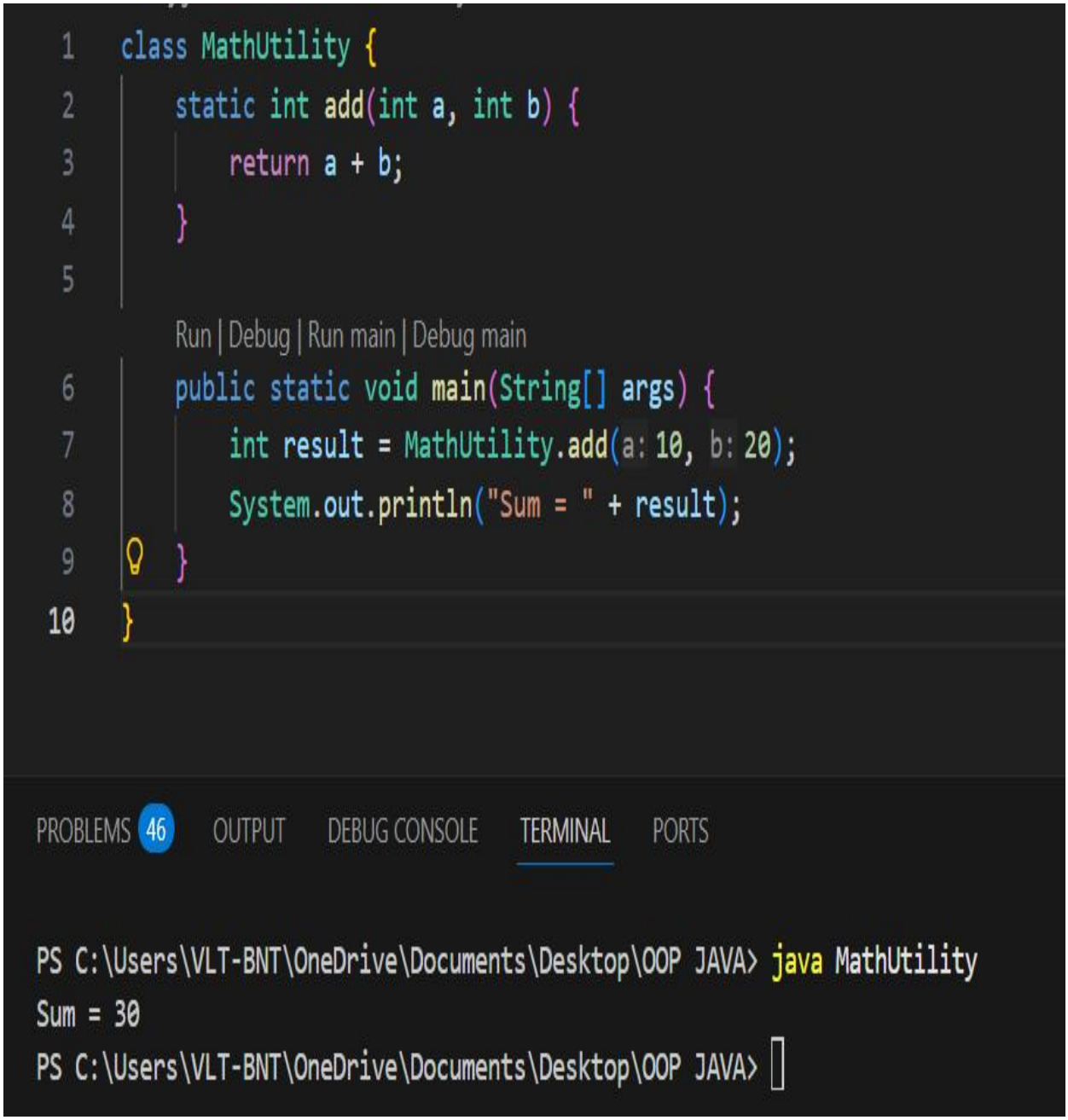
class MathUtility {
static int add(int a, int b) {
return a + b;
}
Run | Debug | Run main | Debug main
public static void main(String[] args) {
int result = MathUtility.add(a: 10, b: 20);
System.out.println("Sum = " + result);
}
}
PROBLEMS 46
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Users\VLT-BNT\OneDrive\Documents\Desktop\OOP JAVA> java MathUtility
Sum = 30
PS C:\Users\VLT-BNT\OneDrive\Documents\Desktop\OOP JAVA>

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```java
class ArraySum {
    Run | Debug | Run main | Debug main
    public static void main(String[] args) {
        int[] numbers = {10, 20, 30, 40, 50};
        int sum = 0;

        for (int i = 0; i < numbers.length; i++) {
            sum = sum + numbers[i];
        }

        System.out.println("Sum of Array = " + sum);
    }
}
```

PROBLEMS 46 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\VLT-BNT\OneDrive\Documents\Desktop\OOP JAVA> java ArraySum
Sum of Array = 150
```

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```java
public class ArrayAverage {
    Run | Debug | Run main | Debug main
    public static void main(String[] args) {
        int[] numbers = {10, 20, 30, 40, 50};
        int sum = 0;

        for (int i = 0; i < numbers.length; i++) {
            sum = sum + numbers[i];
        }

        double average = (double) sum / numbers.length;
        System.out.println("Average value = " + average);
    }
}
```

PROBLEMS 46 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\VLT-BNT\OneDrive\Documents\Desktop\OOP JAVA> java ArrayAverage
Average value = 30.0
```

