

JavaTM

C-DAC Patna

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Java Flow Controls Part 1

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Sequential Flow

Sequential flow means that Java executes the statements one after another, in the exact order they appear in the program.

```
public class Main {  
    public static void main(String[] args) {  
        int a = 10;  
        int b = 20;  
        int sum = a + b;  
        System.out.println("The sum is: " + sum);  
        System.out.println("Program completed.");  
    }  
}
```

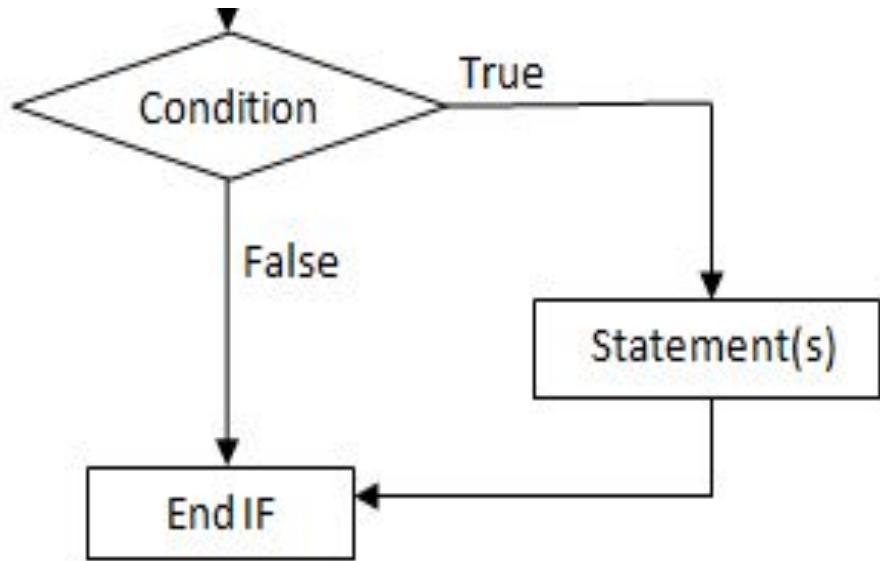
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if statement

An if statement in Java allows the program to decide whether or not to execute a block of code, based on whether a condition is true.

Syntax :

```
if (condition) {  
    // code if condition is true  
}
```



Note: Java allows you to skip {} if there's only one line inside if or else. But it's better to always use {} to avoid confusion and make your code clear and easy to understand.

