



Flow Control Statements

Agenda

1

Flow Control

Flow Control



Control Statements

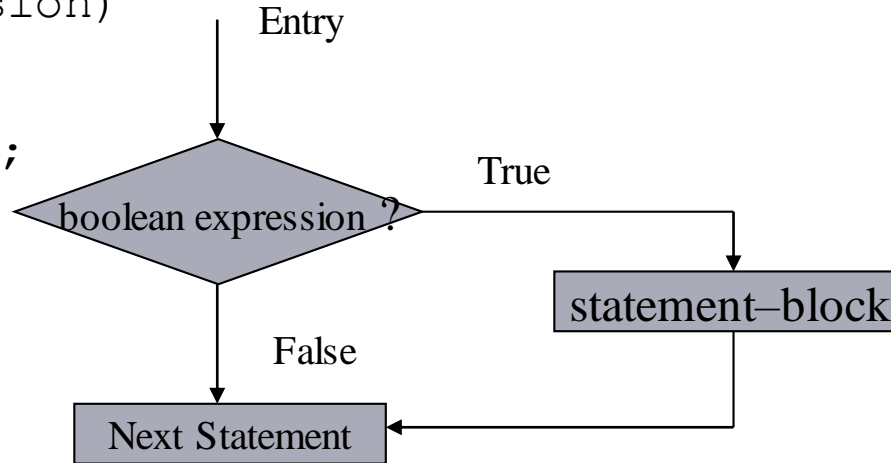
- Control statements are statements which alter the normal execution flow of a program
- There are three types of Control Statements in java

Selection statement	Iteration Statement	Jumping Statement
if	while	break
if – else	for	continue
switch	do – while	return

Simple if statement

syntax :

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



If - 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.print("This is if statement");  
        }  
    }  
}
```

Output:

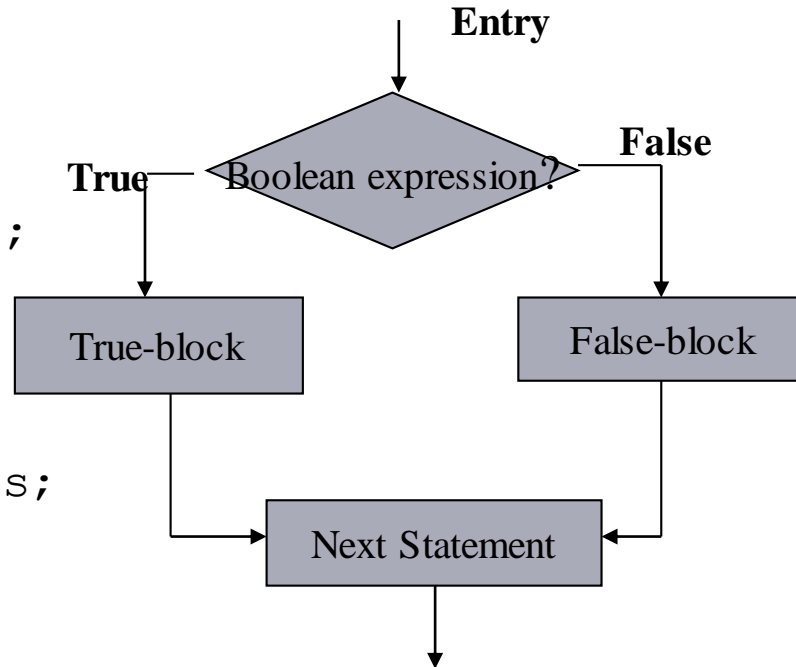
This is if statement

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 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) {  
        int age;  
        age = Integer.parseInt(args[0]);  
        if(age>18) {  
            System.out.println("Eligible to vote");  
        }  
        else {  
            System.out.println("Not eligible to vote");  
        }  
    }  
}
```


Cascading *if-else*

- **Syntax:**

```
if (condition1) {  
    statement-1  
}  
  
...  
else if(condition-n) {  
    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) {  
        int month = Integer.parseInt(args[0]);  
        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(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");  
    }  
}
```

If args[0] is 6 then the Output is : Summer

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*/

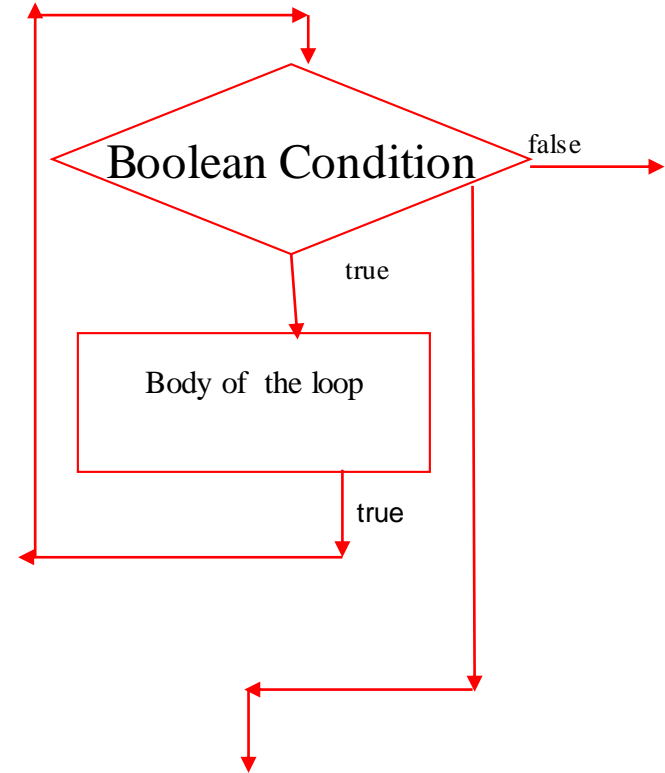
```
public class SwitchDemo {  
    public static void main(String[] args) {  
        int weekday = Integer.parseInt(args[0]);  
        switch(weekday) {  
            case 1:    System.out.println("Sunday");    break;  
            case 2:    System.out.println("Monday");    break;  
            case 3:    System.out.println("Tuesday");   break;  
            case 4:    System.out.println("Wednesday"); break;  
            case 5:    System.out.println("Thursday");  break;  
            case 6:    System.out.println("Friday");    break;  
            case 7:    System.out.println("Saturday");  break;  
            default:   System.out.println("Invalid day");  
        }  
    }  
}
```

If args[0] is 6 then the Output is : Friday

While loop

- **Syntax**

```
while (condition)
{
    Body of the loop
}
```



while loop – Example

/* This is an example for a while loop */

```
public class Sample{  
    public static void main(String[] args) {  
        int i = 0;  
        while (i < 5) {  
            System.out.println("i: "+i);  
            i = i + 1;  
        }  
    }  
}
```

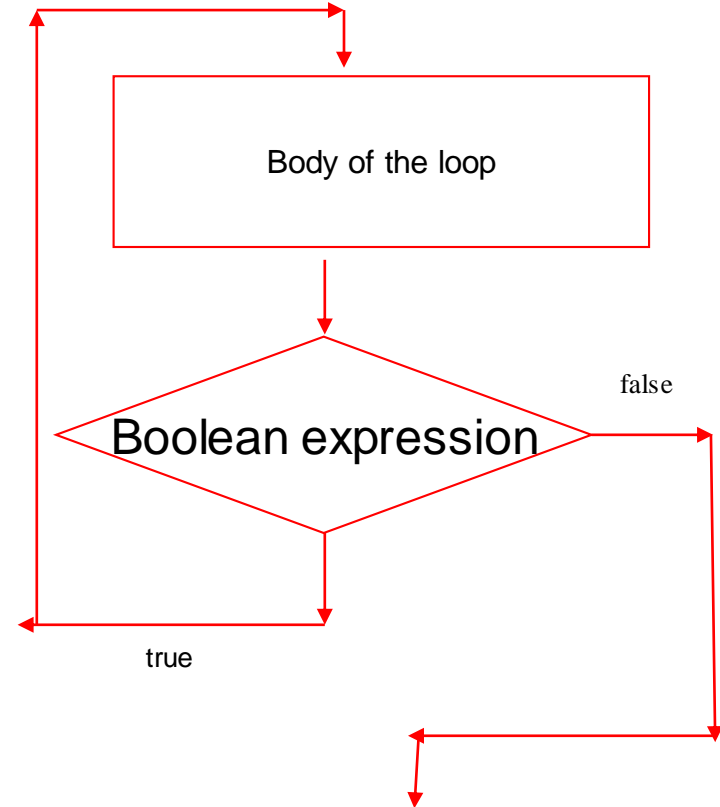
Output:

i: 0
i: 1
i: 2
i: 3
i: 4

do-while loop

- **Syntax:**

```
do
{
    Body of the loop
} while (boolean expression);
```



do...while loop – Example

/* This is an example of a do-while loop */

```
public class Sample {  
    public static void main(String[] args) {  
        int i =5;  
        do {  
            System.out.println("i: "+i);  
            i = i + 1;  
        } while (i < 5);  
    }  
}
```

Output:
i: 5

For loop

Syntax

```
for(initialization;condition;increment/decrement)
{
    Body of the loop
}
```

For loop - Example

`/* This is an example of a for loop */`

```
public class Sample {  
    public static void main(String[] args) {  
        for (int i=1; i<=5; i++ ) {  
            System.out.println("i: "+i);  
        }  
    }  
}
```

Output:

i: 1
i: 2
i: 3
i: 4
i: 5

Enhanced for loop

Syntax:

```
for(declaration : expression)
{
    Body of loop
}
```

Enhanced for loop - Example

`/* This is an example of a enhanced for loop */`

```
public class Sample {  
    public static void main(String[] args) {  
        int [] numbers = {10, 20, 30, 40, 50};  
        for(int i : numbers ) {  
            System.out.println( "i: "+i );  
        }  
    }  
}
```

Output:

i:10

i:20

i: 30

i:40

i:50

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

break - Example

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

```
public class Sample{  
    public static void main(String[] args) {  
        for (int i=1; i<=5; i++ ) {  
            if(i==2)  
                break;  
            System.out.println("i: "+i);  
        }  
    }  
}
```

Output:

i: 1

continue statement

- The continue statement skips the current iteration of a loop
- In while and do loops, continue causes the control to go directly to the test-condition and then continue the iteration process
- In case of for loop, the increment section of the loop is executed before the test-condition is evaluated

Continue - Example

/* This is an example of a continue loop */

```
public class Sample {  
    public static void main(String[] args) {  
        int [] numbers = {1, 2, 3, 4, 5};  
        for(int i : numbers ) {  
            if( i == 3 ) {  
                continue;  
            }  
            System.out.println( "i: "+i );  
        }  
    }  
}
```

Output:

i: 1
i: 2
i: 4
i: 5

Good Programming Practices

if statement

- Always use { } for if statements
- Avoid the following error prone

```
if (condition)      //ERROR  
    statement;
```

switch-case statement

Number per Line

- One declaration per line is recommended

```
int height;  
int width;
```

is preferred over

```
int height,width;
```

Do not put different types on the same line

```
int height,width[];  //WRONG
```

Quiz

1. What will be the result, if we try to compile and execute the following code ?

```
class Sample{
    public static void main(String[]args) {
        boolean b = true;
        if(b){
            System.out.println(" if block ");
        }
        else {
            System.out.println(" else block ");
        }
    }
}
```

Quiz (Contd.).

2. What will be the result, if we try to compile and execute the following code snippets

```
a. class Sample {  
    public static void main(String[] args) {  
        while(false)  
            System.out.println("while loop");  
    }  
}
```

```
b. class Sample {  
    public static void main(String[] args) {  
        for( ; ; )  
            System.out.println("For loop");  
    }  
}
```



Summary

In this session, you were able to :

- Learnt the various Flow control statements



Thank You