CSA0983:JAVA

SUBON:15/07/2024

ASSIGNMENT-1

1.Write a program to print all the composite numbers between a and b?

Sample Input:

A = 12

B = 19

Sample Output

14, 15, 16, 18

Test cases:

1. A = 11, B = 11

2. A = 20, B = 10

3. A = 0, B = 0

4. A = -5, B = 5

5. A = 7, B = -12

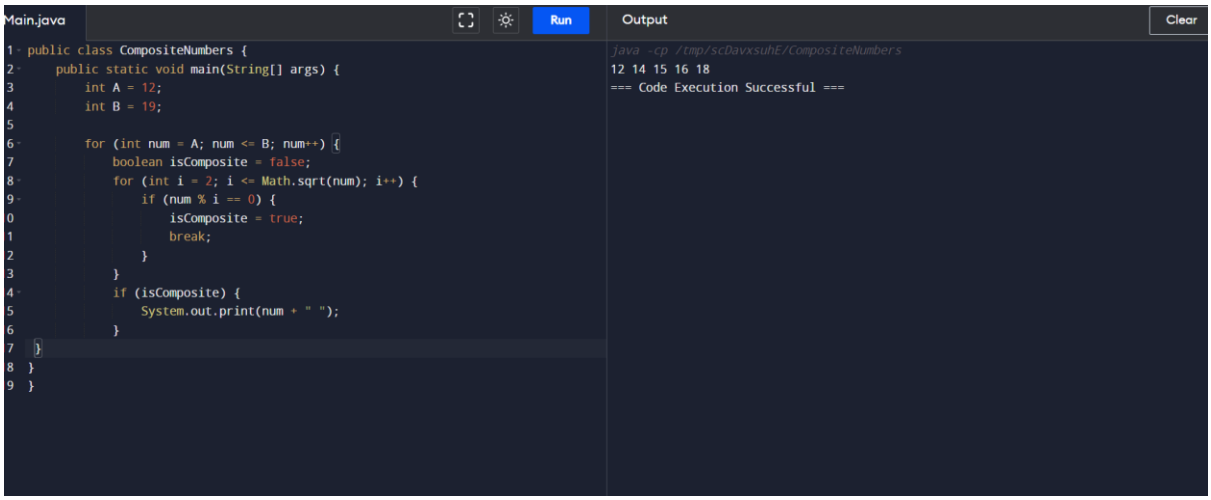
PROGRAM:

```
public class CompositeNumbers {
   public static void main(String[] args) {
      int A = 12;
      int B = 19;

      for (int num = A; num <= B; num++) {
         boolean isComposite = false;
         for (int i = 2; i <= Math.sqrt(num); i++) {
            if (num % i == 0) {
               isComposite = true;
               break;
            }
```

```
        }
        if (isComposite) {
            System.out.print(num + " ");
        }
    }
  }
}
```

OUTPUT:



2. Write a program to print the numbers from M to N by skipping K numbers in between?

Sample Input:

M = 50

N = 100

K = 7

Sample Output:

50, 58, 66, 74, …..

Test cases:

1. M = 15, N = 05, K = 02

2. .M = 25, N = 50, K = 04

3. M = 15, N = 100, K = -02

4. M = 0 , N = 0 , K = 2

5. M = 200 , N = 200 , K = 50

PROGARM:

```
public class SkipNumbers {
   public static void main(String[] args) {
      int M = 50;
      int N = 100;
      int K = 7;

      for (int num = M; num <= N; num += K) {
         System.out.print(num + ", ");
      }
   }
}
```

OUTPUT:

3. Write a program to enter the marks of a student in four subjects. Then calculate the total and aggregate, display the grade obtained by the student. If the student scores an aggregate greater than 75%, then the grade is Distinction. If aggregate is 60>= and <75, then the grade is First Division. If aggregate is 50 >= and <60, then the grade is Second Division. If aggregate is 40>= and <50, then the grade is Third Division. Else the grade is Fail.

Sample Input & Output:

Enter the marks in python: 90

Enter the marks in c programming: 91

Enter the marks in Mathematics: 92

Enter the marks in Physics: 93

Total= 366

Aggregate = 91.5

DISTINCTION

Test cases:

a) 18, 76,93,65

b) 73,78,79,75

c) 98,106,120,95

d) 96,73, -85,95

e) 78,59.8,76,79

PROGRAM:

```
import java.util.Scanner;


public class GradeCalculator {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      int totalMarks = 0;


      System.out.print("Enter the marks in python: ");
      totalMarks += scanner.nextInt();


      System.out.print("Enter the marks in c programming: ");
      totalMarks += scanner.nextInt();


      System.out.print("Enter the marks in Mathematics: ");
      totalMarks += scanner.nextInt();
```

