

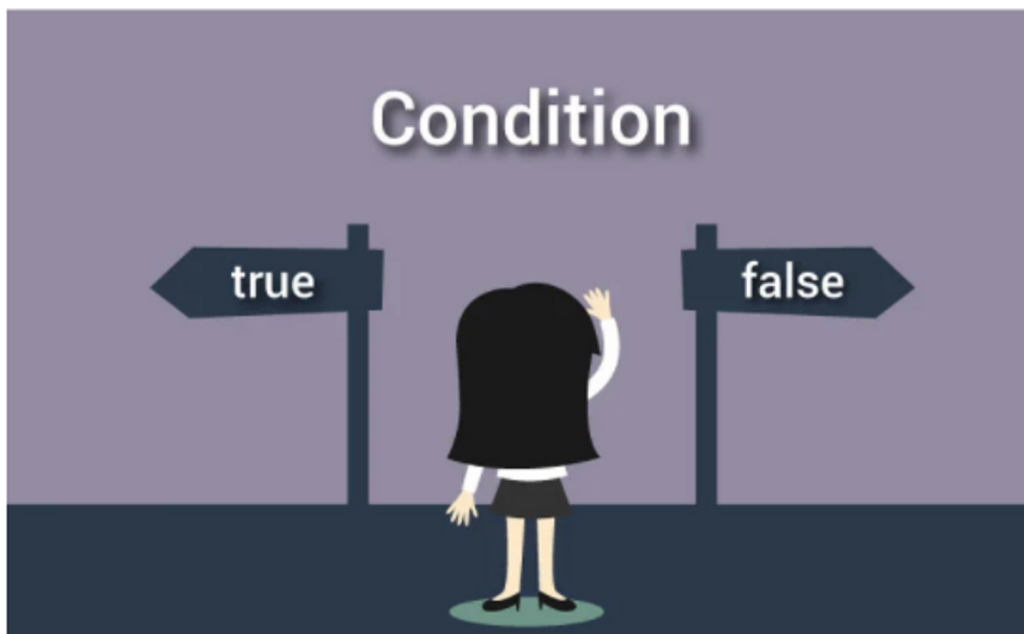


Conditional Statements

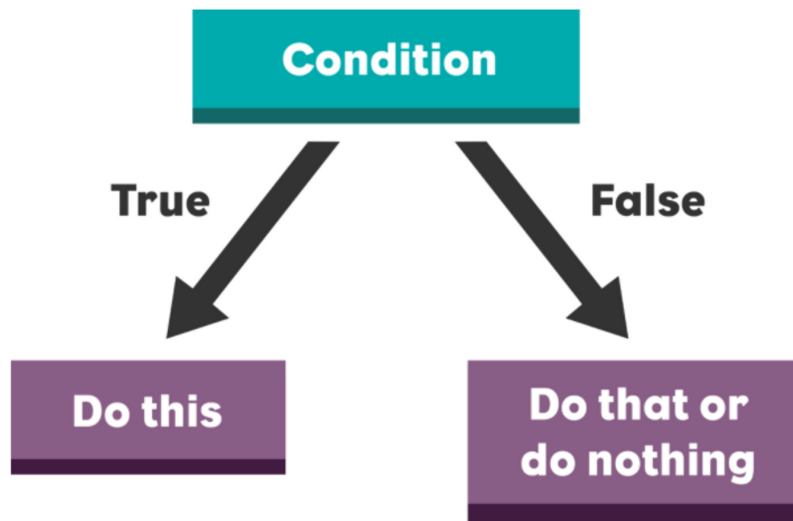
What are conditional statements?

Conditional Statements in Python perform different computations or actions depending on whether a specific Boolean constraint evaluates to **true** or **false**.

Conditional statements are handled by **IF statements** in Python.



- Conditional statements are used **to decide the flow of execution based on different conditions**. If a condition is true, you can perform one action and if the condition is false, you can perform another action.
- Through Conditional Statements, we can control which code needs to run or which code will not run.



- Code runs based on certain conditions.
 - **For Ex:** let's understand with the analogy, the **traffic light controls the flow of vehicles on the road**. Depending upon the color of the light, the actions happened. If the light is green, then it is a signal to move whereas if the light is red then it is a signal to stop.



