Question 1_ Form A:
Write a Java program that uses **Scanner** to read from the user the type of shape they want
to calculate the area for. The program should display a menu with the following options:

1. Circle
2. Rectangle
3. Triangle

Use a **switch statement** to determine which shape the user selected.

- If the user chooses **Circle**, ask for the radius and calculate the area.
- If the user chooses **Rectangle**, ask for the length and width and calculate the area.
- If the user chooses **Triangle**, ask for the base and height and calculate the area.

Sample I/O:
Choose a shape to calculate its area:
1. Circle
2. Rectangle
3. Triangle
Enter your choice: 1
Enter the radius: 2.2
Area of the circle = 15.205308443374602

The solution:
```java
import java.util.Scanner;
public class Examlab {

    public static void main(String[] args)
    {
            Scanner input = new Scanner(System.in);
        System.out.println("Choose a shape to calculate its area:");
        System.out.println("1. Circle");
        System.out.println("2. Rectangle");
        System.out.println("3. Triangle");
        System.out.print("Enter your choice: ");
        int choice = input.nextInt();
        switch (choice) {
           case 1:
                System.out.print("Enter the radius: ");
                double radius = input.nextDouble();
                 double circleArea = Math.PI * radius * radius;
                System.out.println("Area of the circle = " + circleArea);
              break;
```

```java
            case 2:
                System.out.print("Enter the length: ");
                double length = input.nextDouble();
                System.out.print("Enter the width: ");
                double width = input.nextDouble();
                double rectangleArea = length * width;
                System.out.println("Area of the rectangle = " +
rectangleArea);
                break;
            case 3:
                System.out.print("Enter the base: ");
                double base = input.nextDouble();
                System.out.print("Enter the height: ");
                double height = input.nextDouble();
                double triangleArea = 0.5 * base * height;
                System.out.println("Area of the triangle = " +
triangleArea);
                break;
            default:
                System.out.println("Invalid choice!");
        }


    }

}
```

Question1 Form B:

Write a Java program that uses **Scanner** to read from the user the type of conversion they want to perform. The program should display a menu with the following options:

1. **Convert Celsius to Fahrenheit**
2. **Convert Meters to Kilometers**
3. **Convert Hours to Minutes**

Use a **switch statement** to determine which conversion the user selected.

- If the user chooses **Celsius to Fahrenheit**, ask for the temperature in Celsius and convert it using:
  F = (C × 9/5) + 32
- If the user chooses **Meters to Kilometers**, ask for the number of meters and convert it to kilometers.

- If the user chooses **Hours to Minutes**, ask for the number of hours and convert it to minutes.

The program should then display the converted value.

Sample I/O:

Choose a conversion type:
1. Celsius to Fahrenheit
2. Meters to Kilometers
3. Hours to Minutes
Enter your choice: 1
Enter temperature in Celsius: 22.5
Temperature in Fahrenheit = 72.5

The solution:

```java
import java.util.Scanner;
public class Examlap2
{


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

        System.out.println("Choose a conversion type:");
        System.out.println("1. Celsius to Fahrenheit");
        System.out.println("2. Meters to Kilometers");
        System.out.println("3. Hours to Minutes");
        System.out.print("Enter your choice: ");

        int choice = input.nextInt();

        switch (choice) {
            case 1:
                System.out.print("Enter temperature in Celsius: ");
                double celsius = input.nextDouble();
                double fahrenheit = (celsius * 9 / 5) + 32;
                System.out.println("Temperature in Fahrenheit = " + fahrenheit);
                break;

            case 2:
                System.out.print("Enter the number of meters: ");
                double meters = input.nextDouble();
```

```java
            double kilometers = meters / 1000;
            System.out.println("Distance in Kilometers = " + kilometers);
            break;

        case 3:
            System.out.print("Enter the number of hours: ");
            double hours = input.nextDouble();
            double minutes = hours * 60;
            System.out.println("Time in Minutes = " + minutes);
            break;

        default:
            System.out.println("Invalid choice!");
    }

    }
}
```
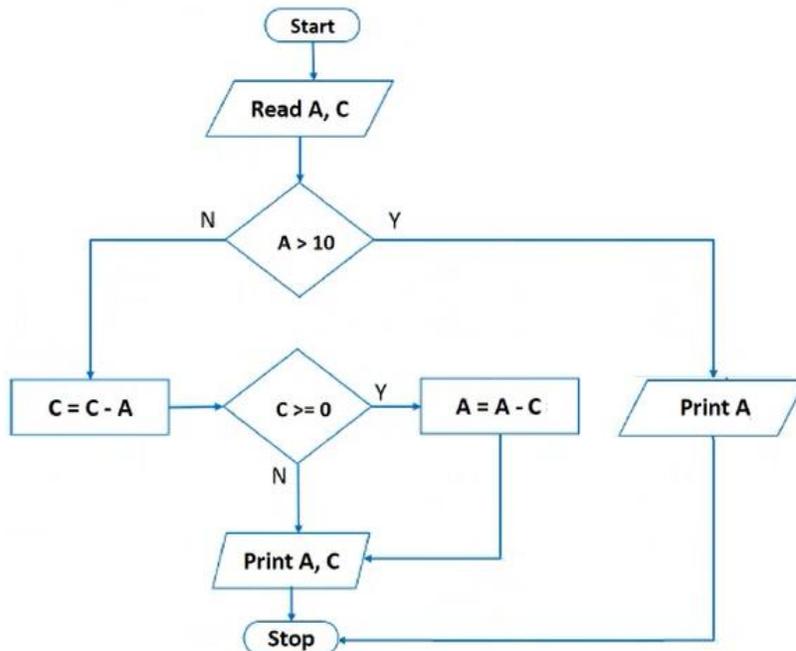
Q2_ Form A: Convert the following flowchart into a Java program.

