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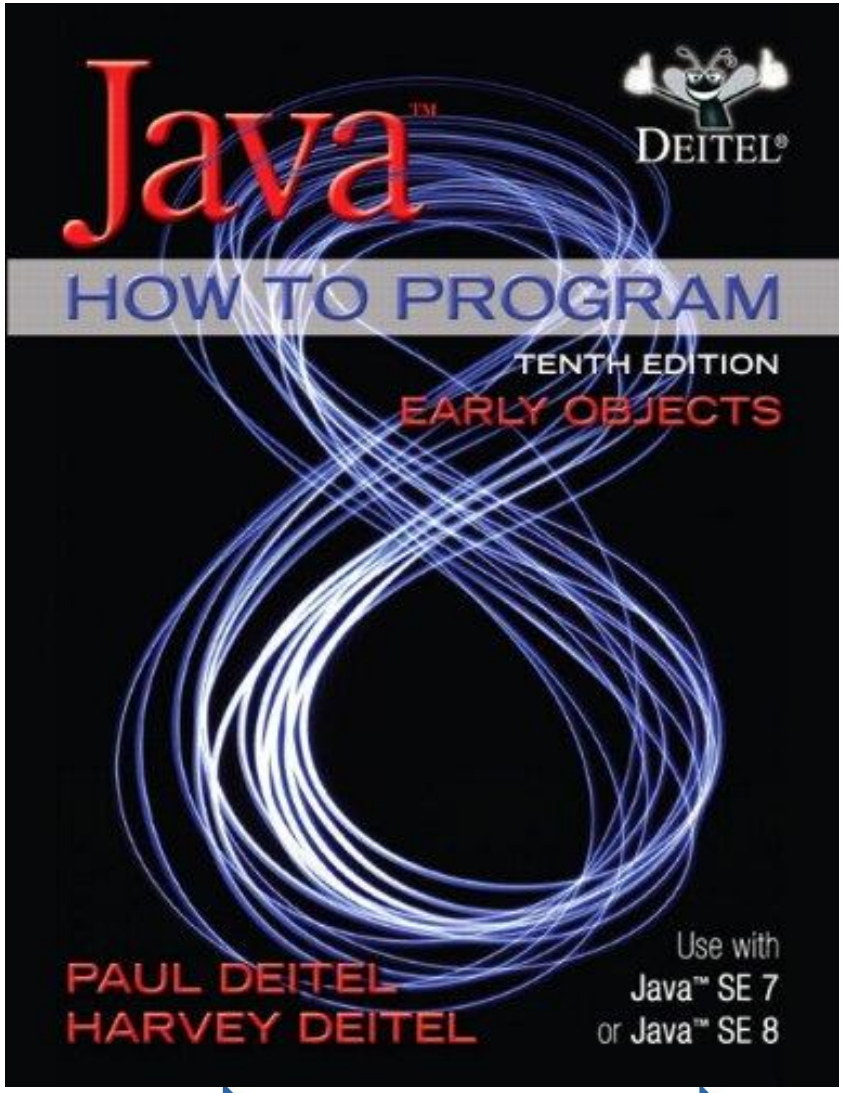
Object Oriented Programming (Java)

If-else Statement

&

Switch Statement

Text Book



Title: Java How to Program, Early Objects

Author(s): Paul Deitel, Harvey Deitel

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Object Oriented Programming using Java by Simon Kendal

Learning Outcomes

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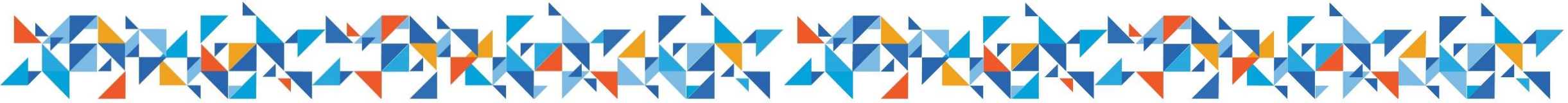
- **Students will be able to understand all Conditional Statements**

- **will be able to use Switch Statement**



Java If-else Statement

- The Java *if statement* is used to test the condition.
- It checks boolean condition: *true* or *false*.
- There are various types of if statement in Java.