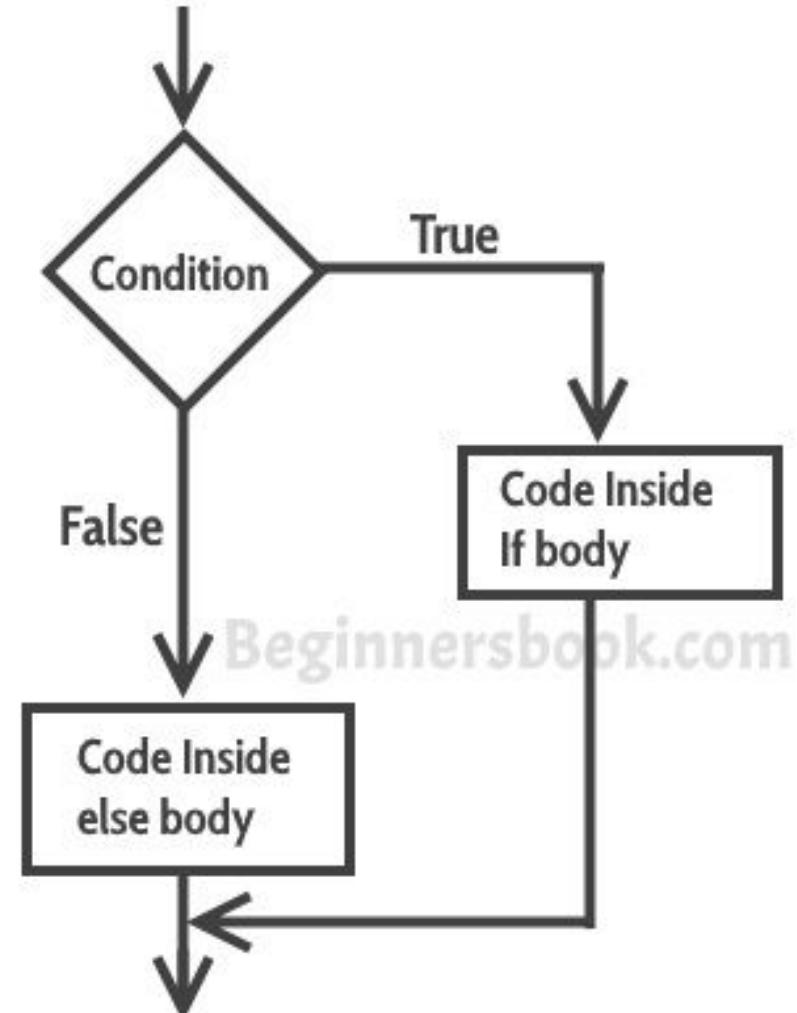
if-else statement

if-else is used when we want to choose between two options. If the condition is true, one block runs; if false, another block runs.

Syntax:

```
if (condition) {  
    // if true  
  
} else {  
    // if false  
}
```

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if-else statement - Practise

1. Write a Java program to check if a number is positive.
2. Write a program to check if a number is even or odd.
3. Write a program to check whether a person is eligible to vote or not.

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if-else if-else ladder

if-else if-else is used when we want to check more than one condition. It checks conditions from top to bottom, and executes the first one that is true

Syntax:

```
if (condition1) {
```

```
    // code
```

```
} else if (condition2) {
```

```
    // code
```

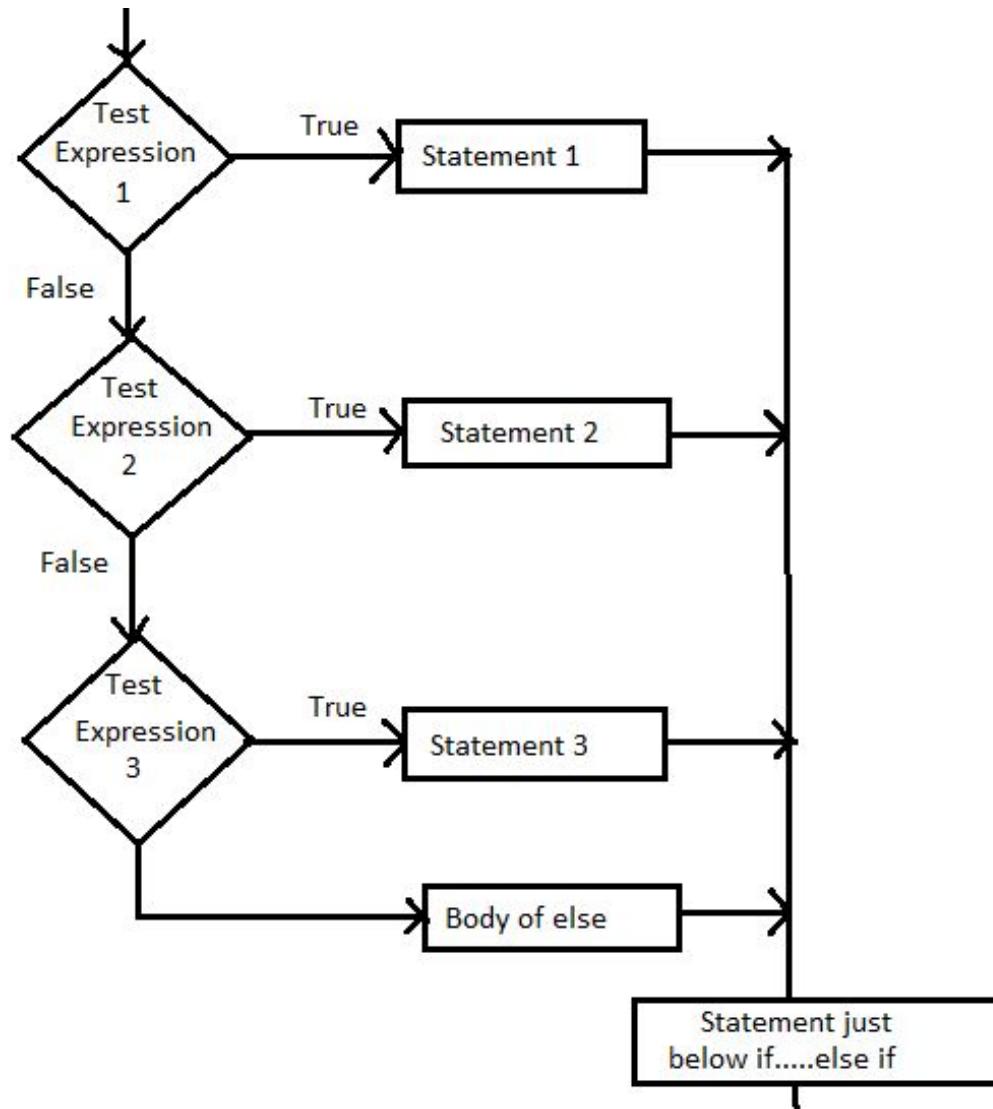
```
} else {
```

```
    // default code
```

```
}
```

