

Java decision-making statements with **syntax, examples, and output.**

1. Java if Statement

The if statement runs code **only when a condition is true.**

Syntax

```
if (condition) {  
    // code to execute  
}
```

Example

```
public class IfExample {  
  
    public static void main(String[] args) {  
  
        int age = 20;  
  
        if (age >= 18) {  
            System.out.println("You are an adult.");  
        }  
    }  
}
```

Output

You are an adult.

If age were 15, nothing would be printed because `age >= 18` would be false.

2. Java if-else Statement

Use if-else when you have **two possible choices.**

Syntax

```
if (condition) {  
    // code when condition is true  
} else {  
    // code when condition is false  
}
```

Example

```
public class IfElseExample {  
  
    public static void main(String[] args) {  
  
        int age = 16;  
  
        if (age >= 18) {  
            System.out.println("You can vote.");  
        } else {  
            System.out.println("You cannot vote.");  
        }  
    }  
}
```

Output

You cannot vote.

If we change:

```
int age = 20;
```

Output becomes:

You can vote.

3. Java else-if Statement

Use `else-if` when you have **multiple conditions**.

Syntax

```
if (condition1) {  
    // code  
} else if (condition2) {  
    // code  
} else if (condition3) {  
    // code  
} else {  
    // code  
}
```

Example: Student Marks

```
public class ElseIfExample {  
  
    public static void main(String[] args) {  
  
        int marks = 75;  
  
        if (marks >= 90) {  
            System.out.println("Grade A+");  
        } else if (marks >= 80) {  
            System.out.println("Grade A");  
        } else if (marks >= 70) {  
            System.out.println("Grade B");  
        } else if (marks >= 60) {  
            System.out.println("Grade C");  
        } else if (marks >= 50) {  
            System.out.println("Grade D");  
        } else {  
            System.out.println("Fail");  
        }  
    }  
}
```

Output

Grade B

How it works

For `marks = 75`:

`75 >= 90` → false

`75 >= 80` → false

`75 >= 70` → true

So Java executes:

`System.out.println("Grade B");`

After finding a true condition, Java skips the remaining `else-if` conditions.

4. Java switch Statement

A `switch` is useful when you want to compare **one value against several fixed choices**.

Syntax

```
switch (value) {  
  
    case value1:  
        // code  
        break;  
  
    case value2:  
        // code  
        break;  
  
    case value3:  
        // code  
        break;  
  
    default:  
        // code  
}
```

Example

```
public class SwitchExample {  
  
    public static void main(String[] args) {  
  
        int day = 3;  
  
        switch (day) {  
  
            case 1:  
                System.out.println("Monday");  
                break;  
  
            case 2:  
                System.out.println("Tuesday");  
                break;  
  
            case 3:  
                System.out.println("Wednesday");  
                break;  
  
            case 4:  
                System.out.println("Thursday");  
                break;  
  
            case 5:  
                System.out.println("Friday");  
                break;  
  
            default:  
                System.out.println("Invalid day");  
        }  
    }  
}
```

Output

Wednesday

Because:

int day = 3;

matches:

case 3:

5. Why do we use `break`?

`break` tells Java to **stop the switch**.

For example:

case 3:

```
System.out.println("Wednesday");
```

```
break;
```

Without `break`, Java can continue executing the following cases.

6. `switch` with String

You can also use String with `switch`.

```
public class SwitchStringExample {
```

```
    public static void main(String[] args) {
```

```
        String fruit = "Apple";
```

```
        switch (fruit) {
```

```
            case "Apple":
```

```
                System.out.println("This is an Apple.");
```

```
                break;
```

```
            case "Mango":
```

```
                System.out.println("This is a Mango.");
```

```
                break;
```

```
            case "Banana":
```

```
                System.out.println("This is a Banana.");
```

```
                break;
```

```
            default:
```

```
                System.out.println("Unknown fruit.");
```

```
        }
```

```
    }
```

```
}
```

Output

This is an Apple.

7. Difference Between if, if-else, else-if, and switch

Statement	Use
if	One condition
if-else	Two choices
else-if	Multiple conditions
switch	Multiple fixed values