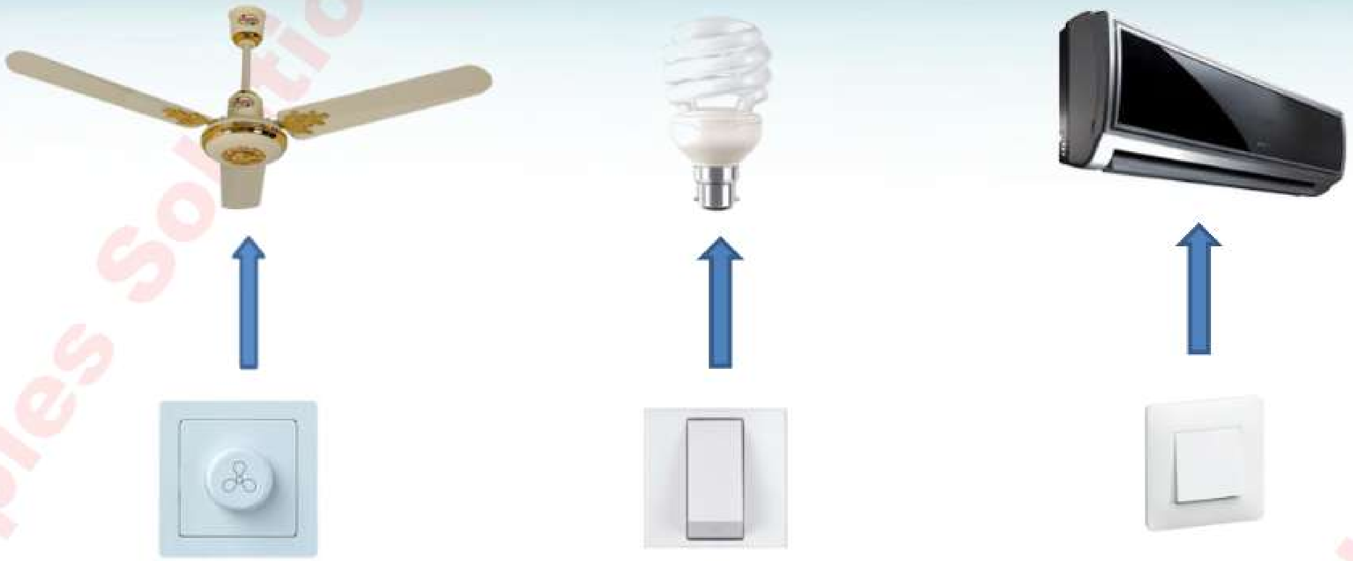
Switches in Real life

Click to Continue



In the above illustration the respective switches are used to control the working of the respective electrical appliances.

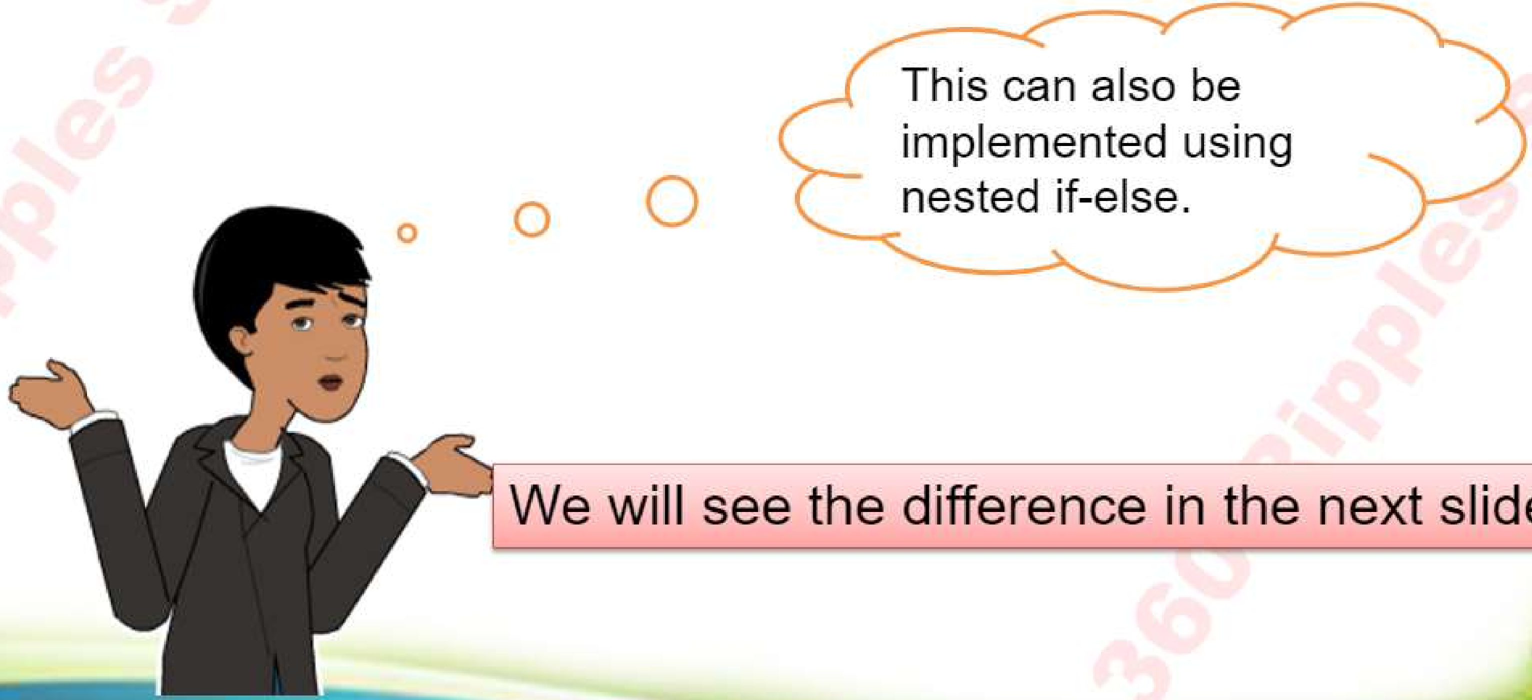
Example: To switch on Fan use the fan switch.