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if-else if-else ladder - Flowchart



if-else if-else ladder - Practise

Q1. Write a Java program to check whether a number is positive, negative, or zero.

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Nested if-else

A nested if-else means putting one if-else block inside another if or else. It's used when decisions depend on multiple conditions, in steps.

Syntax:

```
if (condition1) {  
    // outer if block  
  
    if (condition2) {  
        // inner if block  
  
    } else {  
        // inner else block  
  
    }  
  
} else {  
    // outer else block  
  
}
```

switch statement

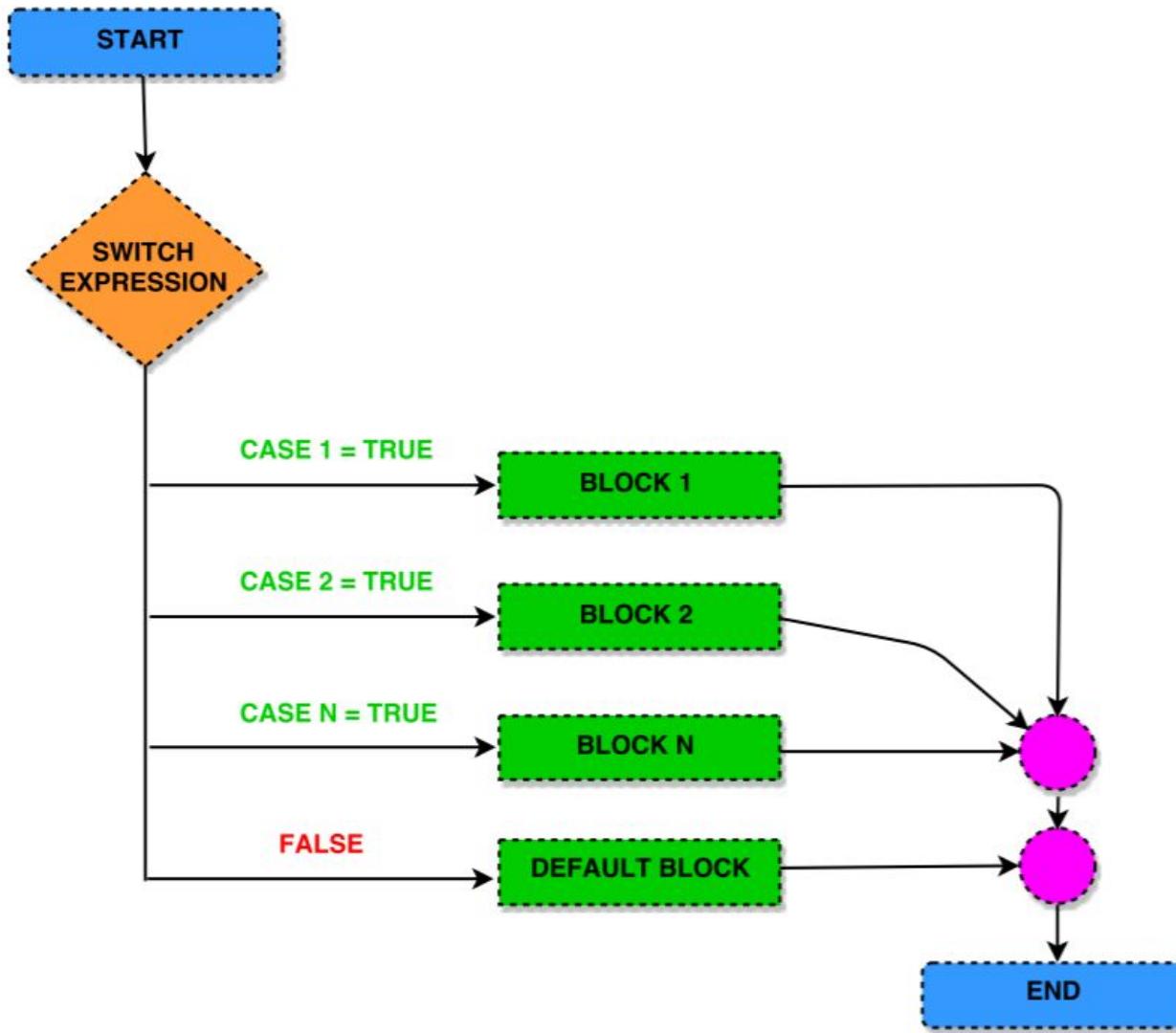
switch is used when we want to compare one value against multiple constant values. It's an alternative to writing many if-else-if statements