- **Based on the comparison, if the comparison is true then it will execute the one block of code otherwise another block of code.**

Different Types of Conditional Statements

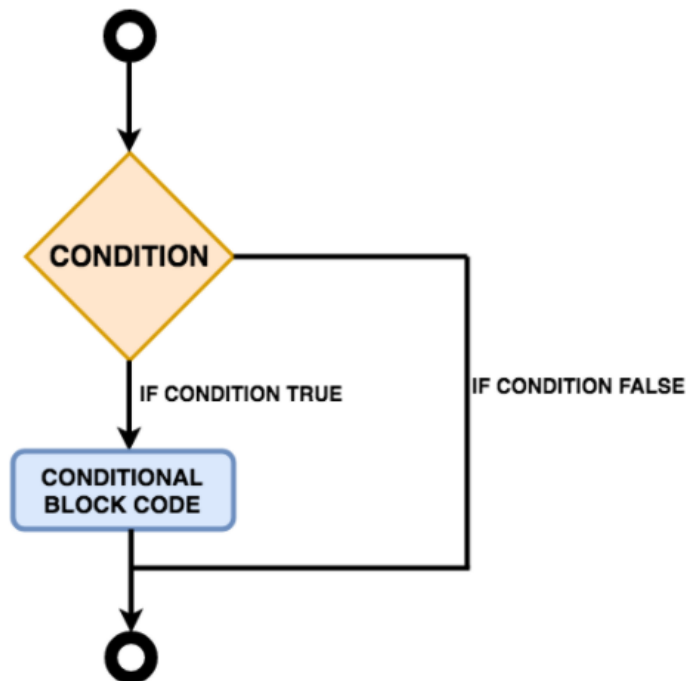
Discuss types of conditional Statements

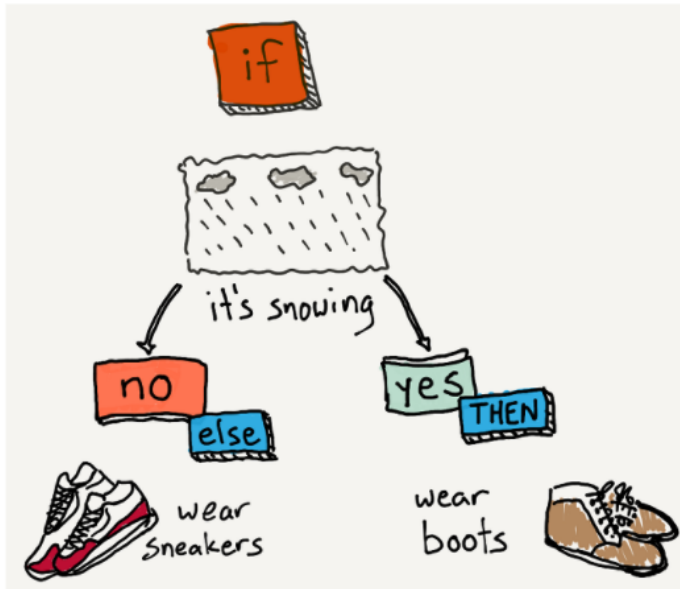
There are five types of conditional statements in Python.

1. If statement
2. If...Else statement
3. If...Elif...Else statement
4. Nested If

if Statement

Discuss the if statement with examples





- It is to specify a block of Python code to be executed if a condition is true.
- **SYNTAX**—

```
if expression:  
    Statement
```

Here, the program evaluates the `expression` and will execute statement(s) only if the expression is `True`.

If the expression is `False`, the statement(s) is not executed.

- In Python, the body of the `if` statement is indicated by the indentation. The body starts with an indentation and the first unindented line marks the end.
- Python interprets non-zero values as `True`. `None` and `0` are interpreted as `False`.

Discuss the if statement with 3 scenarios: with Boolean Value, with Expression, and with Variables

a) If with Boolean Value

```
print("Code Start")  
if True:
```

```
print("Inside Code")
print("Code End")
```

b) If with Expression

- The decision is based on the value of Expression

For Example :

```
if(5>3):
    print("Inside Code")
```

c) If with Variables

- The decision is based on the value of Expression

For Example :

```
name1 = "Rahul";
name2 = "Rahul";
check = (name1==name2);

if(check):
    print("Both Names are same");
```

Code 1: Check Whether two numbers are equal

```
a = 2;
b = 3;
c = (a==b);
if(c):
    print("a and b are equal");
```