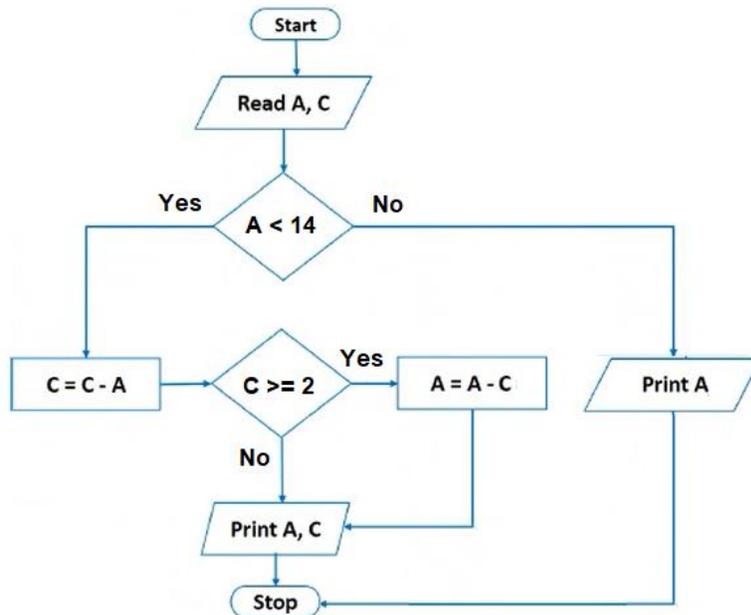**The solution:**

```java
import java.util.Scanner;
public class Client {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.print("Enter A: ");
        int A = input.nextInt();

        System.out.print("Enter C: ");
        int C = input.nextInt();

        if (A > 10)
            System.out.println("A = " + A);
        else
        {
            C = C - A;
            if (C >= 0)
                A = A - C;
            System.out.println("A = " + A + ", C = " + C);
        }
    }
}
```

Question2_Form B: Convert the following flowchart into a Java program.

Start → Read A, C

A < 14
- Yes: C = C - A
- No: Print A

C >= 2
- Yes: A = A - C
- No: Print A, C

Stop

The solution:

```java
import java.util.Scanner;
public class Client {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.print("Enter A: ");
        int A = input.nextInt();

        System.out.print("Enter C: ");
        int C = input.nextInt();

        if (A < 14)
        {
            C = C - A;
            if (C >= 2)
                A = A - C;
            System.out.println("A = " + A + ", C = " + C);
        }
        else
            System.out.println("A = " + A);
    }
}
```

Question3_Form A: Convert the following pseudocode into Java program

Input: Two integers

Output: bigger one

Start

Prompt the user to enter two integers

Input n1, n2

if n1>n2

Set big = n1

else

Set big = n2

Print big

End

The solution:

```java
import java.util.Scanner;
public class Lab3 {

    public static void main(String[] args)
    {
        int n1,n2, big;
        System.out.println("Enter two integers");
        Scanner s=new Scanner(System.in);
        n1=s.nextInt();
        n2=s.nextInt();
        if(n1>n2)
            big=n1;
        else
            big=n2;
        System.out.println("The big umber is"+big);
}}
```

Q3_Form B: Convert the following pseudocode into Java program

Input: Two integers

Output: smaller one

Start

Prompt the user to enter two integers

Input n1, n2

if n1<n2

Set small = n1

else

Set small = n2

Print small

End

The solution:

```java
import java.util.Scanner;
public class Lab3 {

    public static void main(String[] args)
    {
        int n1,n2, small;
        System.out.println("Enter two integers");
        Scanner s=new Scanner(System.in);
        n1=s.nextInt();
        n2=s.nextInt();
        if(n1<n2)
            small=n1;
        else
            small=n2;
        System.out.println("The small umber is "+small);
}}
```