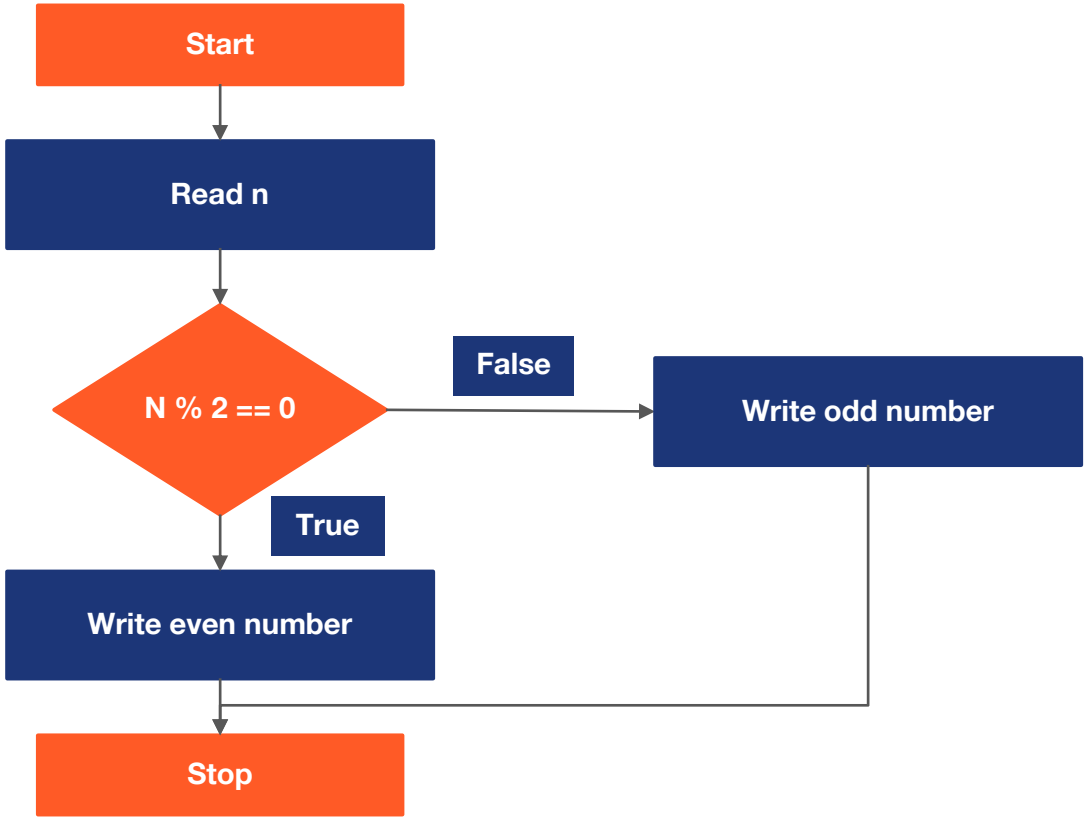
Let Us Decode this Flowchart



Think and Tell

1. How can we convert this flowchart to a Java program?

2. Do we need to learn about decision making?

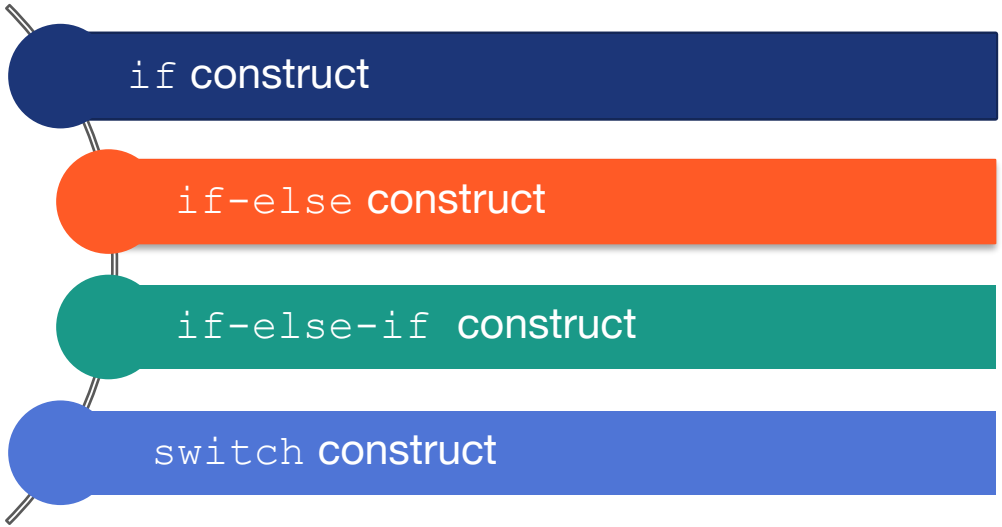
3. Does this condition impact decision making?

