

Practical No. 4: Develop programs to demonstrate use of switch – case statement and conditional if (?:)

I. Practical Significance:

Java uses control statements 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 condition. Students will be able to use switch-case to check the multiple conditions.

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 switch-case to check multiple conditions.
2. Develop a program to check condition in one line.

IV. Relevant Course Outcome(s)

Develop programs using Object Oriented methodology in Java.

V. Practical Outcome (PrOs)

Develop programs to demonstrate use of switch - case statement and conditional if (?:)

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

1. Decision making using Switch-case:

Syntax:

```
switch(expression)
{
    case value1 :
        // Statements
        break; // break is optional
```

```
case value2 :  
    // Statements  
    break; // break is optional
```

```
case valueN :  
    // Statements  
    break; // break is optional
```

```
default :  
    // Statements
```

}

2. Conditional if (ternary operator):

Syntax:

```
result = testStatement ? value1 : value2;
```

VIII. Resources required (Additional)

Nil

IX. Resources used (Additional)

Sr. No.	Name of Resource	Broad Specification	Quantity	Remarks (If any)
1	Computer system	i3	1	
2				

X. Program Code: Teacher must assign a separate program statement to group of 3-4 students.

Write any program using switch-case statement.

```
class Switch {  
    public static void main (String[] args) {  
        int num = 3;  
        switch (num) {  
            case 1 : System.out.println ("one");  
            case 2 : System.out.println ("two");  
            case 3 : System.out.println ("three");  
            default: System.out.println ("Unknown");  
        }  
    }  
}
```

XI. Result (Output of Code):

→ three unknown.

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. What will happen if break is not written for a case in switch case?
2. When default case is executed?
3. List datatypes allowed in switch expression?
4. Write a program to make use of ternary operator.

(Space for Answer)

1) If we don't write break in switch case it will execute all statements after condition gets true.

2) If condition does not get true in any case then default condition case executes.

3) Datatypes allowed in switch expression are:- byte, short, char, int, string.

4] program using ternary operator.

Class Main {

public static void main (String[] args) {

 float mark = 90;

 String result = (mark >= 75) ? "pass": "Fail";
 System.out.println(result);

}

Extra programs

1) import Without break Statement.

```
class Switcheg {
    public static void main (String [] args) {
        int ch = 2;
        switch (ch)
    {
        case 1 : System.out.println("One");
        case 2 : System.out.println("Two");
        case 3 : System.out.println("Three");
        default : System.out.println ("Unknown");
    }
}
```

3) Calculator using switch Case.

```
import java.util.Scanner;
class switchDemo
{
    public static void main (String [] args) {
        int num1, num2;
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter first number");
        num1 = sc.nextInt();
        System.out.println ("Enter second number");
        num2 = sc.nextInt();
        System.out.println ("Enter an operator (+,-,* / ):");
        char op = sc.next().charAt(0);
        double result = 0.0;

        switch (op) {
            case '+' : result = num1 + num2; break;
            case '-' : result = num1 - num2; break;
            case '*' : result = num1 * num2; break;
            case '/' : result = num1 / num2; break;
        }
        System.out.println (result);
    }
}
```

XIII. Exercise:

1. Write Error/output of code in the given space.

Sr. No.	Program Code	Error/Output
1.	<pre>public class SwitchCaseExample1 { public static void main(String args[]) { int num=2; switch(num+2) { case 1: System.out.println("Case1: Value is: "+num); case 2: System.out.println("Case2: Value is: "+num); case 3: System.out.println("Case3: Value is: "+num); default: System.out.println("Default: Value is: "+num); } } }</pre>	Default: Value is: 2
2.	<pre>public class Program { public static void main(String[] args) { int value = 100; switch (value) { case 100: System.out.println(true); break; case 100: System.out.println(true); break; } } }</pre>	Duplicate Case error

2. Write any program to check switch-case statement using character datatype.

(Space for Answer)

class CaseDemo {

 public static void main (String[] args) {
 char ch = 'Y';
 }
}

Switch(ch){

 case 'y': System.out.println(" small y"); break;
 case 'Y': System.out.println(" big Y"); break;
 default: System.out.println("Another alphabet");
}

8 Nested switch.

```
Class NestedSwitch {
```

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

```
    int tech = 2;
```

```
    int course = 2;
```

```
    switch (tech)
```

```
{
```

```
        Case 1 : System.out.println("Python"); break;
```

```
        Case 2 :
```

```
            switch (course) {
```

```
                Case 1 : System.out.println("T2EE");
```

```
                break;
```

```
                Case 2 : System.out.println("advancejava");
```

```
                break;
```

```
            default :
```

```
                System.out.println("incorrect course");
```

```
                break;
```

```
}
```

```
        default : System.out.println("incorrect option")
```

```
, }
```

XIV. References/ Suggestions for Further Reading

1. <https://www.geeksforgeeks.org/switch-statement-in-java/>
2. <https://www.guru99.com/switch-java.html>
3. <https://www.youtube.com/watch?v=g5Kphflexzg>

XV. Assessment Scheme

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

List of Students /Team Members

1.
2.
3.
4.

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