Indentation in Python

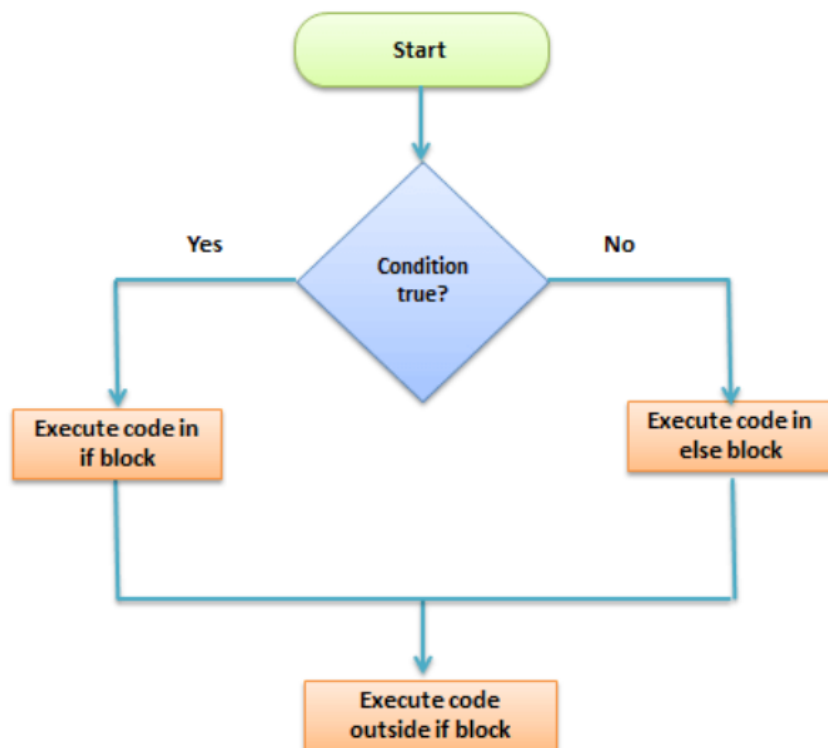
- Indentation is a very important concept of Python because without properly indenting the Python code, you will end up seeing an **Indentation Error** and the code will not get compiled.

- Python relies on **indentation (whitespace at the beginning of a line)** to define the scope of the code. Other programming languages often use **curly brackets** for this purpose.
- It refers to adding white space before a statement to a particular block of code. In another word, all the statements with the same space to the right, belong to the same code block.
- For Ex—

```
print("Hello Python")
if(5>9):
    print("Yes...")
else:
    print("No...")
print("Bye Python")
```

if...else Statement

Discuss the if/else statements with real-life examples



- The `if...else` is a type of conditional statement that will execute a block of code when the condition in the `if` statement is `truthy`. If the condition is `falsy`, then the `else` block will be executed.
- Here is a list of `falsy` values:
 - empty sequences (**lists, tuples, strings, dictionaries, sets**)
 - zero in every numeric type
 - `None`
 - `False`
- If the condition is true, then one block of code executes.
- Else another block of code executes.
- **SYNTAX**—

```
if expression:
    Statement
else :
    Statement
```

Code 2: Check which number is greater

```
a = 3;
b = 20;
if(a>b):
    print("a is greater than b");
else:
    print("a is not greater than b");
```

Code 3: Check Whether two names are equal or not

```
name1 = "Suraj";
name2 = "suraj";

if(name1==name2):
    print("Names are Equal");
else:
    print("Names are not equal");
```

Hotel Bill Discount

Instructor Task (5 mins): Understanding if-else with Hotel Bill Example



Code 4: Given total_bill, discount_start_price if you satisfy the condition Print Discount Available Otherwise print No Discount

```
total_bill = 699;
discount_start_price = 500;

if(total_bill >= discount_start_price):
    print("Discount Available");
else:
    print("No discount");
```

