

### Practical No. 3: Develop programs to demonstrate use of if statements and its different forms.

#### I. Practical Significance:

In computer science, conditional statements, expressions and constructs are performed different computations or actions depending on whether boolean condition evaluates to true or false. Students will be able to use various forms of if statements to check the condition.

#### II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the computer group related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve the computer group related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve the computer group related problems.
- **Engineering tools:** Apply relevant Computer programming technologies and tools with an understanding of the limitations.
- **Individual and Team work:** Function effectively as a leader and team member in diverse/multidisciplinary teams.
- **Communication:** Communicate effectively in oral and written form.

#### III. Competency and Practical skills

**“Develop Applications using Java”.**

The practical is expected to develop the following skills:

1. Write a program to use simple if statements to check conditions
2. Develop a program to use different forms of if to check multiple conditions.

#### IV. Relevant Course Outcome(s)

Develop programs using Object Oriented methodology in Java.

#### V. Practical Outcome (PrOs)

Develop programs to demonstrate use of if statements and its different forms.

#### VI. Relevant Affective domain related Outcome(s)

1. Follow safety practices.
2. Practice good housekeeping
3. Demonstrate working as a leader/ a team member.
4. Follow ethical practices.

#### VII. Minimum Theoretical Background

**Decision making in Java programming**

Control statements are used to control the flow of execution of program based on certain conditions. These are used to cause the flow of execution to advance and branch based on changes to the state of program.

Java Selection Statements:

1. if
2. if-else
3. nested-if
4. if-else-if ladder

1. **if:** if statement is simple decision-making statement. It is used to decide whether a certain statement or block of statements will be executed or not, i.e. if a certain condition is true then the block will be executed otherwise not.

Syntax:  
if(condition)

```
{  
    // Statement to execute if the condition is true;  
}
```

2. **if-else:** The if statement alone tells us that if a condition is true it will execute a block of statements and if the condition false, else block will be executed.

Syntax:  
if(condition)

```
{  
    // Statement to execute if the condition is true;  
}  
else  
{  
    // Statement to execute if the condition is false;  
}
```

3. **nested-if:** A nested if is an if statement that is the target of another if or else. Nested if statements means an if statement inside an if statement.

```
if(condition1)  
{  
    // execute when condition1 is true.  
}  
if(condition2)  
{  
    // execute when condition2 is true.  
}
```

4. **if-else-if ladder:** A user can decide among multiple options. The if statements are executed from top down. When one of condition is true, the statement associated with that if is executed, and the rest of the ladder is bypassed. If none of the conditions is true, then the final else statement will be executed.

### VIII. Resources required (Additional)

Nil

### IX. Resources used (Additional)

Sr. No.	Name of Resource	Broad Specification	Quantity	Remarks (If any)
1	Computer System	i3 41256 SSD ASUS vivobook	1	
2	JDK software	15.0.2		

- X. Program Code: Teacher must assign a separate program statement to group of 3-4 students.  
Write any program to check multiple conditions using if statement.

Class Program {

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

```
int Test = 20;
```

```
if (Test <= 21 && Test > 19)
```

```
System.out.println("Test is equal to Twenty");
```

}

}

- XI. Result (Output of Code):

Test is equal to Twenty.

#### XII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

1. List operators used in if conditional statement.
2. In if-else construct which part will be executed if condition is true.
3. State the condition when the else part will be executed with example.

4. Which of the following operator is used in if:  
a. Assignment operator (=) b. comparison operator (==)

(Space for answer)

i)  $\equiv$  ii)  $\leq$  iii)  $<$   
iv)  $>$  v)  $\geq$  vi)  $\neq$

Q. Both of if condition will be executed when  
Condition becomes true.

Q. When if condition becomes false the part  
of else condition will execute.

Q. Comparison operator ( $\neq$ ) is used in if  
Statement.

**XIII. Exercise:**

1. Write output of code in the given space.

Sr. No.	Program Code	Output
1.	<pre>public class NestedIfExample {     public static void main(String args[]) {         int num=70;         if( num&lt; 100 ){             System.out.println("number is less than 100");         } else if(num&gt; 50){             System.out.println("number is greater than 50");         }     } }</pre>	<p>number is less than 100 number is greater than 50</p>
2.	<pre>class IfStatement {     public static void main(String[] args) {         int number = 10;         if(number &gt; 0) {             System.out.println("Number is positive.");         }         System.out.println("This statement is always                            executed.");     } }</pre>	<p>Number is positive. This statement is always executed.</p>

2. Write a program to make the use of logical operators.

3. Write a program to check no is even or odd.

(Space for Answer)

3

class Logicalopr {

public static void main (String[] args) {

int number= 6 ;

if( num>5 && num<8 )

System.out.println (" number is 6");

3

②

```
class EvenOdd {  
    public static void main (String [ ] args) {  
        int number = 5;  
        if (number % 2 == 0) {  
            System.out.println ("number is even");  
        } else {  
            System.out.println ("number is odd");  
        }  
    }  
}
```

**XIV. References/ Suggestions for Further Reading**

1. <https://www.youtube.com/watch?v=uNiryYp2vSg>
2. <https://www.youtube.com/watch?v=KTvZkBfFR8U>
3. <https://www.javatpoint.com/java-if-else>

**XV. Assessment Scheme**

Performance Indicators		Weightage
<b>Process related(35 Marks)</b>		<b>70%</b>
1	Logic formation	30%
2	Debugging ability	30%
3	Follow ethical practices	10%
<b>Product related (15 Marks)</b>		<b>30%</b>
4	Expected output	10%
5	Timely Submission of report	10%
6	Answer to sample questions	10%
<b>Total (50 Marks)</b>		<b>100%</b>

*List of Students /Team Members*

1. ....
2. ....
3. ....
4. ....

Marks Obtained			Dated signature of Teacher
Process Related(35)	Product Related(15)	Total (50)	