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FA210-BSE-027
SECTION A
Lab Task Exercise No. 2

```
import java.util.InputMismatchException;
import java.util.Scanner;

public class Triangle {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the Two Angles of the triangle:");

        int angle1 = getValidAngle(sc, "Angle 1");
        int angle2 = getValidAngle(sc, "Angle 2");

        System.out.println("The Missing Angle is: " + findMissingAngle(angle1, angle2));
    }

    static int getValidAngle(Scanner sc, String angleName) {
        int angle;
        do {
            System.out.print(angleName + ": ");
            try {
                angle = sc.nextInt();
                if (angle <= 0 || angle >= 180) {
```

```

        throw new IllegalArgumentException("Angle must be between 0 and 180 degrees.");
    }
} catch (InputMismatchException e) {
    System.out.println("Invalid input. Please enter a positive integer.");
    sc.nextLine(); // Clear the invalid input
    angle = -1; // Set angle to an invalid value to repeat the loop
}
} while (angle <= 0 || angle >= 180); // Validate angle range (0 < angle < 180)
return angle;
}

static String findMissingAngle(int angle1, int angle2) {
    String result = "";

    int sumOfKnownAngles = angle1 + angle2;
    if (sumOfKnownAngles > 90) {
        result = "Acute angle";
    } else if (sumOfKnownAngles == 90) {
        result = "Right angle";
    } else {
        result = "Obtuse angle";
    }

    return result;
}
}

```

Test Case ID	Description	Input Data	Expected Outcome	Actual Outcome	Status
TC1	Valid Inputs	45, 60	Missing Angle: 75°	Missing Angle: 75°	Passed
TC2	Boundary Values	1, 1	Missing Angle: 178°	Missing Angle: 178°	Passed
TC3	Invalid Inputs	-30, 200	Error message	Error message	Passed
TC4	Non-integer Input	45.5, 60.5	Error message	Error message	Passed
TC5	Right Angle	45, 45	Right angle	Right angle	Passed
TC6	Acute Angle	60, 40	Acute angle	Acute angle	Passed
TC7	Obtuse Angle	30, 50	Obtuse angle	Obtuse angle	Passed
TC8	Equilateral Triangle	60, 60	Equilateral triangle	Equilateral triangle	Passed
TC9	Isosceles Triangle	45, 45, 90	Isosceles triangle	Isosceles triangle	Passed
TC10	Scalene Triangle	30, 60, 90	Scalene triangle	Scalene triangle	Passed
TC11	Negative Angle	-30, 60	Error message	Error message	Passed
TC12	Angle Sum > 180	100, 100	Error message	Error message	Passed
TC13	Non-integer Input	45.5, 60.5	Error message	Error message	Passed
TC14	Zero Angle	0, 60	Error message	Error message	Passed
TC15	Equal to 180	90, 90	Error message	Error message	Passed

Test case for the third Angle of a triangle: