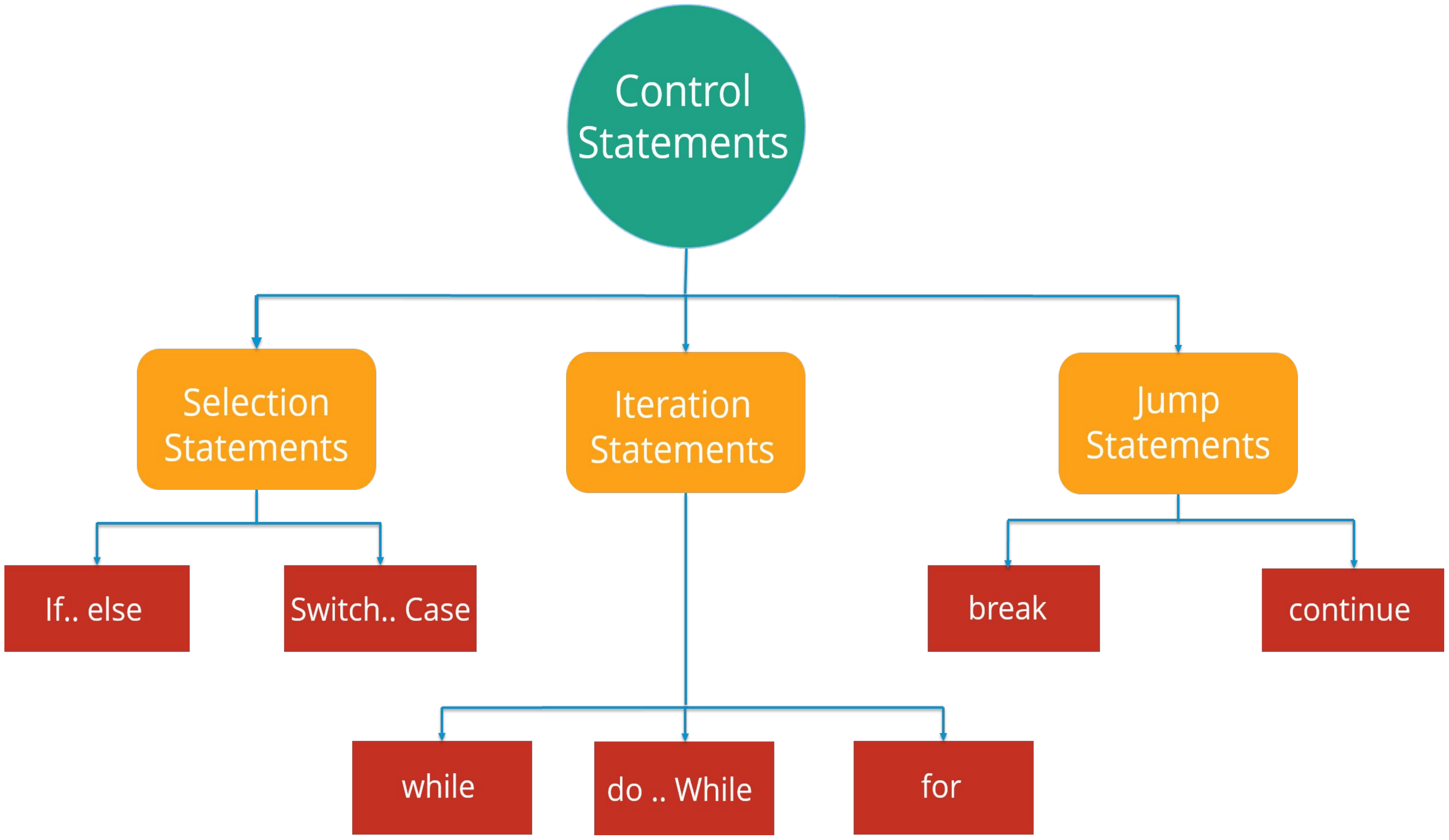
Control Statements In Java

CONTROL STATEMENTS

- The control statement are used to **control the flow of execution** of the program.
- This execution order depends on the supplied **data values** and the **conditional logic**.
- In java program, control structure is can divide in three parts:

1. **Selection statement**
2. **Iteration statement**
3. **Jumps in statement**

CONTROL STATEMENTS



1. SELECTION STATEMENT

SELECTION STATEMENT

- Selection statement is also called as **Decision making** statements.
- Because it provides the decision making capabilities to the statements.
- In selection statement, there are two types:

  1. **if statement**
  2. **Switch statement.**

JAVA IF STATEMENT

JAVA IF STATEMENT

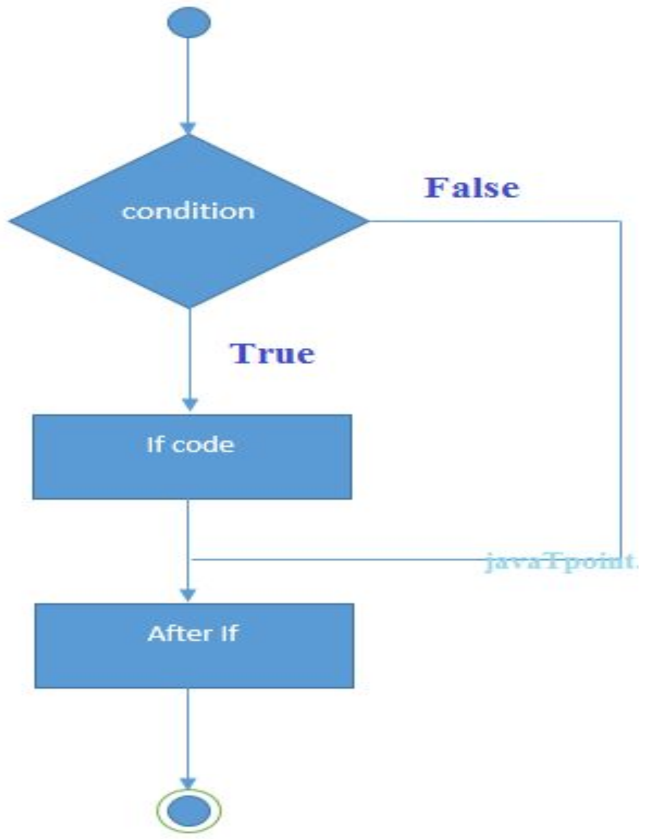
- The Java *if statement* is used to **test the condition**.
- It checks Boolean condition: ***true* or *false*.**
- There are various types of if statement in java.
    1. if statement
    2. if-else statement
    3. Nested if-else statement
    4. if-else-if ladder

IF STATEMENT

- The Java if statement tests the condition.
- It executes the ***if block*** if condition is **true**.

Syntax:

```
if(condition)
{
//code to be executed
}
```



IF STATEMENT

Example:

```
public class IfExample
{
public static void main(String[] arg)
{
 int age=20;
    if(age>18)
{
        System.out.print("Age is greater than 18");
    }
}}
```

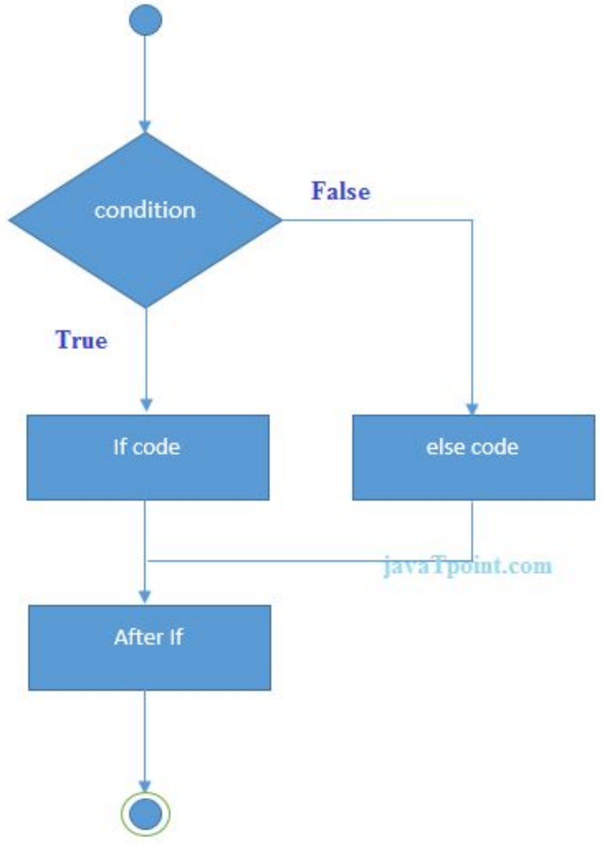
Output: Age is greater than 18

IF - ELSE STATEMENT

- The Java if-else statement also tests the condition.
- It executes the *if block* if condition is true otherwise *else block* is executed.

