

PG DAC–March 2023
C-DAC THIRUVANANTHAPURAM
JAVA- LAB 2

Q1. Length and breadth of a rectangle are 5 and 7 respectively. Write a program to calculate the area and perimeter of the rectangle.

```
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class Area {
    public static void main(String[] ar) {

        int length = 5;
        int breadth = 7;

        int area = length * breadth;
        int perimeter = 2 * (length + breadth);
        System.out.println("The area of the rectangle is: " + area);
        System.out.println("The perimeter of the rectangle is: " + perimeter);
    }
}
```

```
C:\Windows\System32\cmd.exe
D:\Eclipse\Java Prog>javac area.java
D:\Eclipse\Java Prog>java Area
The area of the rectangle is: 35
The perimeter of the rectangle is: 24
D:\Eclipse\Java Prog>
```

Q2. Write a program to add 8 to the number 2345 and then divide it by 3. Now, the modulus of the quotient is taken with 5 and then multiplies the resultant value by 5. Display the final result.

```
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class Calculation {
    public static void main(String[] args)
    {
        int num = 2345;
        int result = ((num + 8) / 3) % 5 * 5;

        System.out.println("Final Result: " + result);
    }
}
```

```
D:\Eclipse\Java Prog>javac calc.java
D:\Eclipse\Java Prog>java Calculation
Final Result: 20
D:\Eclipse\Java Prog>
```

Q3. Assign values of variables 'a' and 'b' as 55 and 70 respectively and then check if both the conditions 'a < 50' and 'a < b' are true. Now solve the above question to check if at least one of the conditions 'a < 50' or 'a < b' is true.

```

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class Variable{
    public static void main(String[] args)
    {
        int a = 55;
        int b = 70;

        if (a < 50 && a < b)
        {
            System.out.println("First Condition is True");
        }
        else {
            System.out.println("First Condition is False");
        }
        if (a < 50 || a < b)
        {
            System.out.println("Second Condition is True");
        }
        else {
            System.out.println("Second Condition is False");
        }
    }
}

```

```

C:\Windows\System32\cmd.exe
D:\Eclipse\Java Prog>javac var.java
D:\Eclipse\Java Prog>java Variable
First Condition is False
Second Condition is True
D:\Eclipse\Java Prog>

```

Q4. Write a program to calculate the sum of the first and the second last digit of a 5 digit.

E.g.- NUMBER : 12345 OUTPUT : 1+4=5

```

File Edit Format View Help
import java.util.Scanner;

class Digit {
    public static void main(String ar[]) {

        Scanner input = new Scanner(System.in);
        System.out.print("Enter a 5-digit number: ");

        int num = input.nextInt();

        int firstDigit = num / 10000;
        int secondLastDigit = (num % 100) / 10;
        int sum = firstDigit + secondLastDigit;

        System.out.println("The sum of the first and second last digit is " + sum);
    }
}

```

```

C:\Windows\System32\cmd.exe
D:\Eclipse\Java Prog>javac sumofdigits.java
D:\Eclipse\Java Prog>java Digit
Enter a 5-digit number: 34567
The sum of the first and second last digit is 9
D:\Eclipse\Java Prog>

```

Q5. Write a program to display all the prime numbers between 1 and 100.

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```
class Prime{
    public static void main(String ar[]) {
int c=0,n=0,i=1,j=1;
        while(n<25) {
            j=1;
            c=0;
            while(j<=i) {
                if(i%j==0)
                    c++;
                j++;
            }
            if(c==2) {
                System.out.println(i);
                n++;
            }
            i++;
        }
    }
}
```

D:\Eclipse\Java Prog>javac prime.java

D:\Eclipse\Java Prog>java Prime

2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
53
59
61
67
71
73
79
83
89
97

Q6. Write a program to calculate the grade of a student based on the marks entered by user in each subject. No: of subjects is entered by the user. Program prints the grade based on the following logic.

If the average of marks is ≥ 80 then prints Grade 'A'

If the average is <80 and ≥ 60 then prints Grade 'B'

If the average is <60 and ≥ 40 then prints Grade 'C'

Else prints Grade 'D'.

```
import java.util.Scanner;

class Grade{
    public static void main(String ar[]) {

        Scanner input = new Scanner(System.in);
        System.out.print("Enter number of subject: ");
        int numsubject = input.nextInt();

        int totalmarks = 0;
        int i=0;

        for (i = 1; i <= numsubject; i++) {

            System.out.print("Enter marks for subject " + i + ": ");
            int marks = input.nextInt();
            totalmarks += marks;
        }
        int avg = (int) totalmarks / numsubject;

        char grade;
        if (avg >= 80) {
            grade = 'A';
        } else if (avg >= 60) {
            grade = 'B';
        } else if (avg >= 40) {
            grade = 'C';
        } else {
            grade = 'D';
        }

        System.out.println("Average marks: " + avg);
        System.out.println("Grade: " + grade);
    }
}
```

```
D:\Eclipse\Java Prog>javac Reportcard.java
```

```
D:\Eclipse\Java Prog>java Grade
Enter number of subject: 4
Enter marks for subject 1: 59
Enter marks for subject 2: 89
Enter marks for subject 3: 99
Enter marks for subject 4: 87
Average marks: 83
Grade: A
```

```
D:\Eclipse\Java Prog>
```

Q7. Write a program to convert a binary number to a decimal number.

```
import java.util.Scanner;
class Binary {
    public static void main(String arg[]){
        Scanner input = new Scanner(System.in);

        System.out.print("Enter a binary number: ");
        String binaryString = input.nextLine();

        int decimal = Integer.parseInt(binaryString, 2);

        System.out.println("The decimal equivalent of " + binaryString + " is " + decimal);
    }
}
```

```
D:\Eclipse\Java Prog>javac binary.java
D:\Eclipse\Java Prog>java Binary
Enter a binary number: 0101110
The decimal equivalent of 0101110 is 46
D:\Eclipse\Java Prog>
```

Q8. Write a program to print Right Triangle Star Pattern where number of rows is given as input.

```
*
* *
* * *
* * * *
* * * * *
```

```
import java.util.Scanner;

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

        System.out.print("Enter the number of rows: ");
        int numRows = input.nextInt();

        for (int i = 1; i <= numRows; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

```
D:\Eclipse\Java Prog>javac star.java
D:\Eclipse\Java Prog>java Star
Enter the number of rows: 5
*
* *
* * *
* * * *
* * * * *
D:\Eclipse\Java Prog>
```

Q9 Write a java Program to find greatest in 3 numbers using ternary operator.

```
class Ternary
{
    public static void main(String arr[])
    {
        int a =Integer.parseInt(arr[0]);
        int b =Integer.parseInt(arr[1]);
        int c =Integer.parseInt(arr[2]);

        int d= ((a > b) ? (a > c ? a : c) : (b > c ? b : c));

        System.out.print("Greatest of all 3 number is: " + d);
    }
}
```

```
D:\Eclipse\Java Prog>javac ternary.java
D:\Eclipse\Java Prog>java Ternary 5 6 8
Greatest of all 3 number is: 8
D:\Eclipse\Java Prog>
```