

if-elif-loop

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0.1 In Python, the if, elif, and else statements are used for decision making (conditional logic). They allow your program to execute different code blocks based on conditions.

```
[2]: #If statement
if (20 < 50):
    print("20 greater than 50")
print("false")
```

20 greater than 50
false

```
[7]: #If elif statement
x = 20
y = 100
if (x < y):
    print("x is less than y")
else:
    print("x is greater than y")
```

x is less than y

```
[3]: #If elif statement
a = input("Enter any number")
a1 = int(a)
if (a1%2 == 0):
    print("Even")
else:
    print("Odd")
```

Enter any number 20
Even

```
[4]: help('if')
```

The "if" statement

The "if" statement is used for conditional execution:

```
if_stmt ::= "if" assignment_expression ":" suite
          ("elif" assignment_expression ":" suite)*
          ["else" ":" suite]
```

It selects exactly one of the suites by evaluating the expressions one by one until one is found to be true (see section Boolean operations for the definition of true and false); then that suite is executed (and no other part of the "if" statement is executed or evaluated). If all expressions are false, the suite of the "else" clause, if present, is executed.

Related help topics: TRUTHVALUE

[14]: *#If elif if statement*

```
grade_num = input("Enter number: ")
num = int(grade_num)
if (num > 90):
    print("Grade A+")
elif (num >=80) and (num <= 89):
    print("Grade B")
elif (num >=70) and (num <= 79):
    print("Grade C")
elif (num >=60) and (num <= 69):
    print("Grade D")
else:
    print("Failed")
```

Enter number: 25

Failed

[26]: *#Nested If elif statement*

```
cus_age = input("Enter candidate age")
cand_age = int(cus_age)
if (cand_age >= 18):
    card_inf = input("You have ID Card Y/N: ")
    if (card_inf == 'y') or (card_inf == 'Y'):
        print("Welcome you can vote")
    else:
        print("You cannot vote")
else:
    print("You are under 18.")
```

Enter candidate age 15

You are under 18.

```
[1]: #Ternary operator Python
#value_if_true if condition else value_if_false

age = input("Enter Age: ")
age1 = int(age)
check_age = 'you are man and above 18' if age1 >= 18 else 'you are younger and
↳less then 18'
check_age
```

Enter Age: 10

[1]: 'you are younger and less then 18'

```
[2]: a = 5
b = 10
sum_num = 'b is grater then a' if b > a else 'b is less then a'
print(sum_num)
```

b is grater then a

```
[3]: max_value = a if a > b else b
print(max_value)
```

10

```
[4]: is_logged_in = True

message = "Welcome back!" if is_logged_in else "Please log in."
print(message)
```

Welcome back!

```
[8]: score = 90
grade = 'Grade A+' if score >=90 else 'Grade A' if score >=80 and score < 89
↳else 'Grade B' if score >=70 and score < 79 else 'failed'
print (grade)
```

Grade A+

```
[8]: # Example 2: Calculate 100th factorial
i = 1
result = 1
if i == 0:
    result = 1
else:
    while (i <= 4):
```

```
        result = result * i
        i += 1
print(result)
```

24

```
[6]: number = 0
while number <=10:
    print(number)
    number = number + 1
```

0
1
2
3
4
5
6
7
8
9
10

```
[16]: i = 1
result = 1
if i == 0:
    result = 1
else:
    while (i <= 5):
        result = result * i
        i += 1
print(result)
```

120

```
[12]: # Example 3: Input number from user and compute the sum 1+2+3+4+....+n
n = int(input("Enter any number"))
sum = 0
i = 1
while (i <= n):
    sum = sum + i
    i = i + 1
print(sum)
```

Enter any number 5

15

```
[21]: # Example 3: Input number from user and compute the sum 1*2*3*4*....*n
n = int(input("Enter any number"))
sum = 1
i = 1
while (i <= n):
    sum = sum * i
    i = i + 1
print(sum)
```