Syntax:

```
if(condition)
{
//code if condition is true
}
Else
{
//code if condition is false
}
```



IF - ELSE STATEMENT

```
public class IfElseExample
 {
 public static void main(String[] args)
  {
    int number=13;
    if(number%2==0)
 {
        System.out.println("even number");
 }
 Else
 {
        System.out.println("odd number");
    } }}
```

Output: **odd number**

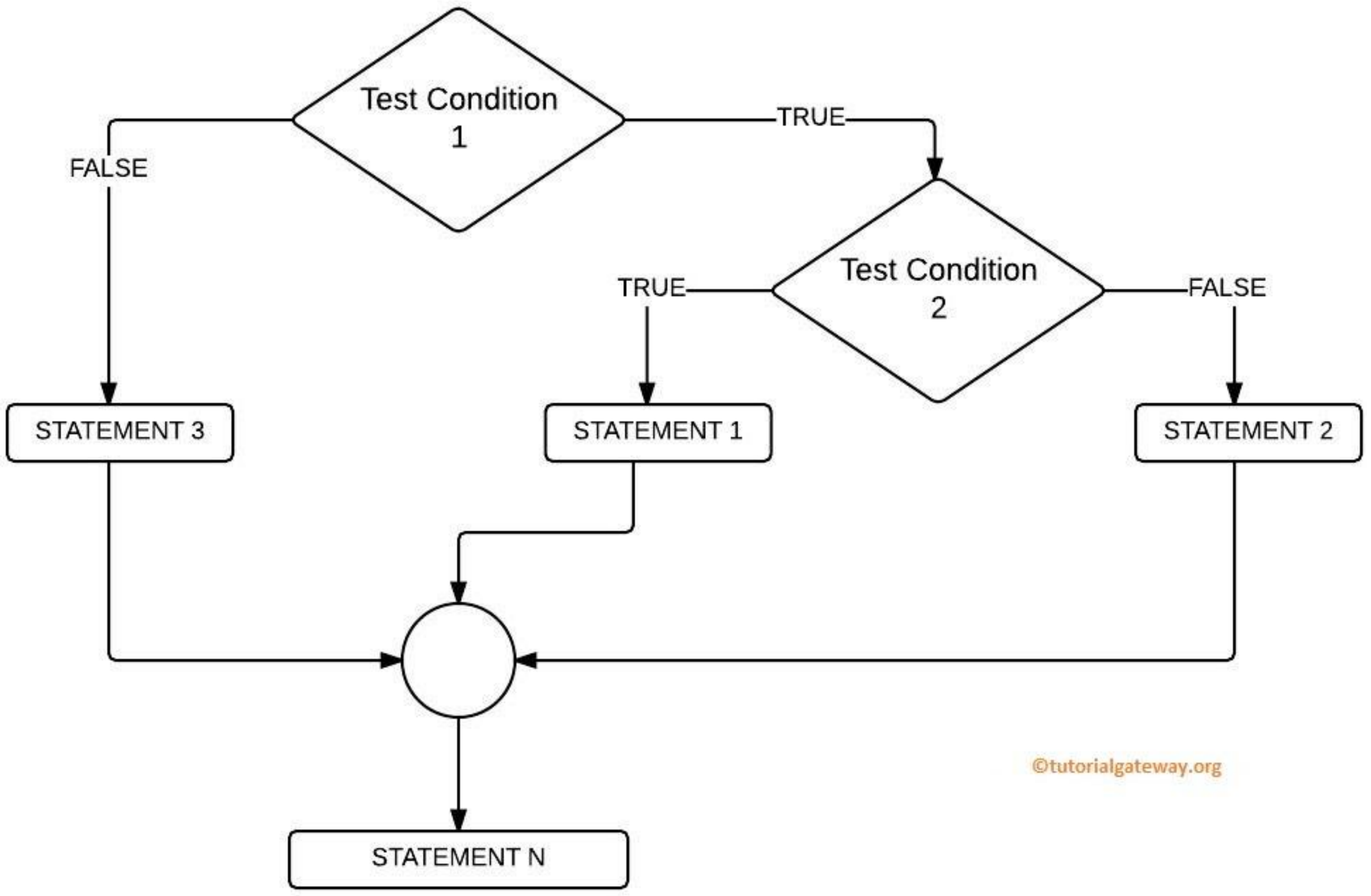
NESTED IF - ELSE STATEMENT

- The Nested if-else statement executes one if or else if statement inside another if or else if statement.