✓if statement

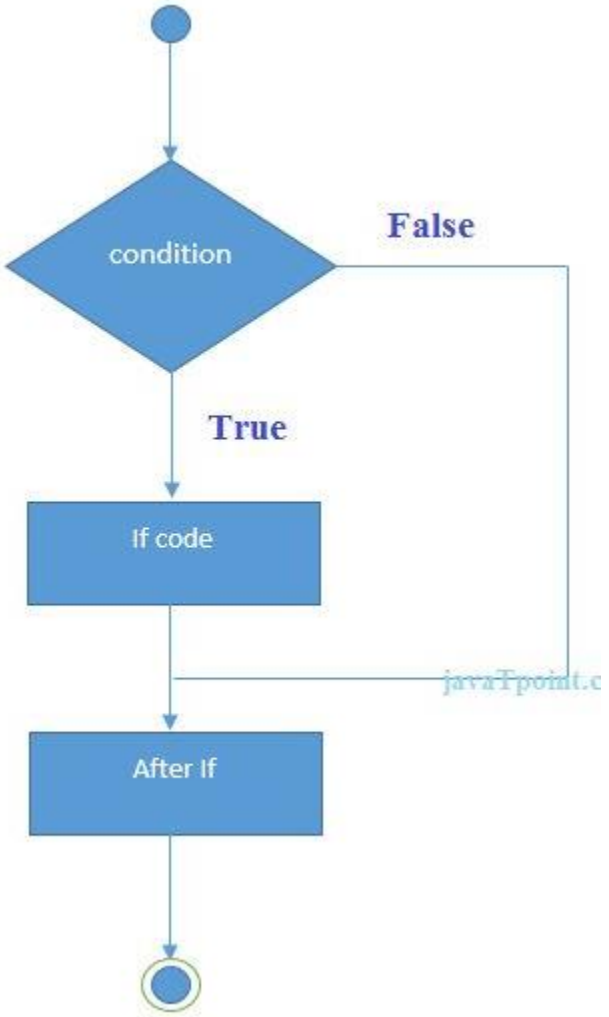
✓if-else statement

✓if-else-if ladder

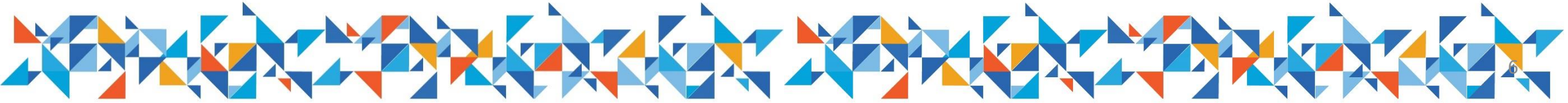
✓nested if statement

Java if Statement

- The Java if statement tests the condition.
- It executes the *if block* if condition is true.

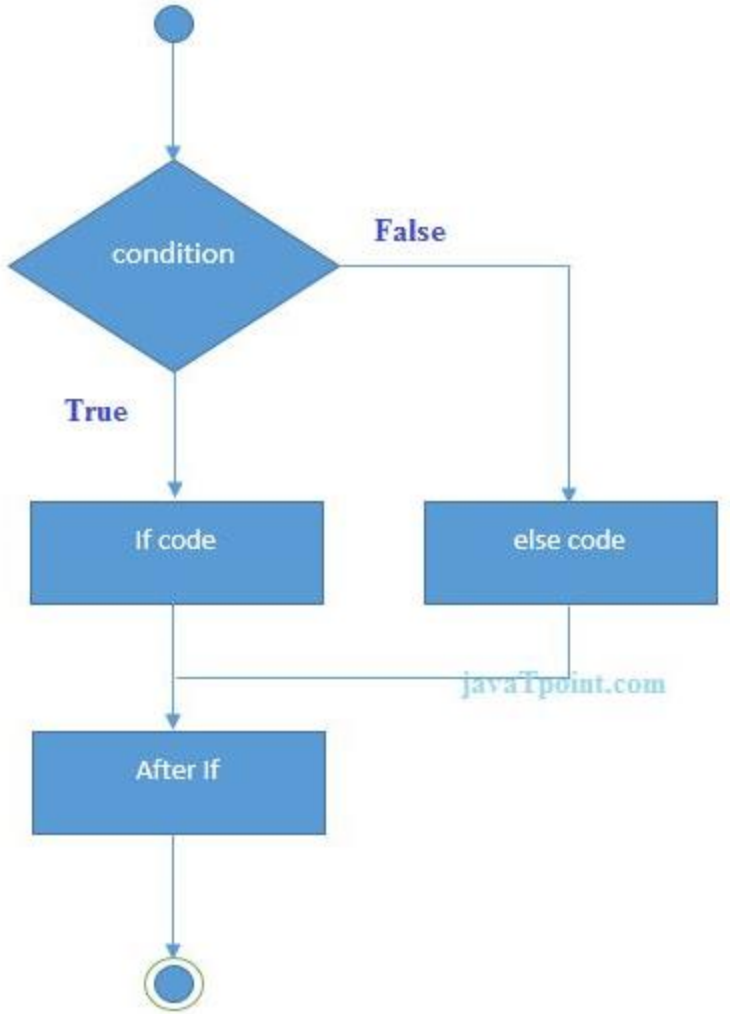


```java
public class IfExample {

public static void main(String[] args) {
    int age=20;

    if(age>18){
        System.out.print("Age is greater than 18");
    }
}
}
```

