

LAB # 3

JAVA CONDITIONAL STATEMENT

OBJECTIVE

To Study Java Conditional Statements and Java Input.

THEORY

JAVA Conditional Statements

❖ The if Statement

An **if statement** consists of a boolean expression followed by one or more statements. Use **if** to specify a block of code to be executed if a specified condition is true.

Note that **if** is in lowercase letters. Uppercase letters (If or IF) will generate an error.

```
if (condition) {  
    // block of code to be executed if the condition is true  
}  
  
if (20 > 18) {  
    System.out.println("20 is greater than 18");  
}
```

❖ The else Statement

An **if statement** can be followed by an optional **else statement**, which executes when the boolean expression is false.

Use **else** to specify a block of code to be executed, if the same condition is false.

```
if (condition) {  
    // block of code to be executed if the condition is true  
} else {  
    // block of code to be executed if the condition is false  
}
```

```
int time = 20;  
if (time < 18) {  
    System.out.println("Good day.");  
} else {  
    System.out.println("Good evening.");  
}
```

❖ The if-else Statement

The Java **if-else** statement works much like the IF statement in any other language. Here, *condition* is a Boolean expression. If *condition* is true, then the statement is executed. If *condition* is false, then the statement is bypassed.

```
if (condition1) {  
    // block of code to be executed if condition1 is true  
} else if (condition2) {  
    // block of code to be executed if the condition1 is false and condition2 is true  
} else {  
    // block of code to be executed if the condition1 is false and condition2 is false  
}
```

```
int time = 22;  
if (time < 10) {  
    System.out.println("Good morning.");  
} else if (time < 20) {  
    System.out.println("Good day.");  
} else {  
    System.out.println("Good evening.");  
}
```

❖ The short hand if-else Statement

There is also a short-hand if else, which is known as the **ternary operator** because it consists of three operands. It can be used to replace multiple lines of code with a single line. It is often used to replace simple if else statements:

```
variable = (condition) ? expressionTrue : expressionFalse;
```

```
int time = 20;  
String result = (time < 18) ? "Good day." : "Good evening.";  
System.out.println(result);
```

❖ Switch Statement

The **switch** statement is Java's multiway branch statement. It provides an easy way to dispatch execution to different parts of your code based on the value of an expression. As such, it often provides a better alternative than a large series of **if-else-if** statements.

```
switch(expression) {  
    case x:  
        // code block  
        break;  
    case y:  
        // code block  
        break;  
    default:  
        // code block  
}
```

```
int day = 4;
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;
    case 6:
        System.out.println("Saturday");
        break;
    case 7:
        System.out.println("Sunday");
        break;
}
```

Java Input

Java provides different ways to get input from the user. However, in this lab, you will learn to get input from user using the object of Scanner class.

In order to use the object of Scanner, we need to import java.util.Scanner package.

```
import java.util.Scanner; // Import the Scanner class
```

Then, we need to create an object of the Scanner class. We can use the object to take input from the user.

```
Scanner myObj = new Scanner(System.in); // Create a Scanner object
System.out.println("Enter username");

String userName = myObj.nextLine(); // Read user input
System.out.println("Username is: " + userName); // Output user input
```

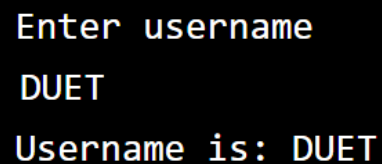
Example:

```
import java.util.Scanner; // import the Scanner class

class Main {
    public static void main(String[] args) {
        Scanner myObj = new Scanner(System.in);
        String userName;

        // Enter username and press Enter
        System.out.println("Enter username");
        userName = myObj.nextLine();

        System.out.println("Username is: " + userName);
    }
}
```

Output:A screenshot of a terminal window with a black background and white text. It shows the output of the Java program: "Enter username", followed by the user input "DUET", and finally the program output "Username is: DUET".

```
Enter username
DUET
Username is: DUET
```

Input Types

In the example above, we used the `nextLine()` method, which is used to read Strings. To read other types, look at the table below:

Method	Description
<code>nextBoolean()</code>	Reads a boolean value from the user
<code>nextByte()</code>	Reads a byte value from the user
<code>nextDouble()</code>	Reads a double value from the user
<code>nextFloat()</code>	Reads a float value from the user
<code>nextInt()</code>	Reads a int value from the user
<code>nextLine()</code>	Reads a String value from the user
<code>nextLong()</code>	Reads a long value from the user
<code>nextShort()</code>	Reads a short value from the user

LAB TASK

1. Write a program that displays the user input of First name, Last Name, Age, and Salary.
2. Write a program that can input 2 values from user and show the results of 4 different arithmetic operators on user wish (input operator from the user).
3. Write a program to generate Marksheet and shows the percentage as well. The conditions should be as follows:
 Subjects = your semester subjects and input their marks
 Add marks of all subjects as Total Marks, calculate the percentage of total marks.
 5 subjects = 500 use this for percentage

Marks ≥ 85 then A+ Grade
 Marks ≥ 80 and < 85 then A Grade
 Marks ≥ 75 and < 80 then B+ Grade
 Marks ≥ 70 and < 75 then B Grade
 Marks ≥ 65 and < 70 then C+ Grade
 Marks ≥ 60 and < 65 then C Grade
 Marks < 60 then Fail