Switch Statement

Click to Continue

Similarly when developing software applications to control the flow of execution in executing a particular block of statements we use the *switch* statement.

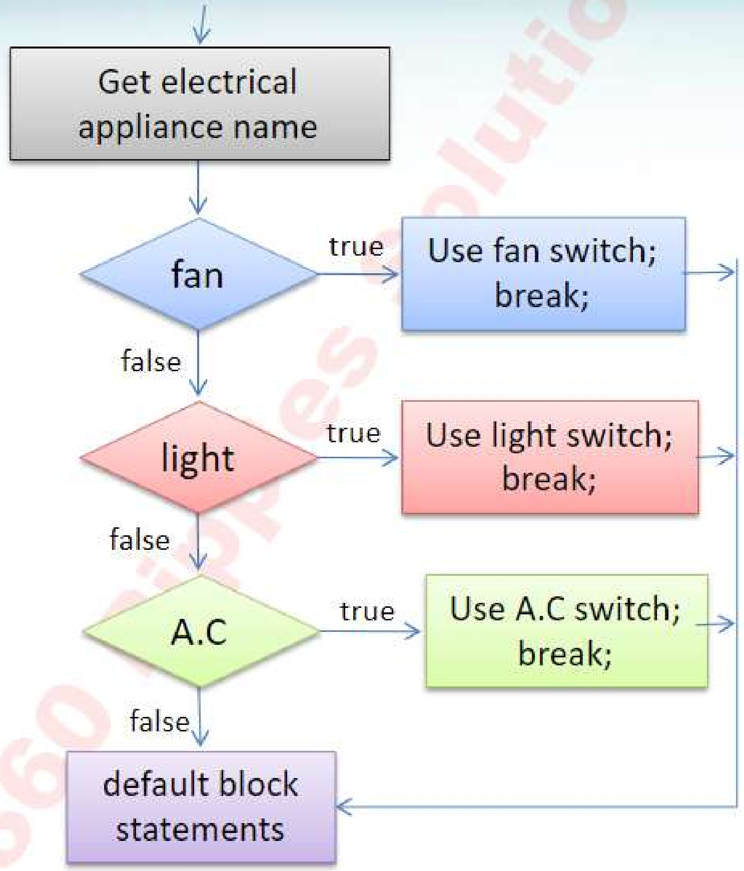
The switch statement allows to choose a block of statements to execute..



We will see the difference in the next slides.