Use Operators and Conditional Constructs

Learning Objectives

- Create *if and if-else* construct
- Use arithmetic and logical operators
- Employ ternary operator for decision making
- Implement *if-else-if* and *nested* construct
- Apply *switch* case construct

Different Types of Conditional Constructs

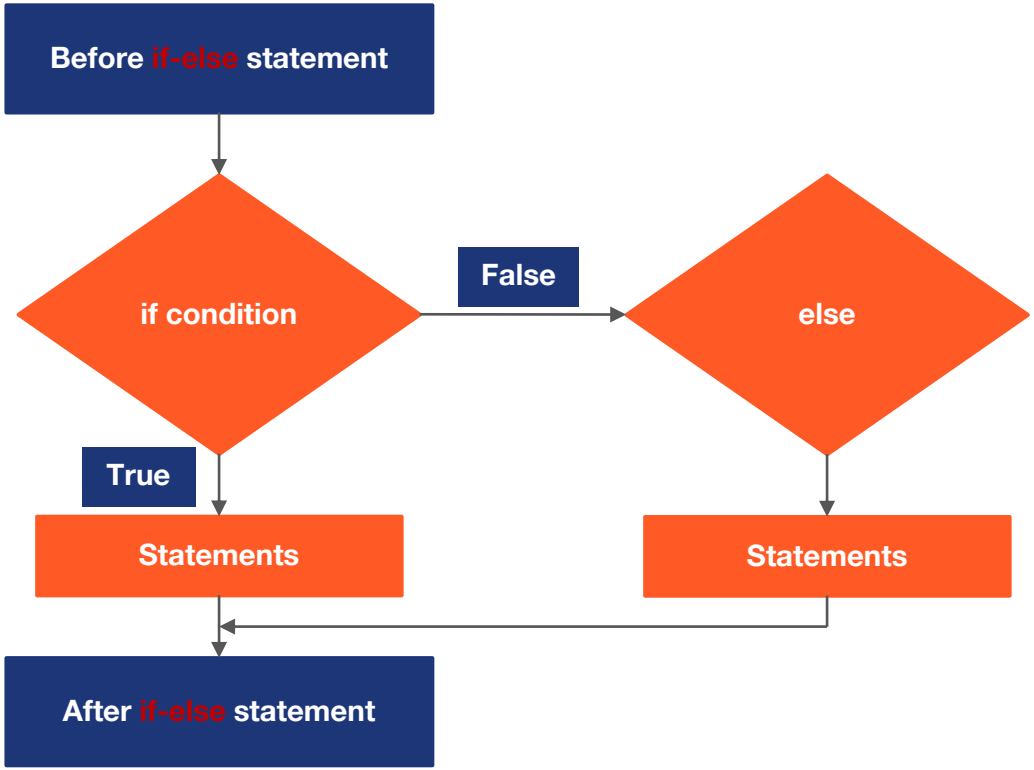


The if Construct

- The *if* construct executes statements based on specified conditions.
- **The syntax of *if* construct is:**

```
if(expression)
{
        statement(s)
}
```

The if-else Construct



The if-else Construct

The syntax of *if-else* construct is:

```
if(expression){
        statement(s)
}else{
         statement(s)
}
```

Interactive Demo

Write a program to identify whether the given number is even or odd.