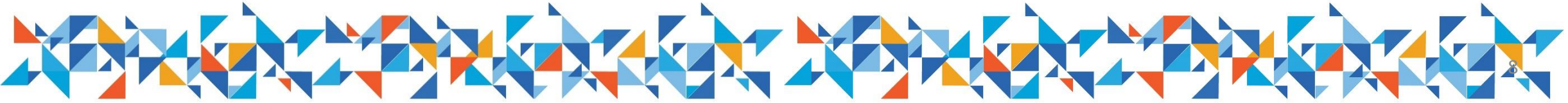


Java if-else Statement

- The Java if-else statement also tests the condition.
- It executes the *if block* if condition is true
- otherwise *else block* is executed.

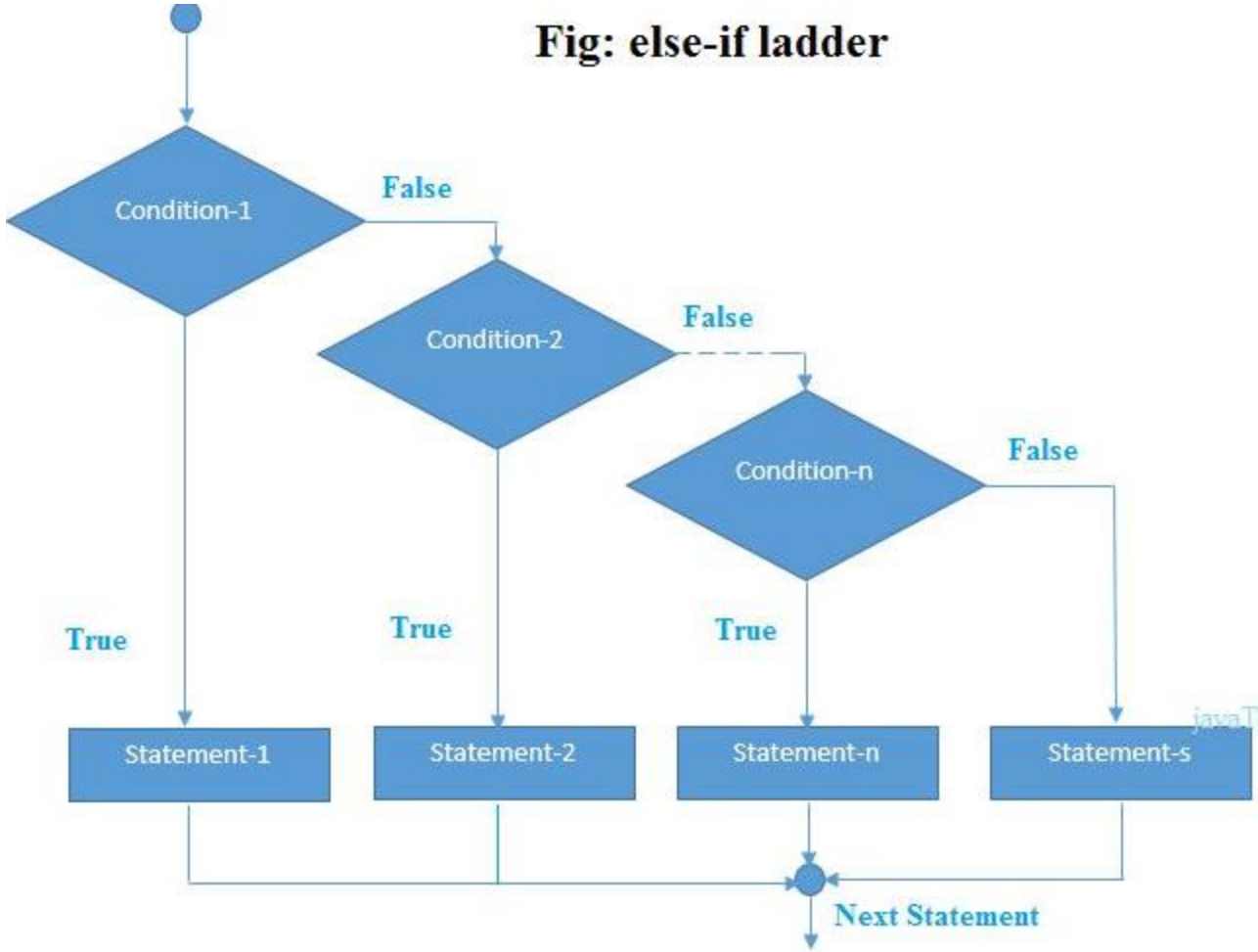


```java
// it is a program of odd & even number finding
import java.util.Scanner;
public class ifelsesatement {
    public static void main(String[] args) {
        Scanner obj=new Scanner(System.in);
        System.out.println("Enter a number to check whether it is odd or even");
        int number=obj.nextInt();

        if(number%2==0){
            System.out.println("Even number");
    }else{
            System.out.println("Odd number");
        }
}
}
```