How to write Switch Statement

Click to Continue



Syntax:

```
switch (expression) {
   case value1:
         // statement sequence
         break;
     case value2:
        // statement sequence
         break;
    case value N:
         // statement sequence
         break;
    default:
         // default statements
         break;
  }
```

Switch Statement Example

Click to Continue

Example:

```
int x=6%2;
  switch (x){
     case 0:
            System.out.println("The value of x is 0." );
            break;
     case 1:
             System.out.println("The value of x is 1." );
            break;
     default:
            System.out.println("The value of x is default.");
            break;
    }
```

The argument of switch() must be one of the types byte, short, char, int (or) string

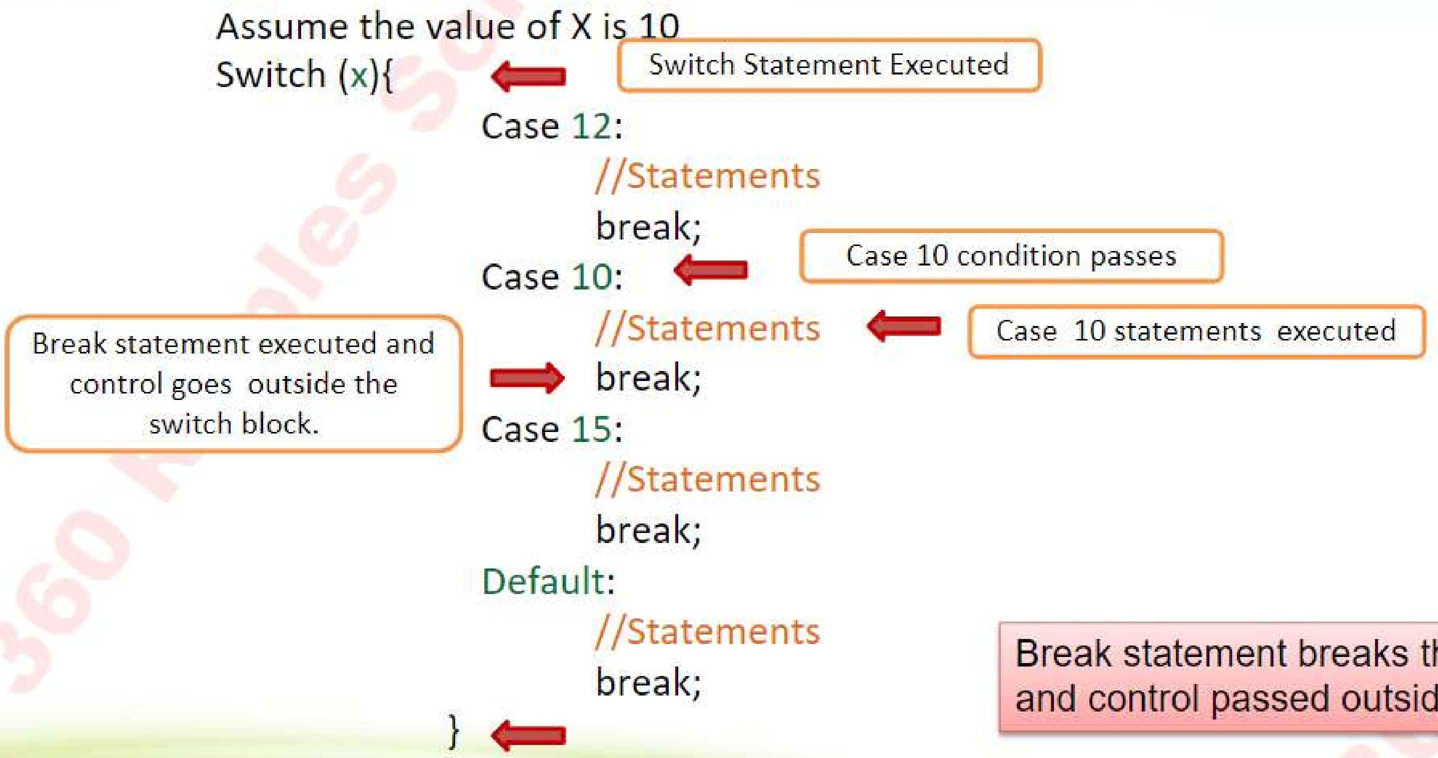
Default case if no condition is met

There should be no duplicate case labels i.e., the same value cannot be used twice.

How Switch works?