Ternary Operator

- The *ternary operator* is used to evaluate an expression. The operator works on a logical expression with two operands. It returns one of the two operands depending on the result of the expression.
- **The syntax of ternary operator is:**

```
Boolean_expression ? expression 1 : expression 2
```

Logical Operators

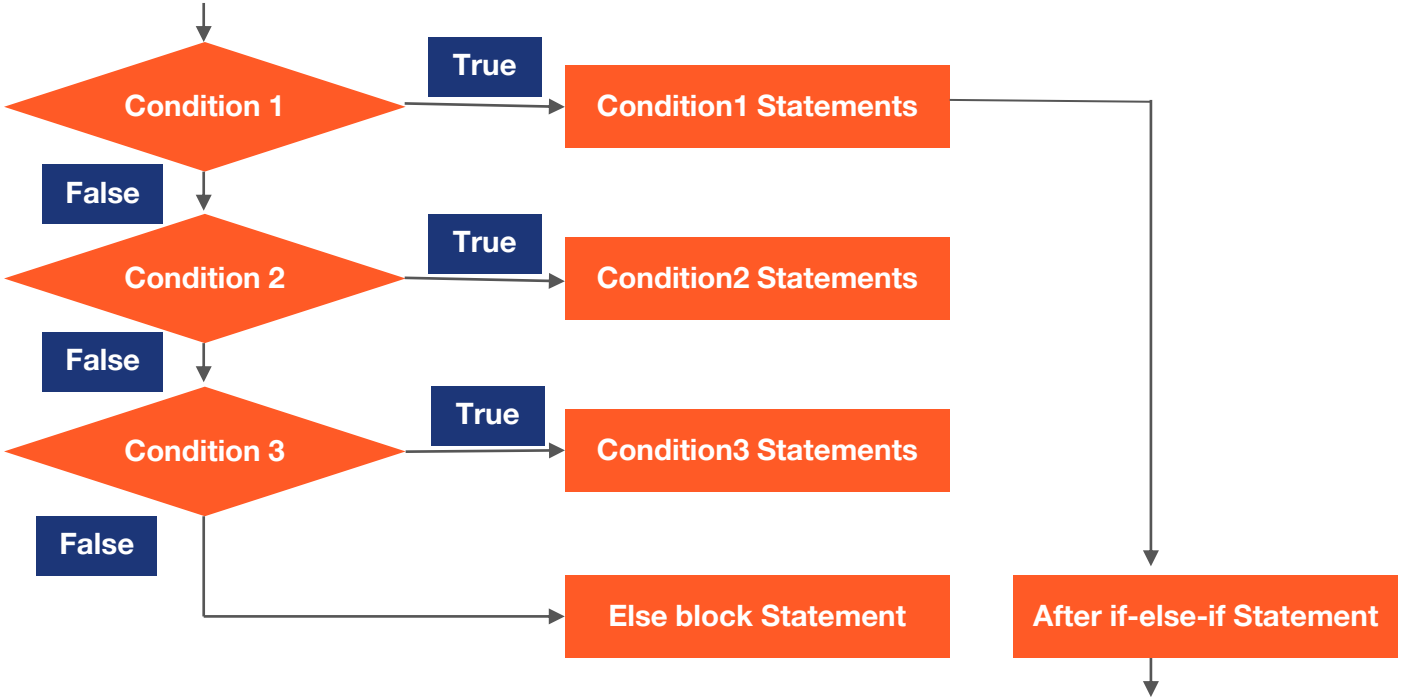
Operator	Operator Name	Description	Example
&&	Logical AND	Used to compare two boolean expressions and returns true if both the boolean expressions are true.	`boolean Result=(5> 10&& 23<56);` *Result will have the value, false*
||	Logical OR	Used to compare two boolean expressions and returns false if both the boolean expressions are false, else returns true if any one of the Boolean expression is true.	`boolean Result=(5> 10|| 23<56);` *Result will have the value, false*

!	Logical Compliment Operator	Inverts the value	`boolean Y=false;`
			`boolean X=!Y;`
			
			Assigns the value, true, to the variable x

Interactive Demo

Write a program to display the largest of the two numbers using ternary operator.

