

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:

```

Main.java
1 public class CompositeNumbers {
2     public static void main(String[] args) {
3         int A = 12;
4         int B = 19;
5
6         for (int num = A; num <= B; num++) {
7             boolean isComposite = false;
8             for (int i = 2; i <= Math.sqrt(num); i++) {
9                 if (num % i == 0) {
10                     isComposite = true;
11                     break;
12                 }
13             }
14             if (isComposite) {
15                 System.out.print(num + " ");
16             }
17         }
18     }
19 }

```

```

Output
java -cp /tmp/scDavxsuH/CompositeNumbers
12 14 15 16 18
=== Code Execution Successful ===

```

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:

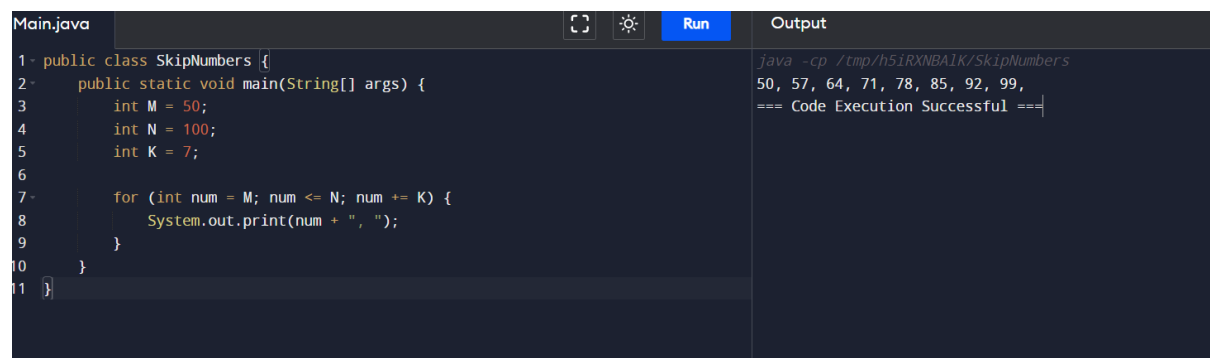
1. M = 15, N = 05, K = 02
2. .M = 25, N = 50, K = 04
3. M = 15, N = 100, K = -02
4. M = 0 , N = 0 , K = 2

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:



```
Main.java  Run  Output  
1- public class SkipNumbers {  
2-     public static void main(String[] args) {  
3-         int M = 50;  
4-         int N = 100;  
5-         int K = 7;  
6-  
7-         for (int num = M; num <= N; num += K) {  
8-             System.out.print(num + " ");  
9-         }  
10    }  
11 }
```

```
java -cp /tmp/h5iRXNBAlK/SkipNumbers  
50, 57, 64, 71, 78, 85, 92, 99,  
=== Code Execution Successful ===
```

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 $60 \geq$ and < 75 , then the grade is First Division. If aggregate is $50 \geq$ and < 60 , then the grade is Second Division. If aggregate is $40 \geq$ 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();

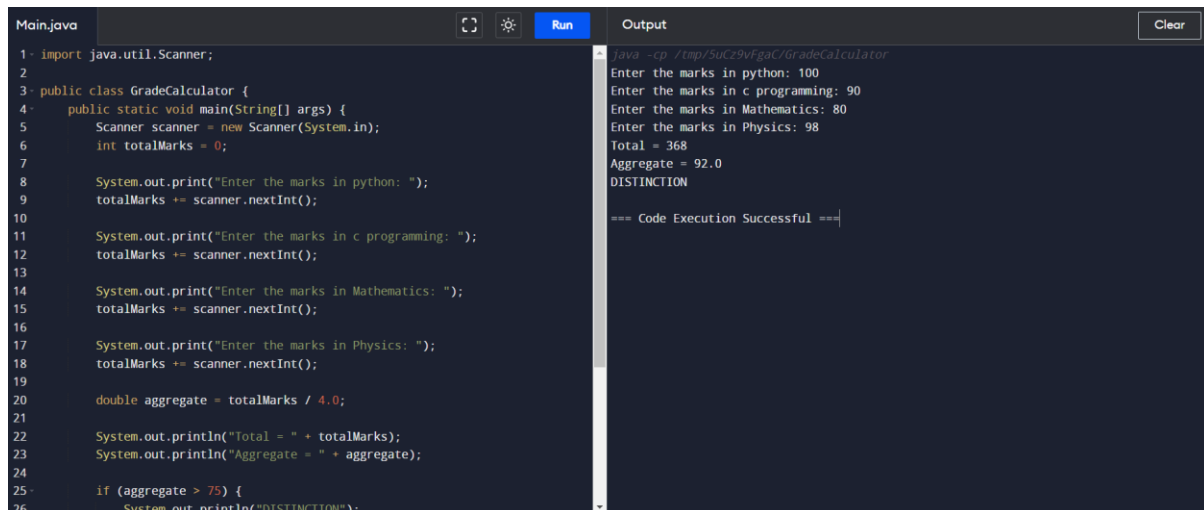
double aggregate = totalMarks / 4.0;

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:



```
Main.java
1- import java.util.Scanner;
2
3- public class GradeCalculator {
4-     public static void main(String[] args) {
5-         Scanner scanner = new Scanner(System.in);
6-         int totalMarks = 0;
7
8-         System.out.print("Enter the marks in python: ");
9-         totalMarks += scanner.nextInt();
10
11        System.out.print("Enter the marks in c programming: ");
12        totalMarks += scanner.nextInt();
13
14        System.out.print("Enter the marks in Mathematics: ");
15        totalMarks += scanner.nextInt();
16
17        System.out.print("Enter the marks in Physics: ");
18        totalMarks += scanner.nextInt();
19
20        double aggregate = totalMarks / 4.0;
21
22        System.out.println("Total = " + totalMarks);
23        System.out.println("Aggregate = " + aggregate);
24
25        if (aggregate > 75) {
26            System.out.println("DISTINCTION");
27        }
28    }
29 }
```

```
Output
java -cp ./tmp/5Uc29vFgaC/GradeCalculator
Enter the marks in python: 100
Enter the marks in c programming: 90
Enter the marks in Mathematics: 80
Enter the marks in Physics: 98
Total = 368
Aggregate = 92.0
DISTINCTION

=== Code Execution Successful ===
```

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

- If income is less than or equal to 1,50,000 then no tax
- If taxable income is 1,50,001 – 3,00,000 the charge 10% tax
- If taxable income is 3,00,001 – 5,00,000 the charge 20% tax
- If taxable income is above 5,00,001 then charge 30% tax

Sample Input:

Enter the income:200000

Sample Output:

Tax= 20000

Test cases:

- 400700
- 2789239
- 150000
- 00000
- 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	Output
<pre>1 import java.util.Scanner; 2 3 public class TaxCalculator { 4 public static void main(String[] args) { 5 Scanner scanner = new Scanner(System.in); 6 System.out.print("Enter the income: "); 7 int income = scanner.nextInt(); 8 scanner.close(); 9 10 double tax; 11 12 if (income <= 150000) { 13 tax = 0; 14 } else if (income <= 300000) { 15 tax = (income - 150000) * 0.1; 16 } else if (income <= 500000) { 17 tax = 15000 + (income - 300000) * 0.2; 18 } else { 19 tax = 45000 + (income - 500000) * 0.3; 20 } 21 22 System.out.println("Tax = " + tax); 23 } 24 }</pre>	<pre>java -cp /tmp/6gCHY8cdB0/TaxCalculator Enter the income: 5000 Tax = 0.0 === Code Execution Successful ===</pre>