Syntax:

```
if(Boolean_expression 1)
{
// Executes when the Boolean expression 1 is true
if(Boolean_expression 2)
{
// Executes when the Boolean expression 2 is true
}
}
```

NESTED IF - ELSE



NESTED IF - ELSE

```
public class Test
{
  public static void main(String args[])
{
    int x = 30;
    int y = 10;
    if( x == 30 )
{
      if( y == 10 )
{
        System.out.print("X = 30 and Y = 10");
      }
    }}}
```

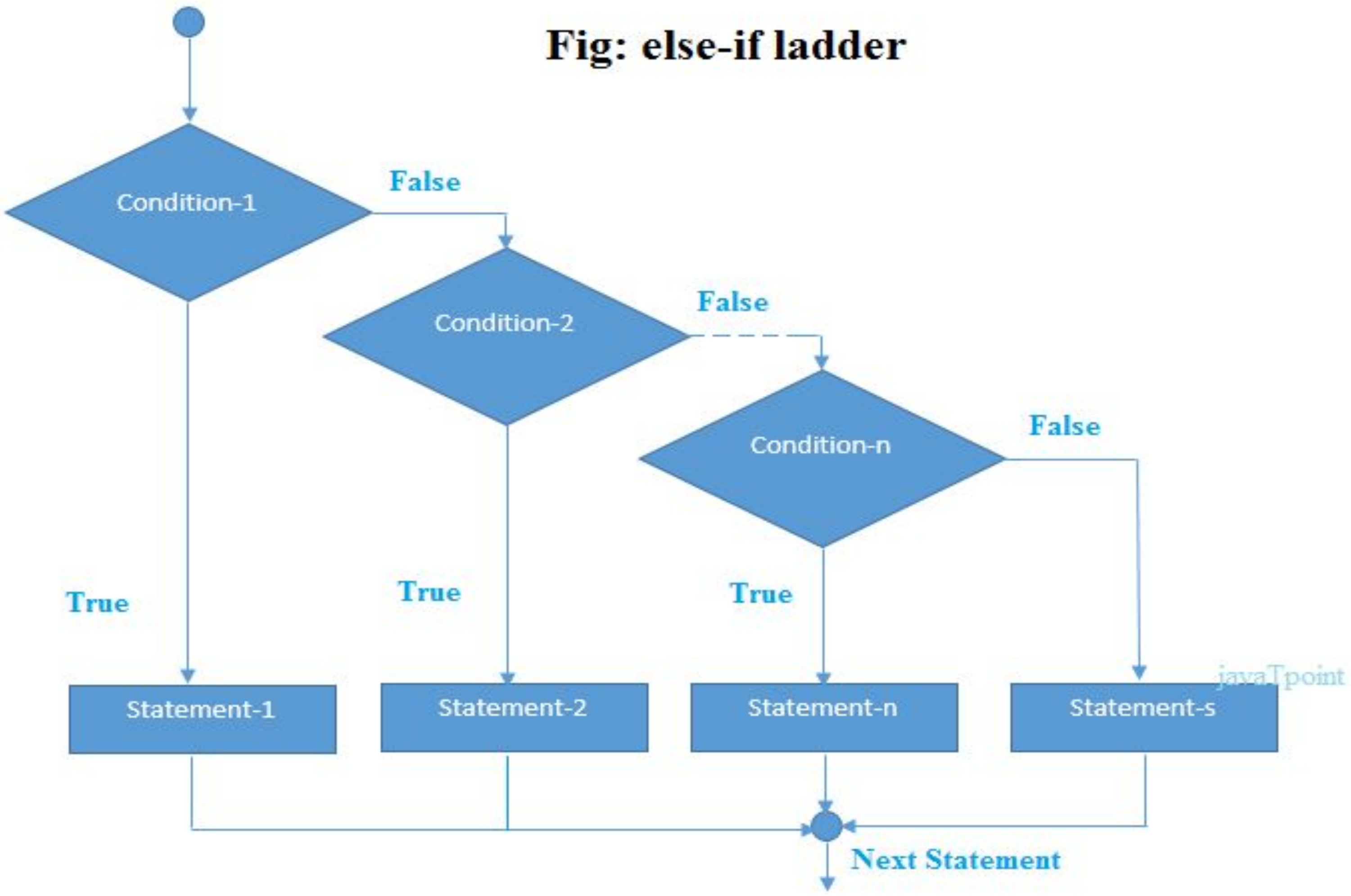
IF - ELSE - IF LADDER

- The if-else-if ladder statement executes **one condition from multiple statements.**

Syntax:

```
if(condition1)
{
//code to be executed if condition1 is true
}
else if(condition2)
{
//code to be executed if condition2 is true
}
else if(condition3)