The if-else-if Construct



The if-else-if Construct

The syntax of the *if-else-if* construct is:

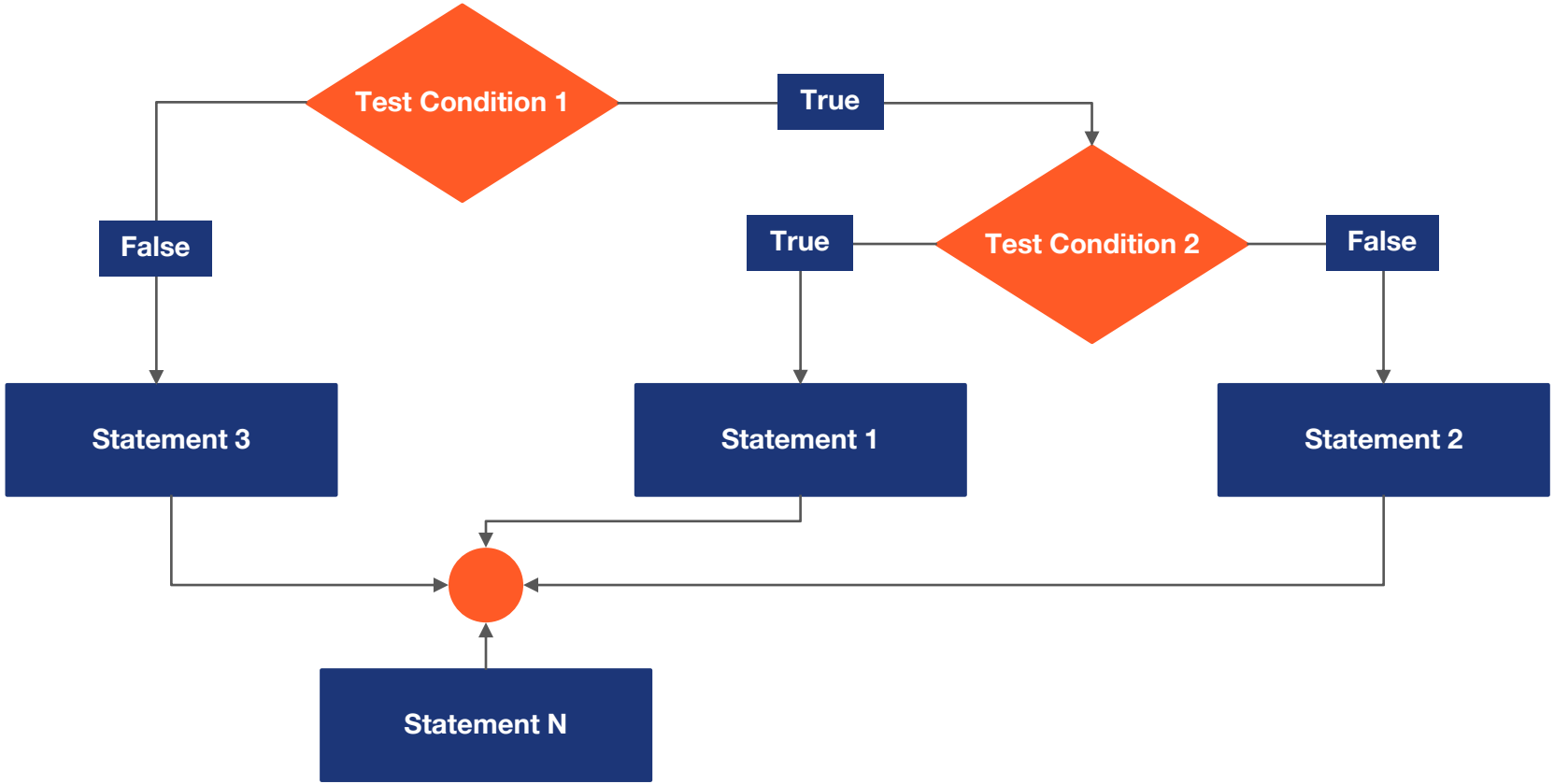
```
if(expression){
        statement(s)
}else if{
        statement(s)
}
else{
        statement(s)
}
```

Interactive Demo

Write a program that assigns a grade based on the value of a test score.