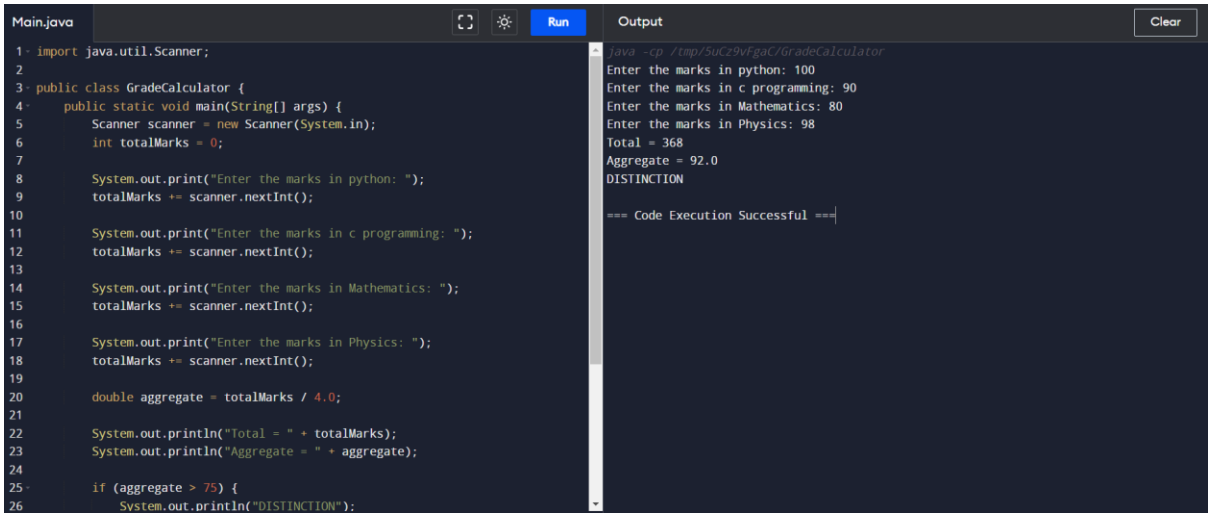
```
        System.out.print("Enter the marks in Physics: ");
        totalMarks += scanner.nextInt();

        double aggregate = totalMarks / 4.0;

        System.out.println("Total = " + totalMarks);
        System.out.println("Aggregate = " + aggregate);

        if (aggregate > 75) {
            System.out.println("DISTINCTION");
        } else if (aggregate >= 60) {
            System.out.println("First Division");
        } else if (aggregate >= 50) {
            System.out.println("Second Division");
        } else if (aggregate >= 40) {
            System.out.println("Third Division");
        } else {
            System.out.println("Fail");
        }
    }
}
```

OUTPUT:



4.Write a program to calculate tax given the following conditions:

a. If income is less than or equal to 1,50,000 then no tax

b. If taxable income is 1,50,001 – 3,00,000 the charge 10% tax

c. If taxable income is 3,00,001 – 5,00,000 the charge 20% tax

d. If taxable income is above 5,00,001 then charge 30% tax

Sample Input:

Enter the income:200000

Sample Output:

Tax= 20000

Test cases:

1. 400700

2. 2789239

3. 150000

4. 00000

5. -125486

PROGRAM:

import java.util.Scanner;

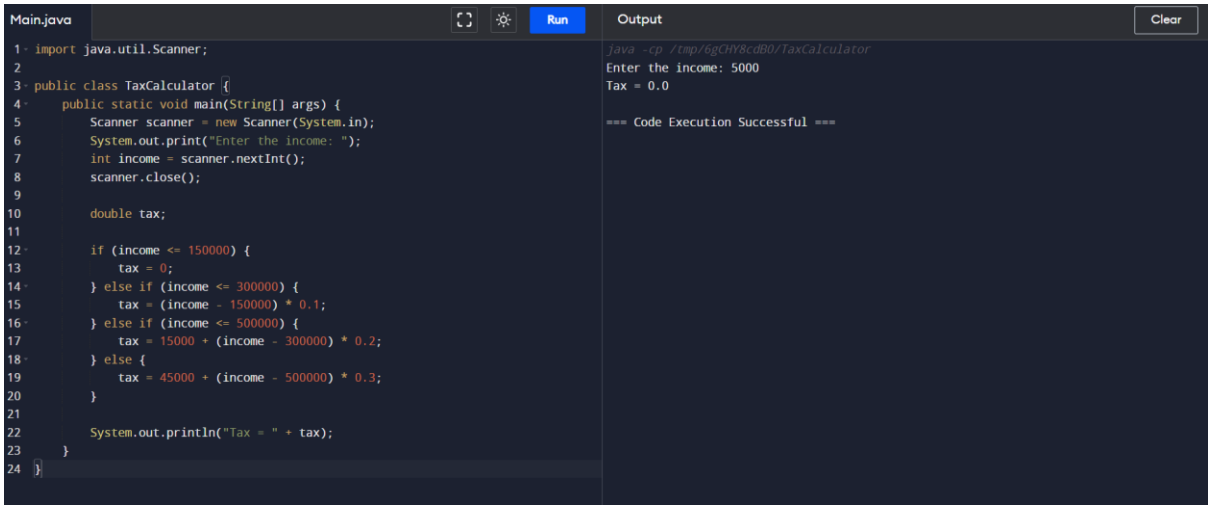
```
public class TaxCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the income: ");
        int income = scanner.nextInt();
        scanner.close();

        double tax;

        if (income <= 150000) {
            tax = 0;
        } else if (income <= 300000) {
            tax = (income - 150000) * 0.1;
        } else if (income <= 500000) {
            tax = 15000 + (income - 300000) * 0.2;
        } else {
            tax = 45000 + (income - 500000) * 0.3;
        }

        System.out.println("Tax = " + tax);
    }
}
```

OUTPUT:


Main.java
Run
Output
Clear
import java.util.Scanner;
public class TaxCalculator {
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
System.out.print("Enter the income: ");
int income = scanner.nextInt();
scanner.close();
double tax;
if (income <= 150000) {
tax = 0;
} else if (income <= 300000) {
tax = (income - 150000) * 0.1;
} else if (income <= 500000) {
tax = 15000 + (income - 300000) * 0.2;
} else {
tax = 45000 + (income - 500000) * 0.3;
}
System.out.println("Tax = " + tax);
}
}
java -cp /tmp/6gCHY8cdB0/TaxCalculator
Enter the income: 5000
Tax = 0.0
=== Code Execution Successful ===