if...elif...else statement

Flowchart

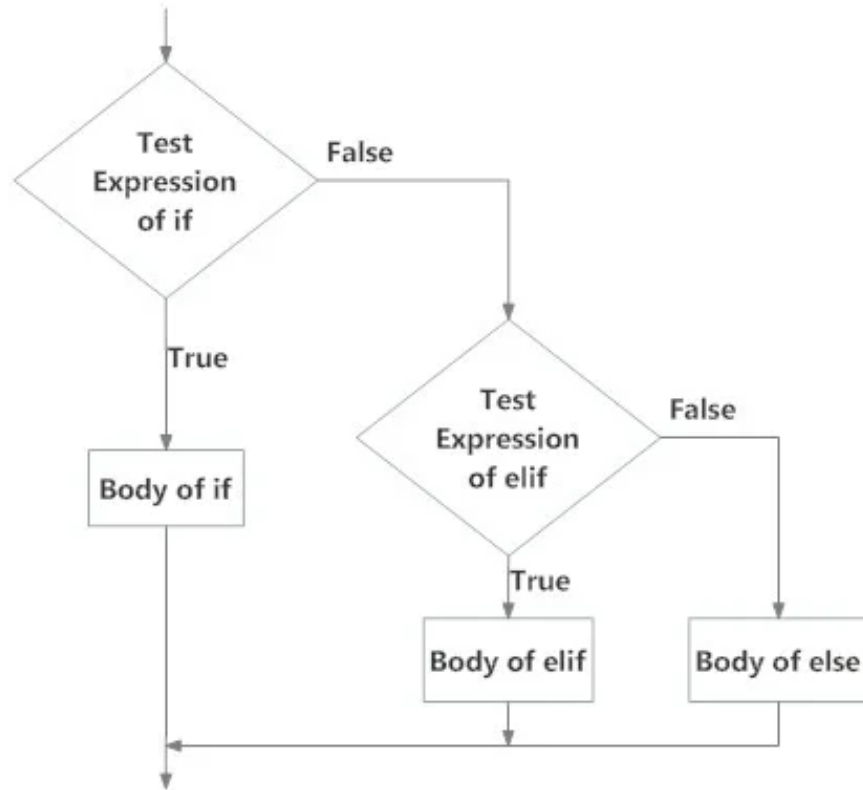


Fig: Operation of if...elif...else statement

• SYNTAX

```
if expression:
    Body of if
elif expression:
    Body of elif
else:
    Body of else
```

- The `elif` is short for else if. It allows us to check for multiple expressions.
- If the condition for `if` is `False`, it checks the condition of the next `elif` block and so on.
- If all the conditions are `False`, the body of else is executed.
- Only one block among the several `if...elif...else` blocks is executed according to the condition.
- The `if` block can have only one `else` block. But it can have multiple `elif` blocks.

Bill and Discount

Problem Statement: According to the total_bill, the discount will be applied.



<i>Total Bill</i>	<i>Discount Applied</i>
Greater than 500	10 %
Greater than 1000	20%
Others	No Discount

Code 5: For a Restaurant, write the program for the following total_bill > 500 Then print 10% discount total_bill > 1000 Then print 20% discount Otherwise No discount

```
total_bill = 799;
if(total_bill > 1000):
    print("20 % discount");
elif(total_bill > 500):
    print("10 % discount");
else:
    print("No discount")
```

If-Elif vs if-if-if :

Code 6: If-Elif

- *My mother told me to get any one of the things from the market
1. If Rice is available then print Buy rice

2. Else If wheat is available then print buy wheat

3. Else If apple is available then print buy apple**

```
rice_availaible = False ;
wheat_availaible = True;
apple_availaible = True;
if(rice_availaible):
    print("Buy rice");
elif(wheat_availaible):
    print("Buy Wheat");
elif(apple_availaible):
    print("Buy apple");
else:
    print("Nothing is available");
```

Code 7: If - If - If

- ***My mother told me to get all of the things if available from the market**

1. If Rice is available then print Buy rice

2. If wheat is available then print and buy wheat

3. If apple is available then print buy apple**

```
rice_available = True ;
wheat_available = True;
apple_available = False;

if(rice_available):
    print("Buy rice");
if(wheat_available):
    print("Buy Wheat");
if(apple_available):
    print("Buy apple");
```

Nested if

Code 8: Solve the Marriage Problem —

Legal Age in India Males ----> 21

Females ----> 18

Tasks

```

gender = "female";
age = 21;
if(gender == "male"):
    if(age>=21):
        print("Males : get marry");
    else:
        print("Males : Can't get marry");
else:
    if(age>=18):
        print("Females : get marry");
    else:
        print("Females: Can't get marry");

```

Code 9 : Given a char , you need to print whether the char is a vowel or not
vowels : a, , i, o, u

```

char = "z"
if(char == "a"):
    print("vowel");
elif(char == "e"):
    print("vowel");
elif(char == "i"):
    print("vowel");
elif(char == "o"):
    print("vowel");
elif(char == "u"):
    print("vowel");
else:
    print("Not a vowel");

```

Problem 1: If the number is divisible by 3, print a "multiple of 3".

```

number = 16;
remainder = number % 3;
if(remainder == 0):
    print("Multiple of 3");
else:
    print("Not multiple of 3");

```

Problem 2: If a person is allowed to drive in India print "Apply for a license" or "NA".

```
yob = 1995;
age = 2022-yob;
print(age);
if(age >= 18):
    print("Can Apply for license");
else:
    print("NA");
```

Problem 3: Given 2 numbers a and b print which is greater or "both equal".

```
a = 10;
b = 10;
if(a>b):
    print("A is greater");
elif(b>a):
    print("B is greater");
else:
    print("Both are equal");
```

Problem 4: Given the stored username and password and input username and password, Print if the user can log in or not.

```
stored_username = "Varun";
stored_password = "varun@123";

input_user = "Varun";
input_password = "varun@123";
if(input_user == stored_username):
    if(input_password == stored_password):
        print("Valid login");
    else:
        print("Invalid Password");
else:
    print("Wrong username");
```

Happy Coding!