{
//code to be executed if condition3 is true
}
...
Else
{
//code to be executed if all the conditions are false
}
```

IF - ELSE - IF LADDER



IF - ELSE - IF LADDER

```
public class IfElseIfExample
 {
public static void main(String[] args)
 {
    int marks=65;
    if(marks<50)
{
        System.out.println("fail");
    }
    else if(marks>=50 && marks<60)
{
        System.out.println("D grade");
    }
    else if(marks>=60 && marks<70)
{
        System.out.println("C grade");
    }


else if(marks>=70 && marks<80)
{
```

SWITCH STATEMENT

SWITCH STATEMENT

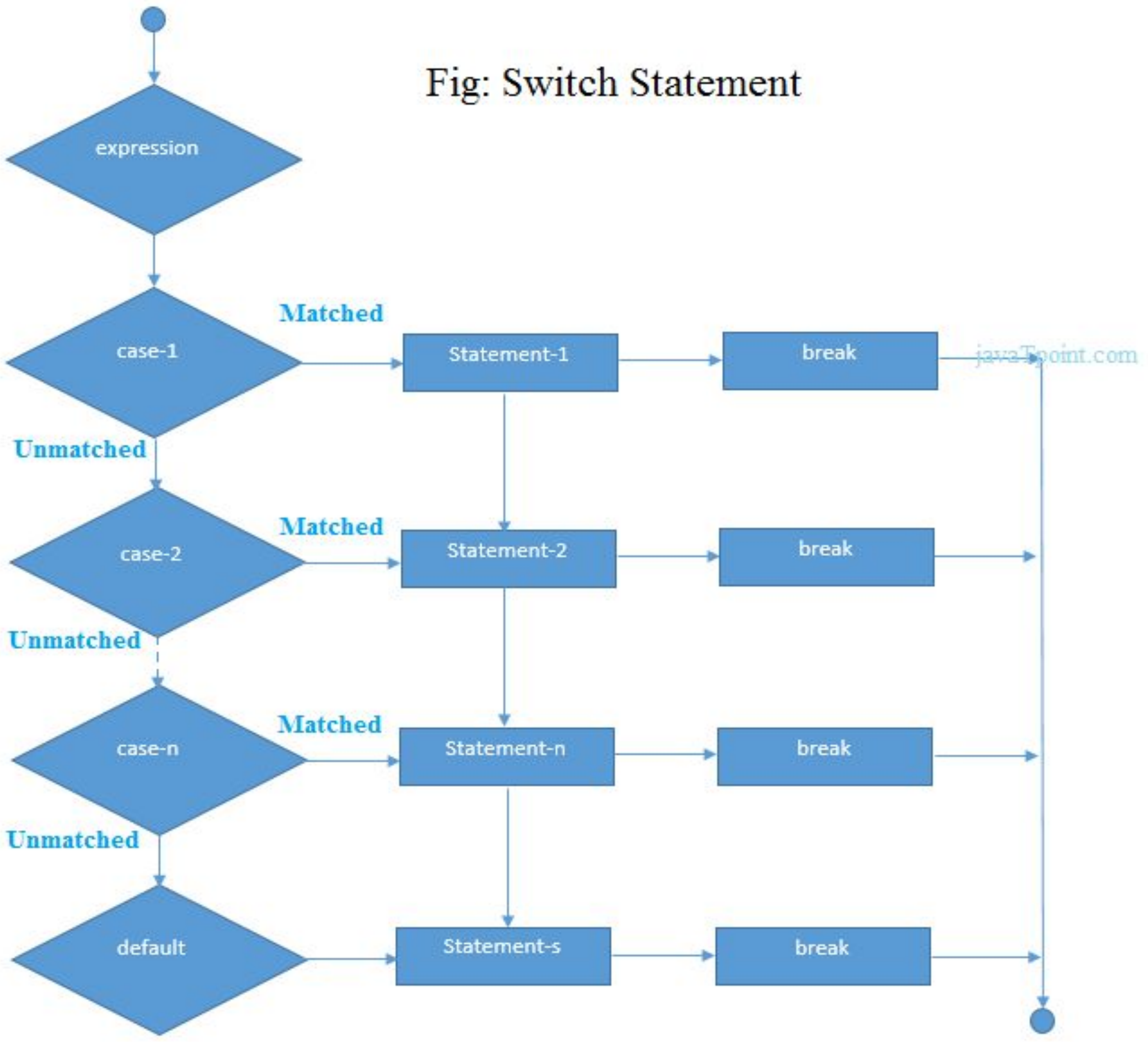
- The Java *switch statement* executes **one statement from multiple conditions.**
- It is like if-else-if ladder statement.

