Course code : **CSE1004**

Course title : **Problem Solving using Java**

Java – Conditional Statements

Objectives

This session will give the knowledge about

- Conditional Statements
- If
- Else..if
- Nested else…if
- Switch case statements

Conditional Statements

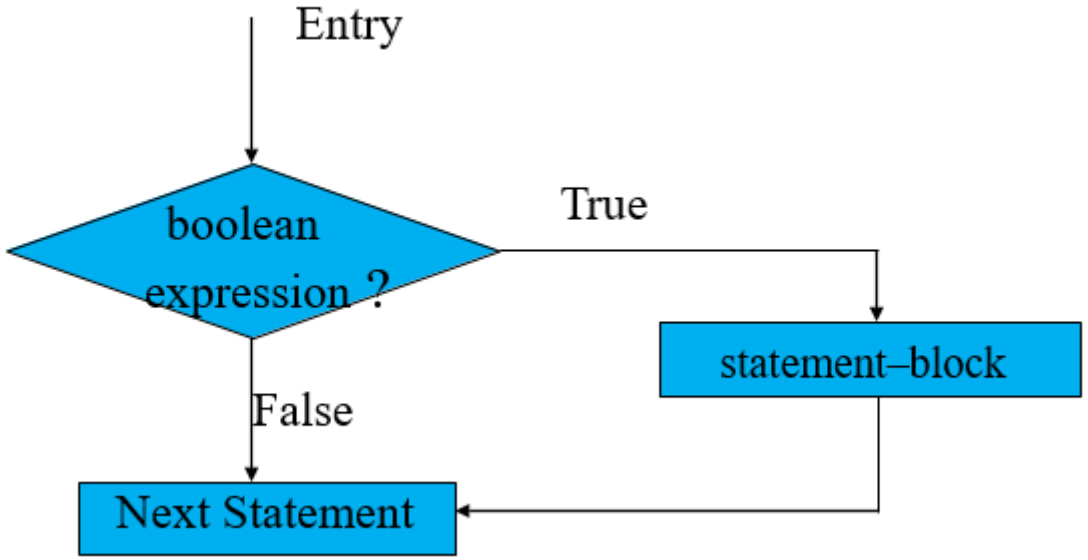
- Conditional Statements are statements which executes one or set of statements based on a condition exactly once.

- There are four types of Conditional Statements in java
  - If
  - Else..if
  - Nested else…if
  - Switch case statements

if statements

syntax :

```
if(boolean expression)
{
        statement–block;
 }
 Next statement;
```



if statement - Example

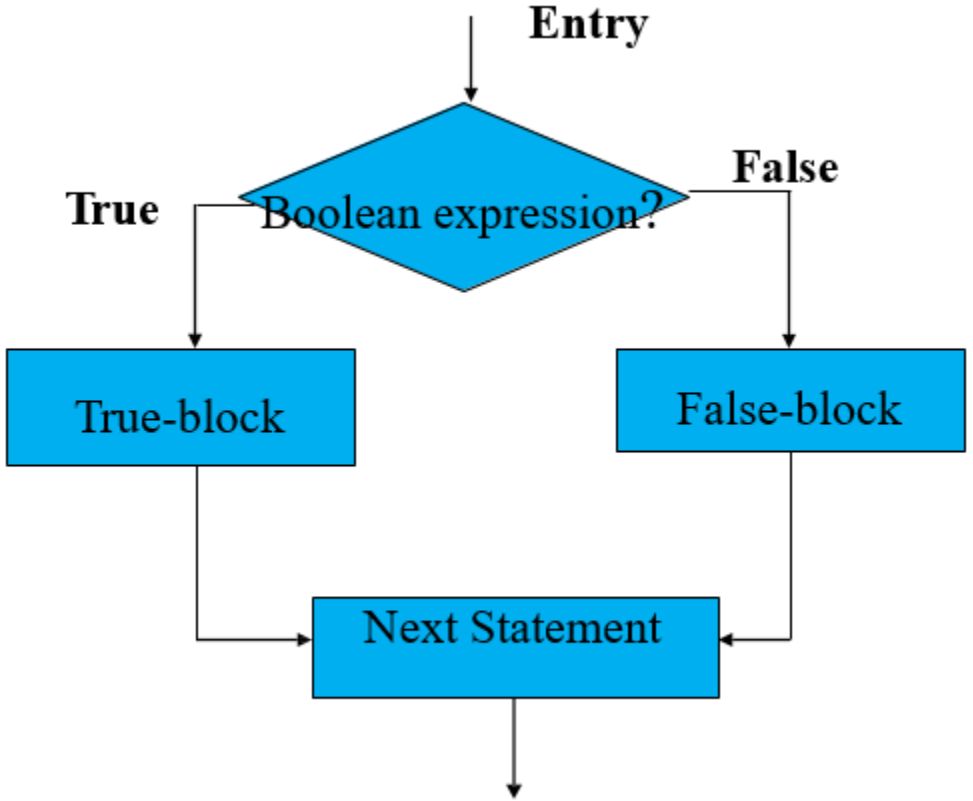
```
/* This is an example of a if statement */

public class Test
{
    public static void main(String args[])
    {
        int x = 5;
        if( x < 20 )
        {
            System.out.println("This is if statement");
        }
    }
}
```

if..else statement

The if….else statement is an extension of simple if statement

Syntax:

```
if (boolean expression)
{
   True-block statements;
}
else
{
   False-block statements;
}
Next statement;
```



if..else statement - Example

/* program to check given age input is eligible to vote or not using if- else*/

```
public class Check {
    public static void main(String[ ] args) {
            Scanner sin=new Scanner(System.in);
            int age = sin.nextInt();
            if(age>18) {
                System.out.println("Eligible to vote");
            }
            else {
                System.out.println("Not eligible to vote");
            }
    }
}
```