Grade A for scoring 90 or above.
Grade B for scoring 80 or above.
Grade C for scoring 70 or above.

The Nested if



The Nested if

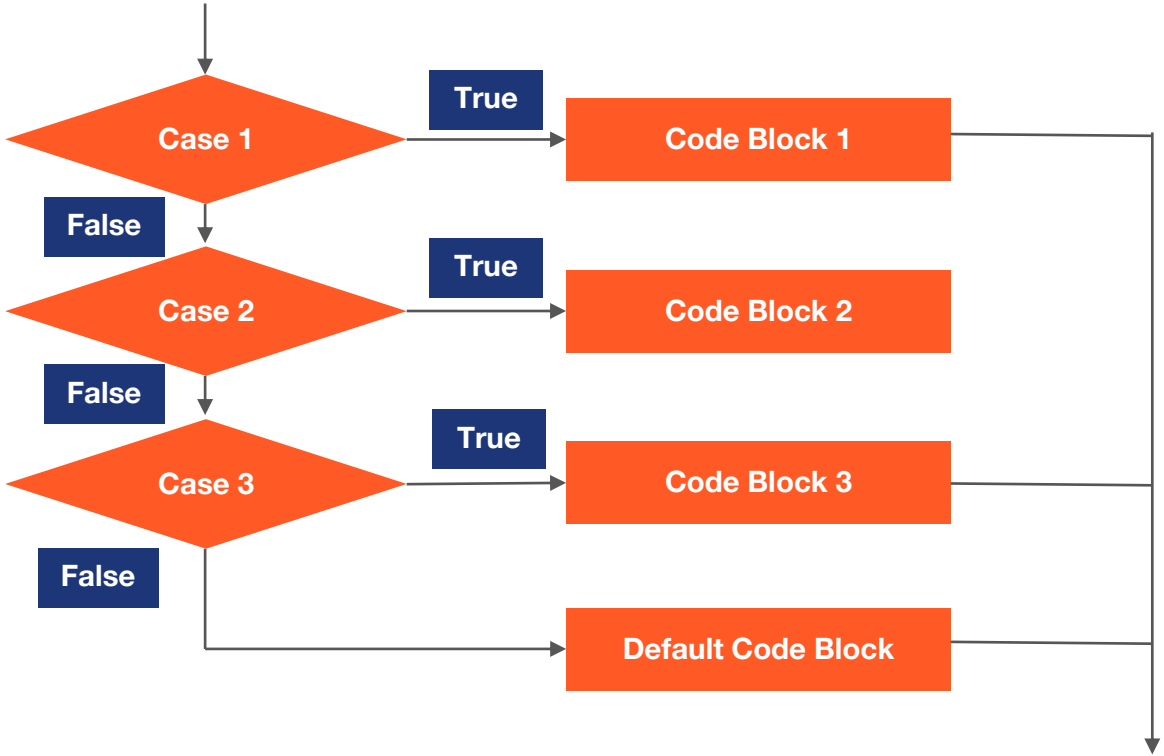
```
if ( test condition 1)  {

     //If the test condition 1 is TRUE then, it will check for test
condition 2
     if ( test condition 2)  {
          //If the test condition 2 is TRUE, these statements will be
executed
          Test condition 2 True statements;
     }
     else  {
          //If the test condition 2 is FALSE, these statements will be
executed
          Test condition 2 False statements;
     }
else  {
     //If the test condition 1 is FALSE then these statements will be
executed
     Test condition 1 False statements;
}
```

Interactive Demo

Write a program to print the largest of the three numbers.

The Switch Construct



The Switch Construct

The syntax of the *switch* construct is:

```
switch(expression)
{
        case Expr1: //statement(s)
        break;
        case Expr2: //statement(s)
        break;
        .
        .
        .
        case ExprN: //statement(s)
        break;
        default: //statement(s)
}
```

Interactive Demo

Write a program where a user enters the month number and it displays the number of days in that month.

Key Takeaways

- Different types of conditional constructs
- Function of *if, if else, if-else-if* and *nested* constructs
- Logical operators
- Ternary operators