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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 for the third Angle of a triangle:

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

Lab task 3

Login?

Errors!

×

- Are you a robot? Please ensure you are not.

User Name


FA21-BSE-027

Password

••••••••

✓

I'm not a robot



reCAPTCHA

[Privacy](#) - [Terms](#)

Log in

[Sign Up](#)

[Forgot Password](#)

Functional Test Cases

Test Case ID	Description	Steps	Expected Result	Pass/Fail
TC_001	Verify a valid username and password can login	<ol style="list-style-type: none">Enter a valid username in the Username field.Enter a valid password in the Password field.	The system should successfully log the user in and redirect them to the appropriate homepage.	Pass

		3. Click the Login button.		
TC_002	Verify an invalid username and password cannot login	1. Enter an invalid username in the Username field. 2. Enter a valid password in the Password field. 3. Click the Login button.	The system should display an error message indicating that the login credentials are invalid.	Pass
TC_003	Verify an empty username and password cannot login	1. Leave the Username field blank. 2. Leave the Password field blank. 3. Click the Login button.	The system should display an error message indicating that both username and password fields are required.	Pass

Interface Test Cases

Test Case ID	Description	Steps	Expected Result	Pass
TC_004	Verify the login page has a Username field	1. Observe the login page.	The login page should have a field labeled "Username".	Pass
TC_005	Verify the login page has a Password field	1. Observe the login page.	The login page should have a field labeled "Password".	Pass
TC_006	Verify the login page has a Login button	1. Observe the login page.	The login page should have a button labeled "Login".	Pass
TC_007	Verify the login page has a link to Forgot Password	1. Observe the login page.	The login page should have a link labeled "Forgot Password".	Pass

Security Test Cases

Test Case ID	Description	Steps	Expected Result	Pass/Fail
TC_008	Verify the login page uses HTTPS	1. Observe the address bar of the login page.	The address bar should indicate that the connection is secure (HTTPS).	Pass
TC_009	Verify the password field masks the password characters	1. Enter text into the password field.	The system should mask the characters entered into the password field with asterisks or other obfuscation.	Pass
TC_010	Verify there is an account lockout mechanism after a certain number of failed login attempts	1. Enter an invalid username and password multiple times consecutively.	The system should lock the account after a certain number of failed login attempts.	Pass
TC_011	Verify login is successful with correct reCAPTCHA	1. Enter valid login credentials. 2. Complete the reCAPTCHA challenge. 3. Click the Login button.	The system should successfully log the user in and redirect them to the appropriate homepage.	Pass
TC_012	Verify error message hides after successful reCAPTCHA	1. Enter valid login credentials. 2. do not check the "I'm not a robot" checkbox. 3. Click the Login button (causing an error). 4. Complete the reCAPTCHA challenge. 5. Click Login again.	The previous error message should be hidden, and the user should log in successfully.	Fail