Enter any number 5

120

```
[17]: # Example 4: Input number from user and compute the product 1*2*3*4*....*n
n = int(input("Enter any number: "))
product = 1
i = 1
while i <= n:
    product = product * i
    i = i + 1
print("Product is:", product)
```

Enter any number: 5

Product is: 120

```
[25]: #Example 4: while loop iterates over the elements until a certain condition
list1 = ['Learning', 'is', 'fun', 'with', 'me']
lst = 0
while (lst < (len(list1))):
    print(list1[lst])
    lst = lst + 1
print((len(list1)))
```

Learning

is

fun

with

me

5

```
[2]: #Example 1: Breaking an infinite while loop on a certain condition
n = 0
while (True):
    n = n + 1
    if (n == 5):
        break
    print(n)
```

1
2
3
4

[12]: *#Example 2: Breaking a while loop on a certain condition*

```
n = 10
while (n > 0):
    n = n - 1
    if (n == 4):
        break
    print(n)
```

9
8
7
6
5

[1]: *# Example: The `else` block will execute only when the loop condition becomes*
↳ false

```
n = 10
while (n > 0):
    n = n - 1
    print(n)
else:
    print("loop is finished: ", n)
```

9
8
7
6
5
4
3
2
1
0
loop is finished: 0

[13]: *#Creating list iterator from a list iterable using the iter() method*

```
my_lst = ["mango","apple","bananna","pineaplle"]
iterator_mylst = iter(my_lst)
print(iterator_mylst)
```

<list_iterator object at 0x7691685d0c40>

```
[14]: # Creating tuple iterator from a tuple iterable using the iter() method
my_tuple = ["mango", "apple", "bananna", "pineaplle"]
iterator_mytpl = iter(my_tuple)
print(iterator_mytpl)
```

<list_iterator object at 0x7691273d9c90>

```
[15]: # Creating set iterator from a set iterable using the iter() method
my_set = set(["mango", "apple", "bananna", "pineaplle"])
iterator_myset = iter(my_set)
print(iterator_myset)
```

<set_iterator object at 0x769127409240>

```
[20]: # The iter() method yields successive values from an iterable object, if called
↳ successively
my_st = ["mango", "apple", "bananna", "pineaplle"]
i_obj = iter(my_st)
print(next(i_obj))
print(next(i_obj))
print(next(i_obj))
print(next(i_obj))
```

mango
apple
bananna
pineaplle

```
[22]: my_frt = ["mango", "apple", "bananna", "pineaplle"]
itr = iter(my_frt)
i = 0
while (i < len(my_frt)):
    print(next(itr))
    i = i + 1
```

mango
apple
bananna
pineaplle

```
[24]: #So the iter() and the next() functions makes the basis of a for loop inPython
#Basis For Loop
# Example 1
my_for_list = ['Arif', 'Hadeed', 'Muhahid']
for i in my_for_list:
    print(i)
```

Arif
Hadeed
Muhahid

```
[1]: #table in while loop
i = 1
tbl = 2
result = 0
while (i <= 10):
    result = tbl * i
    print(tbl," X ",i," = ", result)
    i = i + 1
```

```
2 X 1 = 2
2 X 2 = 4
2 X 3 = 6
2 X 4 = 8
2 X 5 = 10
2 X 6 = 12
2 X 7 = 14
2 X 8 = 16
2 X 9 = 18
2 X 10 = 20
```

```
[2]: #table in while loop
i = 1
tbl = 2
result = 0
while (i <= 10):
    print(tbl," X ",i," = ", tbl * i)
    i = i + 1
```

```
2 X 1 = 2
2 X 2 = 4
2 X 3 = 6
2 X 4 = 8
2 X 5 = 10
2 X 6 = 12
2 X 7 = 14
2 X 8 = 16
2 X 9 = 18
2 X 10 = 20
```

```
[ ]:
```