Conditional Operator

Conditional operator is an one line alternative for if else condition. And the result of conditional statements can be stored in to a variable

Syntax:

```
condition? true statements : false statements;
```

Example:

```
String result =  age>=18 ? ”eligible” : ”not eligible”;
```

Cascading if- else

Syntax:

```
if (condition1)     {
            statement-1
}
….
else if(condition) {
            statement-n
}
else {
            default statement
}
next statement
```

else - if Example

```
/* program to print seasons for a month input using if & else if */

public class ElseIfDemo {
        public static void main(String[] args) {
                Scanner sin=new Scanner(System.in);
                int month = sin.nextInt();
                if(month == 12 || month == 1 || month == 2)
                                System.out.println("Winter");
                else if(month == 3 || month == 4 || month == 5)
                                        System.out.println("Spring");
```

else - if Example

```
            else if(month == 6 || month == 7 || month == 8)
                System.out.println("Summer");
            else if(month == 9 || month == 10      || month == 11)
                System.out.println("Autumn");
            else
                System.out.println("invalid month");
    }
}
```

Switch Case

The switch-case conditional construct is a more structured way of testing for multiple conditions rather than resorting to a multiple if statement

Syntax:

```
switch (expression)
{
        case value-1:
                case-1 block
                break;
        case value-2:
                case-2 block
                break;
        default:
                default block
                break;
}
statement-x;
```

Switch Case - Example

```
/* This is an example of a switch case statement*/

public class SwitchDemo {
        public static void main(String[] args) {
                Scanner sin=new Scanner(System.in);
                int weekday = sin.nextInt();
                switch(weekday) {
                   case 1:
                       System.out.println(“Sunday");
                       break;
```

Switch Case - Example

```
case 2:
    System.out.println(“Monday");
    break;
case 3:
    System.out.println(“Tuesday");
    break;
case 4:
    System.out.println(“Wednesday");
    break;
case 5:
    System.out.println(“Thursday");
```

Switch Case - Example

```
            break;
        case 6:
            System.out.println(“Friday");
            break;
        case 7:
            System.out.println(“Saturday");
            break;
        default:
            System.out.println(“Invalid day");
        }
} }
```

break statement

- While the execution of program, the break statement will terminate the iteration or switch case block

- When a break statement is encountered in a loop, the loop is exited and the program continues with the statements immediately following the loop

- When the loops are nested, the break will only terminate the corresponding loop body

Quiz - 1

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        if( 1 > 2 )
        {
            System.out.println(" 1 is greater than 2");
        }
        else
            System.out.println(" 2 is greater than 1");
    }
}
```

Quiz - 2

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
       if( 1 < 2 )
        {
            System.out.println("1 is less than 2");
        }
        else
            System.out.println("2 is less than 1");
            System.out.println("Hello From IfExample");
     }
}
```

Quiz - 3

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        boolean x = true;
        boolean y = false;
        if (x && y) {
            System.out.println(true);
        } else {
            System.out.println(false);
        }
     }
}
```

Quiz - 4

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        boolean x = true;
        boolean y = false;
        if (x || y) {
            System.out.println(true);
        } else {
            System.out.println(false);
        }
     }
}
```

Quiz - 5

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        if( 1 > 2 )
        {
            System.out.println(" 1 is greater than 2");
        }
     }
}
```

Quiz - 6

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
      float fl = 5.3f;
        if (fl == 5.3)
            System.out.println("Both are equal");
        else
            System.out.println("Both are not equal");
     }
}
```

Quiz - 7

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        int first = 10, second;
        if (first < 10)
            second = 1;
        if (first >= 10)
            second = 2;
        System.out.println("y is " + second);
     }
}
```

Quiz - 8

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        int marks = 70;
        if( marks > 70 )
            System.out.println("Distinction");
        if( marks > 35 )
            System.out.println("Pass");
        else
            System.out.println("Fail");
            System.out.println("Better luck next time");
     }
}
```

Quiz - 9

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
      boolean rabbit = true;
        boolean donkey = false;
        boolean leporidae = true;

        if (rabbit & donkey | donkey & leporidae | donkey)
            System.out.print("DOG ");

        if (rabbit & donkey | donkey & leporidae | donkey | rabbit)
            System.out.println("CAT ");
       }
}
```

Quiz - 10

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        int india_score = 300;
        int pakistan_score = 290;

        System.out.println( india_score > pakistan_score ? "India Wins" : "Pakistan Wins");
     }
}
```

Quiz - 11

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
            int var1 = 5;
            int var2 = 6;
            if ((var2 = 1) == var1)
                System.out.print(var2);
            else
                System.out.print(++var2);
     }
}
```

Quiz - 12

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        int x = 20;
        int y = 25;
        if (++x < (y = y -= 4) || (x = x += 4) > y) {
            System.out.println(x + "," + y);
        }
     }
}
```

Quiz - 13

What would be the output if we try to compile and execute the following java code?

```
class IfExample
{
    public static void main(String s[])
    {
        int a = 12 + 21 * 3 - 9 / 2;
        int b = 14 - 32 * 4 + 175 / 8 - 3;
        if(++a > 71 && --b < 20) {
                System.out.println("a = " + a + " b = " + b);
        }
        if(b-- == -97 || a-- < 100) {
                System.out.println("a = " + a + " b = " + b);
        }
     }
}
```

Summary

We have discussed about

- Conditional Statements
- If
- Else..if
- Nested else…if
- Switch case statements