Java if-else-if ladder Statement

- The if-else-if ladder statement executes one condition from multiple statements.



```java
// It is a program for Kardan Grading System
//It assign grade for marks
// such as A grade, B grade, C grade, D grade & Fail
import java.util.Scanner;
public class kardan_grading_system {
    public static void main(String[] args) {
        Scanner inputmarks=new Scanner(System.in);
        System.out.println("Enter your marks");
        int marks=inputmarks.nextInt();

        if(marks<60 && marks>0){
            System.out.println("Fail");
        }else if(marks>=60 && marks<70){
            System.out.println("D grade");
        }else if(marks>=70 && marks<80){
            System.out.println("C grade");
        }else if(marks>=80 && marks<90){
            System.out.println("B grade");
        }else if(marks>=90 && marks<=100){
            System.out.println("A grade");
        }else {
            System.out.println("Invalid marks!");
        }
    }
}
```

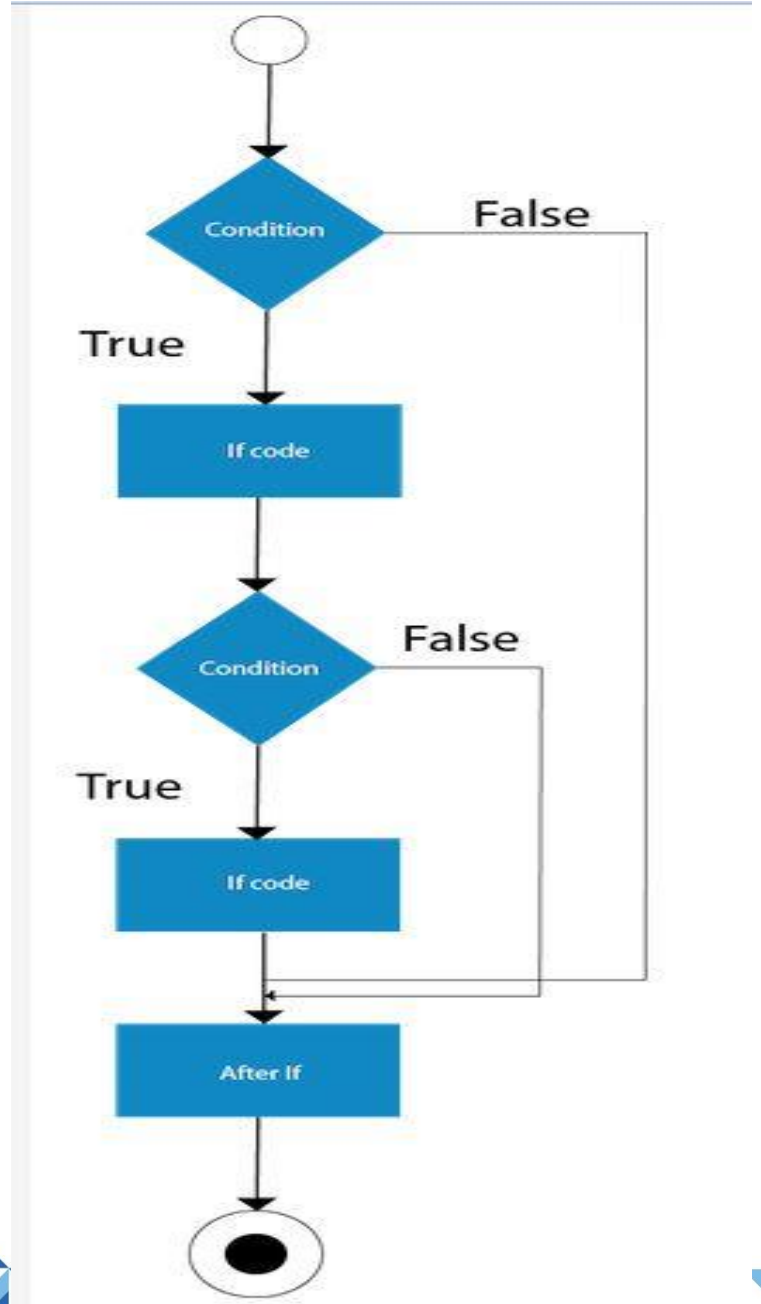
```java
// This program will check Positive & Negative numbers
public class positivenegativenumber {
    public static void main(String[] args) {
        int number=0;

        if(number>0){
            System.out.println("Positive number");
        }else if(number<0){
            System.out.println("Negative number");
        }else{
            System.out.println("zero");
        }
    }
}
```

```java
//To Check whether a Character is a Vowel or Consonant in Java
//using if-else-if ladder
import java.util.Scanner;
public class ifvowel {
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        char ch;
        System.out.println("Enter a character");
        ch=input.next().charAt(0);