Syntax:

```
switch(expression)
{
case value1:
 //code to be executed;
 break;  //optional
case value2:
 //code to be executed;
 break;  //optional
......

default:
 code to be executed if all cases are not matched;
}
```

SWITCH STATEMENT



SWITCH STATEMENT

```
public class SwitchExample
{
public static void main(String[] args)
{
   int number=20;
 switch(number)
{
   case 10: System.out.println("10");break;
   case 20: System.out.println("20");break;
   case 30: System.out.println("30");break;
   default:System.out.println("Not in 10, 20 or 30");
   }}}
```

Output: 20

2. ITERATION STATEMENT

ITERATION STATEMENT

- Looping is also called as **iterations**.
- The process of **repeatedly executing a statements** and is called as looping.
- The statements may be executed multiple times.
- If a loop executing continuous then it is called as **Infinite loop**.
- In Iteration statement, there are three types of operation:

  1. **for loop**
  2. **while loop**
  3. **do-while loop**

FOR LOOP

FOR LOOP

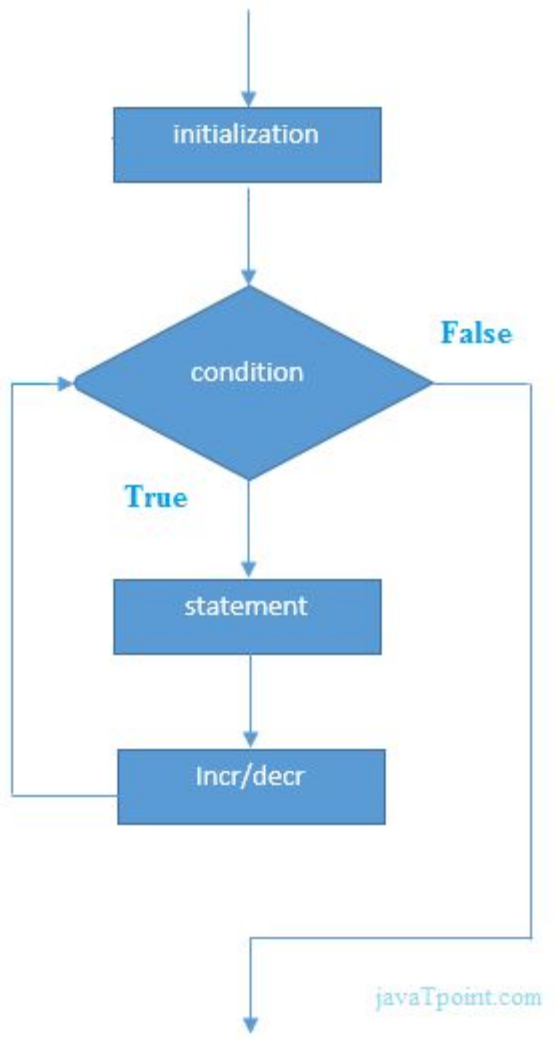
- The simple for loop is same as C/C++.
- We can initialize variable, check condition and increment/decrement value.