Click to Continue

Lets see how Switch works without break statements,



```
Assume the value of X is 10
Switch (x){
          Case 12:
                  //Statements
                  break;
          Case 10:
                  //Statements
                  break;
          Case 15:
                  //Statements
                  break;
          Default:
                  //Statements
                  break;
         }
```

Switch Statement Executed

Case 10 condition passes

Case 10 statements executed

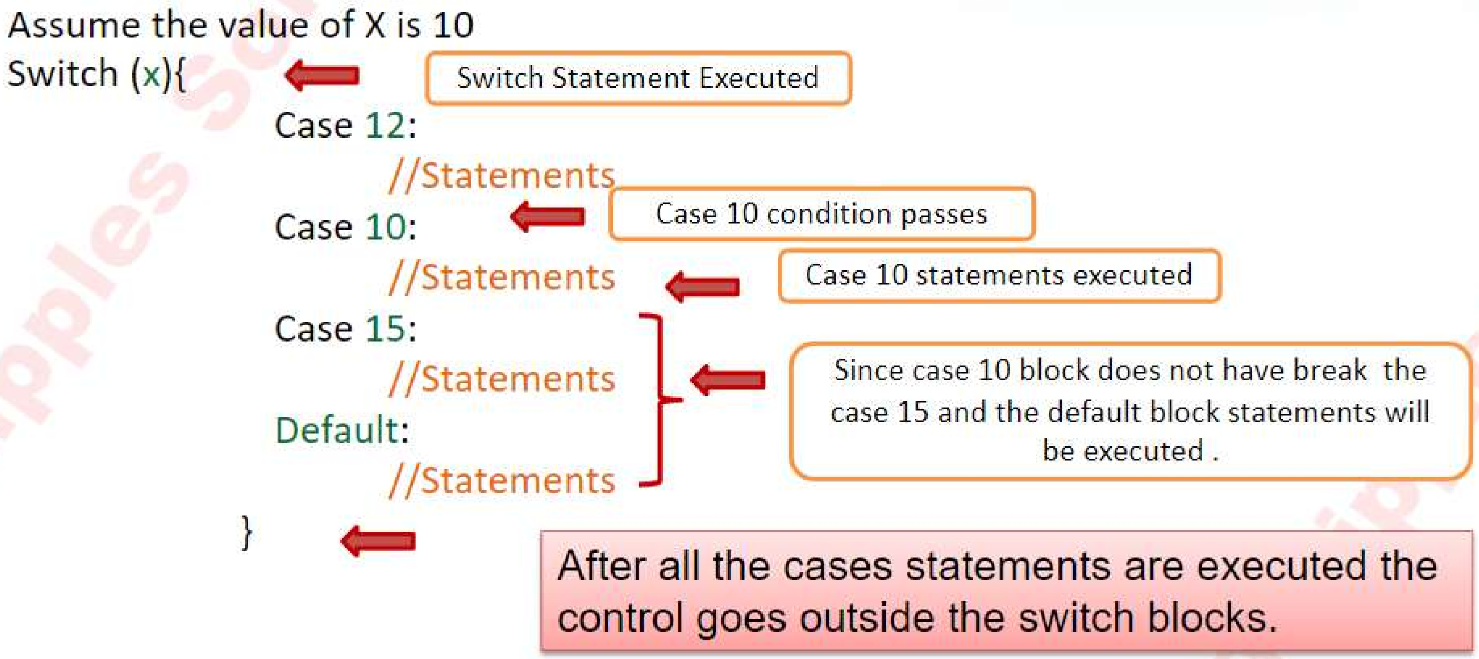
Break statement executed and control goes outside the switch block.

Break statement breaks the execution control flow and control passed outside the switch block.

How Switch works without break?

Click to Continue

Lets see how Switch works without break statements,



```
Assume the value of X is 10
Switch (x){
          Case 12:
                  //Statements
          Case 10:
                  //Statements
          Case 15:
                  //Statements
          Default:
                  //Statements
     }
```

Switch Statement Executed

Case 10 condition passes

Case 10 statements executed

Since case 10 block does not have break the case 15 and the default block statements will be executed .

After all the cases statements are executed the control goes outside the switch blocks.

Switch Statement Salient Points

Click to Continue

- Java first evaluates the *switch expression* and jumps to the case which matches the value of the expression

- Once the correct match is found, all statements from that point are executed till a *break* statement is encountered

- Once break statement is encountered, the flow jumps to the statements after the switch structure

- If none of the cases are satisfied, default block is executed. The default block does not have to be at the end of the switch.

Switch Vs IF

Click to Continue

IF-Else	Switch
This can test expressions based on ranges of values or conditions. **Example:** if(a==10 && b=21)	This tests expressions based only on a single integer, enumerated value, or String object. **Example:** Switch(i)// where I is an int.