        if (ch=='a' || ch=='A') {
            System.out.println("it is vowel");
        }
        else if (ch=='e' || ch=='E') {
            System.out.println("it is vowel");
        }
        else if (ch=='i' || ch=='I') {
            System.out.println("it is vowel");
        }
        else if (ch=='o' || ch=='O') {
            System.out.println("it is vowel");
        }
        else if (ch=='u' || ch=='U') {
            System.out.println("it is vowel");
        }
        else{
            System.out.println("It is consonant");
        }}}
```

Java Nested if statement

- The nested if statement represents the *if block within another if block*.

- Here, the inner if block condition executes only when outer if block condition is true.


Condition
False
True
If code
Condition
False
True
If code
After If

```java
//Java Program to demonstrate the use of Nested If Statement.
public class JavaNestedIfExample {
public static void main(String[] args) {

    int age=20;
    int weight=80;
    //applying condition on age and weight
    if(age>=18){
        if(weight>50){
            System.out.println("You are eligible to donate blood");
        }
    }
}}
```

```java
//Java Program to demonstrate the use of Nested If Statement.
public class JavaNestedIfExample2 {
public static void main(String[] args) {
    //Creating two variables for age and weight
    int age=25;
    int weight=48;
    //applying condition on age and weight
    if(age>=18){
        if(weight>50){
            System.out.println("You are eligible to donate blood");
        } else{
            System.out.println("You are not eligible to donate blood");
        }
    } else{
      System.out.println("Age must be greater than 18");
    }
} }
```