Syntax:

```
switch (expression) {  
    case value1:  
        // code  
        break;  
    case value2:  
        // code  
        break;  
    default:  
        // code  
}
```

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switch statement - Flowchart



switch statement - Practise

Q1. Write a Java program using a switch statement to check a character variable grade and print the following:

'A' → "Excellent"

'B' → "Good"

'C' → "Average"

'D' → "Poor"

Any other character → "Invalid Grade"

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Assignments

Note:

1. Before solving assignments make you revise day -02 how to take input from user using Scanner.
2. For solving all questions use Notepad only and run through command prompt.
3. WAP means Write a program.

Q1. WAP program that:

- Takes a number from the user.
- If the number is greater than 10, print "Number greater than 10".
- If the number is smaller, print "Number is less than 10".
- If the number is equal to 10, print "Number is equal to 10".

Q2. WAP program that:

- Takes a number from the user.
- Check if the number is positive, negative, or zero.
- Print:
 - "Positive number" if it is greater than 0.
 - "Negative number" if it is less than 0.
 - "Zero" if it is exactly 0.

Assignments

Q3. WAP program that:

- Takes marks (0–100) from the user.
- Print the grade based on the marks:
- 90 and above → Grade A
- 75 to 89 → Grade B
- 50 to 74 → Grade C
- Below 50 → Fail

Q4. WAP program that:

Create variable int age and char citizenshipStatus(contain Y / N).

store age = 18 and citizenshipStatus = 'N'

- Check if the person is eligible to vote:
- If age is 18 or above:
- Check if they are a citizen (yes).
- If yes, print "Eligible to vote".
- If no, print "Not eligible (not a citizen)".
- If age is below 18, print "Not eligible (too young)".

Assignments

Q13. Write a program using switch that takes a grade (A, B, C, D, F) and prints:

A: Excellent

B: Good

C: Average

D: Poor

F: Fail

Any other character → Invalid Grade

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Optional Assignments

Q5. WAP program that:

- Take three numbers from the user.
- Find and print the highest number among them

Q6. Traffic Light Signal

- Create color Variable and put value "red" , "yellow", green" or other one by one and check.
- If "red" → Print Stop.
- If "yellow" → Print Get Ready.
- If "green" → Print Go.
- Otherwise → Print Invalid color.

Q7. Simple Calculator

- Take two numbers and an operator (+, -, *, /).
- If operator is +, do addition
- If -, do subtraction
- If *, do multiplication
- If /, do division

Optional Assignments

Q8. Leap Year Checker

- Write a program to check if a given year is a leap year or not.
- (Hint: A year is a leap year if it is divisible by 4, but not divisible by 100 unless divisible by 400.)

Q9. Temperature Message

Take temperature input:

- Above 40 → Very Hot
- 30 to 40 → Hot
- 20 to 29 → Warm
- 10 to 19 → Cool
- Below 10 → Cold

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Q10. Electricity Bill Calculator

Take the number of units consumed:

- First 100 units → ₹5/unit
- Next 100 units → ₹7/unit
- Above 200 units → ₹10/unit
- (Bill = units × price depending on range)

Optional Assignments

Q.11 Body Mass Index (BMI) Checker

Take BMI value:

- Less than 18.5 → Underweight
- 18.5 to 24.9 → Normal weight
- 25 to 29.9 → Overweight
- 30 and above → Obese

Q12. ATM Menu

Display an ATM menu using switch:

- 1 → Withdraw
- 2 → Deposit
- 3 → Check Balance
- 4 → Exit

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THANK YOU!!
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