Syntax:

```
for(initialization;condition;incr/decr)
{

//code to be executed

}
```



FOR LOOP EXAMPLE

```
public class ForExample
{
public static void main(String[] args)
 {
   for(int i=1;i<=10;i++)
{
       System.out.print(i);
   }
}
}
```

Output:

```
12345678910
```

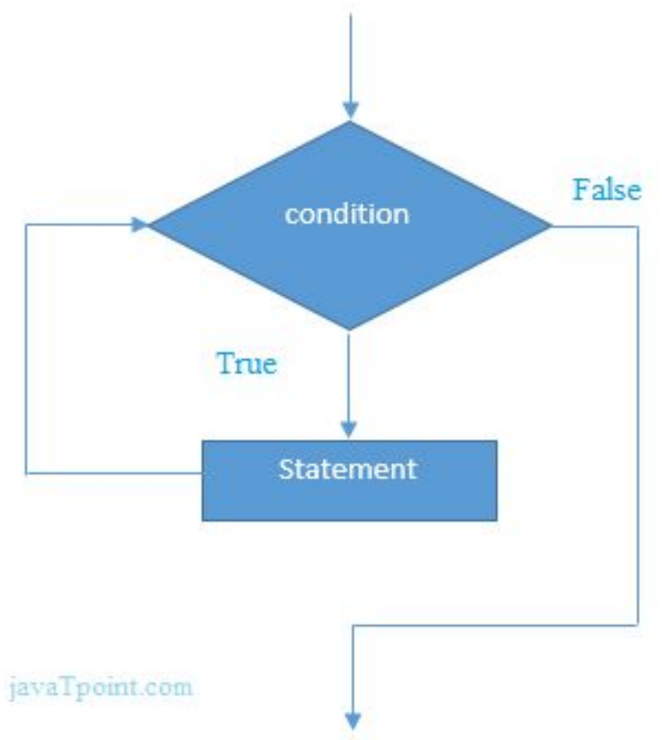
THE WHILE LOOP

WHILE LOOP

- The Java ***while loop*** is used to iterate a part of the program **several times**.
- If the **number of iteration is not fixed**, it is recommended to use while loop.

Syntax:

```
while(condition)
{
//code to be executed
}
```



WHILE LOOP

```
public class WhileExample
{
public static void main(String[] args)
{
   int i=1;
   while(i<=10)
{
   System.out.println(i);
   i++;
   }
} }
```

Output:

```
12345678910
```

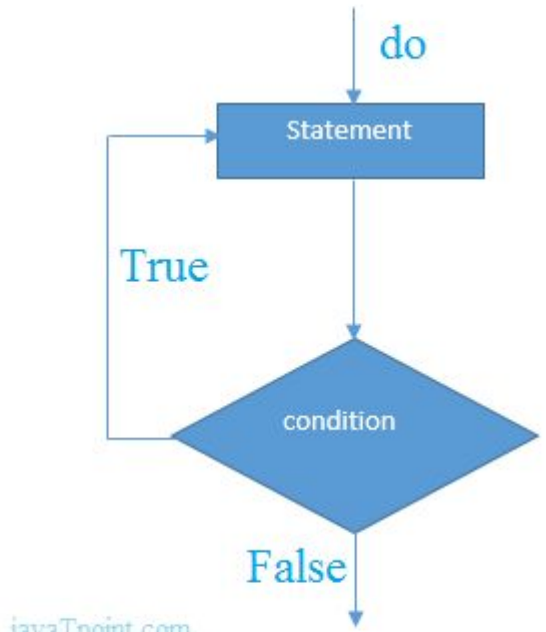
JAVA DO - WHILE LOOP

DO - WHILE LOOP

- The Java *do-while loop* is used to **iterate** a part of the program **several times**.
- If the number of **iteration is not fixed** and you must have to execute the loop at least once, it is recommended to use do-while loop.
- The Java *do-while loop* is executed at least once because Condition is checked **after loop body**.

Syntax:

```
Do
{
//code to be executed
}
while(condition);
```



DO - WHILE LOOP

```
public class DoWhileExample
{
public static void main(String[] args)
{
   int i=1;
   do
{
      System.out.print(i);
   i++;
   }
while(i<=8);
}
}
```

Output:

```
12345678
```