Java Switch Statement

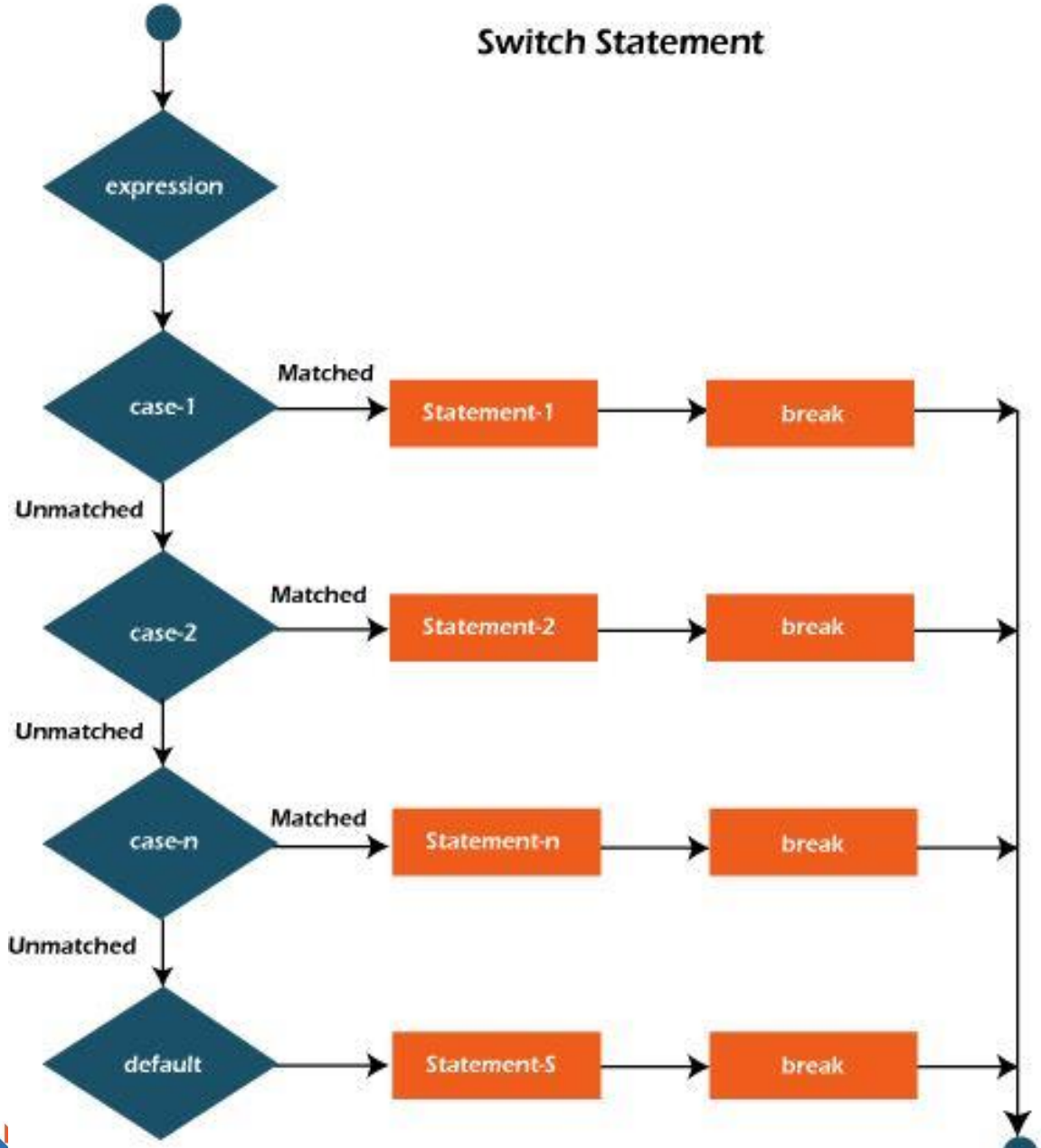
- The Java *switch statement* executes one statement from multiple conditions.
- It is like if-else-if ladder statement.

- The switch statement works with byte, short, int, long & Strings.

- In other words, the switch statement tests the equality of a variable against multiple values.

Points to Remember

- There can be *one or N number of case values* for a switch expression.
- The case value must be of switch expression type only. The case value must be *literal or constant*. It doesn't allow variables.
- The case values must be *unique*. In case of duplicate value, it renders compile-time error.
- The Java switch expression must be of *byte, short, int, long and string*.
- Each case statement can have a *break statement* which is optional. When control reaches to the break statement, it jumps the control after the switch expression. If a break statement is not found, it executes the next case.
- The case value can have a *default label* which is optional.


