

# Conditional statements

## IF Statement – Simple (One-Way)

**Purpose:** Execute code only if condition is **true**.

**Syntax :**

```
if (boolean-expression) {  
    statement(s);  
}
```

**Example**

```
if (radius >= 0) {  
    area = PI * radius * radius;  
    System.out.println("Area: " + area);  
}
```

Curly braces optional for single statements



# IF-ELSE Statement (Two-Way)

**Purpose:** Two execution paths (true/false).

**Syntax:**

```
if (boolean-expression) {  
    // true case  
} else {  
    // false case  
}
```

**Example**

```
if (number % 2 == 0) {  
    System.out.println(number + " is even.");  
} else {  
    System.out.println(number + " is odd.");  
}
```

Use for binary decisions (yes/no, on/off)



## ELSE-IF Statement (Multi-Way)

**Purpose:** Test multiple conditions sequentially.

**Syntax:**

```
if (score >= 90) {  
    System.out.print("A");  
} else if (score >= 80) {  
    System.out.print("B");  
} else if (score >= 70) {  
    System.out.print("C");  
} else {  
    System.out.print("F");  
}
```

Conditions are evaluated top-to-bottom



## Example task

**Object:** Create a program that reads a person's age (as an integer) and classifies them into categories:

- Child (0–12);
- Teenager (13–19);
- Adult (20–59);
- Senior (60+).

Use `if-else if-else` statements.

```
Enter your age: 25
```

```
You are an Adult.
```

```
---
```

```
Enter your age: 15
```

```
You are a Teenager.
```



```
import java.util.Scanner;

class AgeClassifier {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter your age: ");
        int age = scanner.nextInt();
        String category;

        if (age >= 0 && age <= 12) {
            category = "Child";
        } else if (age <= 19) {
            category = "Teenager";
        } else if (age <= 59) {
            category = "Adult";
        } else {
            category = "Senior";
        }

        System.out.println("You are a " + category + ".");
        scanner.close();
    }
}
```

# Ternary Operator (Conditional)

**Purpose:** Shorthand for simple `if-else`.

**Syntax:**

```
boolean-expression ? expression1 : expression2;
```

**Examples**

```
// Max of two numbers
max = (num1 > num2) ? num1 : num2;

// Even/odd check
System.out.print((numb % 2 == 0) ? "even" : "odd");
```

Use for concise, readable one-liners