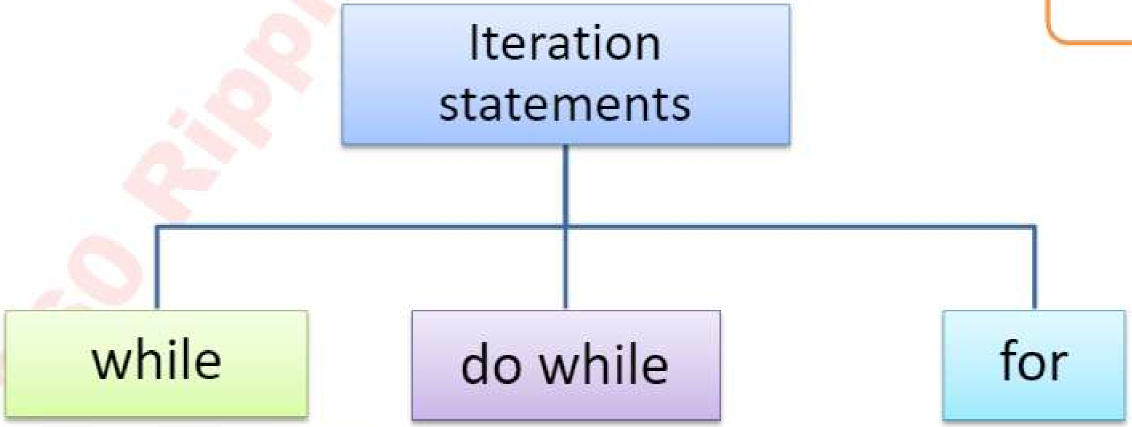
Based on the condition to be evaluated developers can either go for switch or if-else.

Iteration Statement

Click to Continue

What are Iteration statements?

Iteration Statements are used execute a block of statements **repeatedly** as long as a certain **condition** is **true**.



There are 3 iteration statements.

While Statement

Click to Continue

The while loop is Java’s most fundamental iteration statement.

John has to develop a small java program which needs to print a welcome message as long as the number of guests is greater than zero.

Example:

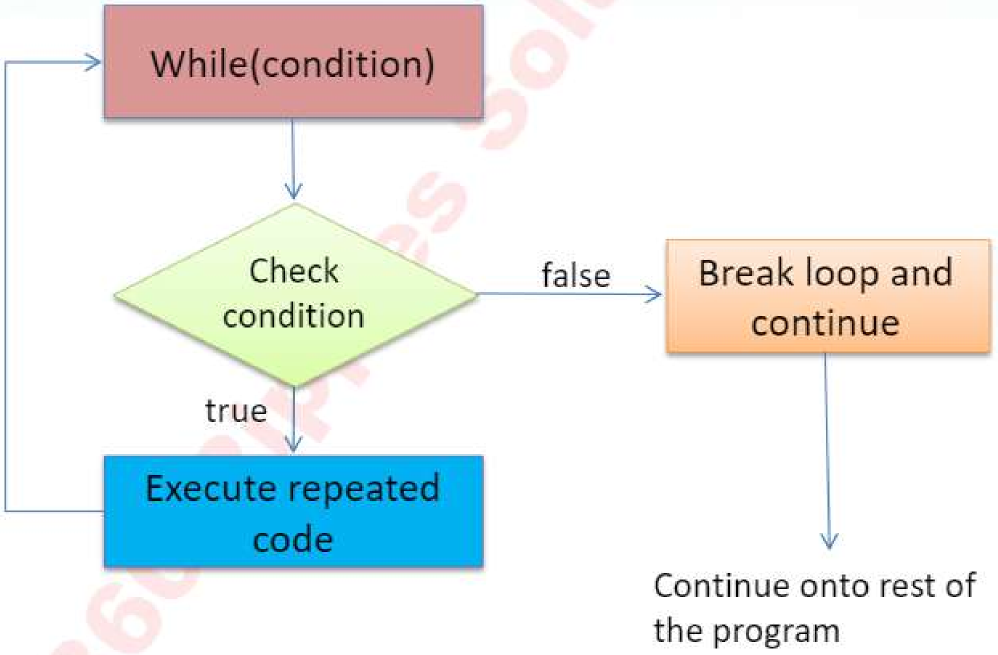
```
while(countOfGuests>0){
      System.out.println(“Welcome to my party”);
      countOfGuests--;
}
```

It is implemented as illustrated.

While Statement

Click to Continue

The while loop is a statement or block of statements that is repeated as long as some condition is satisfied



Syntax:

```
while (boolean_expression) {
        statement1;
        statement 2;
        .....
}
```

Try it out – While

Click to Continue

1. Create a java class "WelcomeMessage" and add a method named printMessage which would display "Welcome All".

2. Create a java class "TestProgram" add a main method which will
   - Create an instance of the WelcomeMessage and trigger the method printMessage five times.
   - The message "Welcome All" should be displayed 5 times.

3. The message needs to be displayed in the console.