Switch Statement
expression
case-1
Matched
Statement-1
break
Unmatched
case-2
Matched
Statement-2
break
Unmatched
case-n
Matched
Statement-n
break
Unmatched
default
Statement-S
break

```
public class SwitchExample {
public static void main(String[] args) {
    //Declaring a variable for switch expression
    int number=20;
    //Switch expression
    switch(number){
    //Case statements
    case 10: System.out.println("10");
    break;
    case 20: System.out.println("20");
    break;
    case 30: System.out.println("30");
    break;
    //Default case statement
    default:System.out.println("Not in 10, 20 or 30");
    }
}
}
```

```java
// To check whether a character is vowel or consonant
// Using Switch Statement
import java.util.Scanner;
public class vowelfinding_by_swich {
    public static void main(String[] args) {
        Scanner obj=new Scanner(System.in);
        System.out.println("Enter a character");
        char let=obj.next().charAt(0);

        switch(let){
            case 'a':
            case 'e':
            case 'i':
            case 'o':
            case 'u':
                System.out.println("vowel");
                break;
            default:
                System.out.println("Consonant");
        }
    }
}
```

```java
// Program to find a day from the weekdays for a specific number
//Using Switchstatement
import java.util.Scanner;
public class switchstatement_to_find_weekdays {
    public static void main(String[] args) {
        Scanner obj=new Scanner(System.in);
        System.out.println("Enter a number to find day");
        byte day=obj.nextByte();
        switch(day){
            case 1:
                System.out.println(day+ " is Sunday");
                break;
            case 2:
                System.out.println(day+" is Monday");
                break;
            case 3:
                System.out.println(day+" is Tuesday");
                break;
            case 4:
                System.out.println(day+" is Wednesday");
                break;
            case 5:
                System.out.println(day+" is Thursday");
                break;
            case 6:
                System.out.println(day+" is Friday");
                break;
            case 7:
                System.out.println(day+" is Saturday");
                break;
            default:
                System.out.println("Day not found for the entered number "+day);
        }
    }
}
```

Class Task

- Write a program to find a month from the months of the year for a specific number.
- Using switch statement
- Such as:
- 1 is January
- 2 is February

- Write a program that can perform all the arithmetic operations (Addition, Subtraction, Multiplication &Division) using switch statement.

```
Enter First number
12.33
Enter Second number
13.44

Select operator from the list below:
 + for addition
 - for Subtraction
 * for Multiplication
 / for Division

 Enter your operator
+

 Addition selected
Addition is: 25.77
```

```java
// This program performs all arithmetic operations
// Such as Addition, Subtraction, Multiplication & Division Using switch Statement
import java.util.Scanner;
public class Arithmetic_Operations_using_switch {
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.println("Enter First number");
        float num1=input.nextFloat();
        System.out.println("Enter Second number");
        float num2=input.nextFloat();
        System.out.println("");
        System.out.println("Select operator from the list below: ");
        System.out.println(" + for addition \n - for Subtraction \n * for Multiplication \n / for Division");
        System.out.println("\n Enter your operator");
        char operator=input.next().charAt(0);
        switch(operator){
            case '+':
                System.out.println("\n Addition selected");
                float add=num1+num2;
                System.out.println("Addition is: "+add);
                break;
            case '-':
                System.out.println("\n Subtraction selected");
                float sub=num1-num2;
                System.out.println("Subtraction is "+sub);
                break;
            case '*':
                System.out.println("\n Multiplication selected");
                float mult=num1*num2;
                System.out.println("Multiplication is "+mult);
                break;
            case '/':
                System.out.println("\n Division selected");
                float div=num1/num2;
                System.out.println("Division is "+div);
                break;
            default:
                System.out.println("The operator not identified");}}}
```

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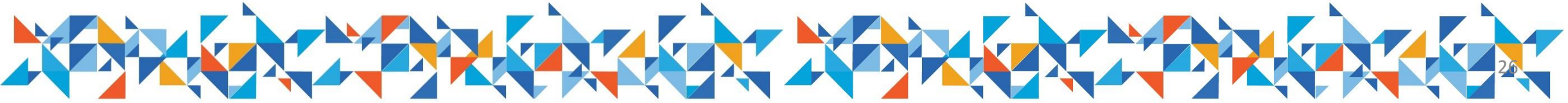
Write a program to display the season (Spring, Summer, Autumn, or Winter) based on a month number.



```java
import java.util.Scanner;

public class Seasons {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter month number (1-12): ");
        int month = scanner.nextInt();

        String season;
        switch (month) {
            case 3:
            case 4:
            case 5:
                season = "Spring";
                break;
            case 6:
            case 7:
            case 8:
                season = "Summer";
                break;
            case 9:
            case 10:
            case 11:
                season = "Autumn";
                break;
            case 12:
            case 1:
            case 2:
                season = "Winter";
                break;
            default:
                season = "Invalid month number";
        }

        System.out.println("Season: " + season);
```

Questions ?

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Thank You…!