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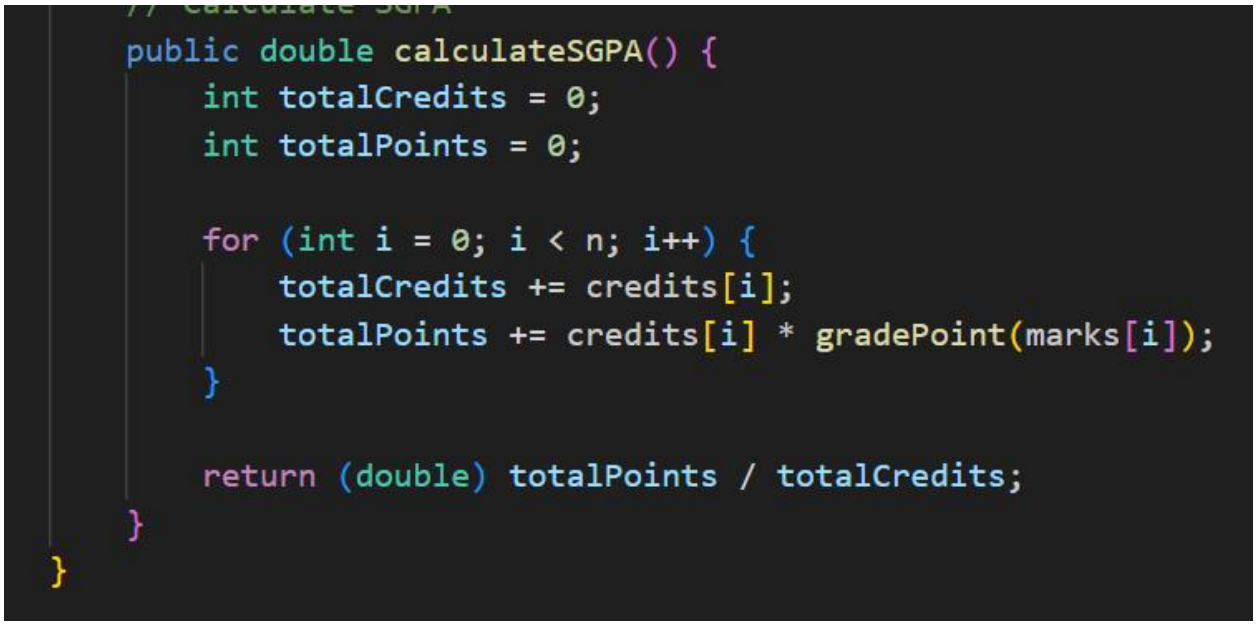
```java
import java.util.Scanner;

class Student {
    private String usn;
    private String name;
    private int[] credits;
    private int[] marks;
    private int n; // number of subjects

    // Constructor
    public Student(int n) {
        this.n = n;
        credits = new int[n];
        marks = new int[n];
    }

    // Accept student details
    public void acceptDetails() {
        Scanner sc = new Scanner(System.in);

        System.out.println(x: "Enter USN:");
        usn = sc.nextLine();

        System.out.println(x: "Enter Name:");
        name = sc.nextLine();

        for (int i = 0; i < n; i++) {
            System.out.println("Enter credits for subject " + (i + 1) + ":");
            credits[i] = sc.nextInt();
            System.out.println("Enter marks for subject " + (i + 1) + ":");
            marks[i] = sc.nextInt();
        }
    }

    // Display student details
    public void displayDetails() {
        System.out.println("\nUSN: " + usn);
        System.out.println("Name: " + name);
        System.out.println(x: "Subject\tCredits\tMarks");
        for (int i = 0; i < n; i++) {
            System.out.println((i + 1) + "\t" + credits[i] + "\t" + marks[i]);
        }
    }

    // Convert marks to grade points
    private int gradePoint(int mark) {
        if (mark >= 90) return 10;
        else if (mark >= 80) return 9;
        else if (mark >= 70) return 8;
        else if (mark >= 60) return 7;
        else if (mark >= 50) return 6;
        else if (mark >= 40) return 5;
        else return 0;
    }
```


// calculate SGPA
public double calculateSGPA() {
int totalCredits = 0;
int totalPoints = 0;
for (int i = 0; i < n; i++) {
totalCredits += credits[i];
totalPoints += credits[i] * gradePoint(marks[i]);
}
return (double) totalPoints / totalCredits;
}
}

```java
// Main class
public class StudentSGPA {
    Run | Debug | Run main | Debug main
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        System.out.println(x: "Enter number of subjects:");
        int subjects = sc.nextInt();

        Student s = new Student(subjects);
        s.acceptDetails();
        s.displayDetails();

        double sgpa = s.calculateSGPA();
        System.out.printf(format: "SGPA: %.2f\n", sgpa);

        sc.close();
    }
}
```

```
PS C:\Users\VLT-BNT\OneDrive\Documents\Desktop\OOP JAVA> java StudentSGPA
Enter number of subjects:
2
Enter USN:
1bmcs25123
Enter Name:
shravan
Enter credits for subject 1:
4
Enter marks for subject 1:
45
Enter credits for subject 2:
3
Enter marks for subject 2:
35

USN: 1bmcs25123
Name: shravan
Subject Credits Marks
1       4       45
2       3       35
SGPA: 2.86
```

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