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| Muhammad IrfanFA210-BSE-027SECTION ALab 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;

}

}

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| **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: