Control Statements Notes

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Definition: Control statements are used to manage or control the **flow of execution** in a Python program. They allow us to change the order in which statements are executed.

Example:-

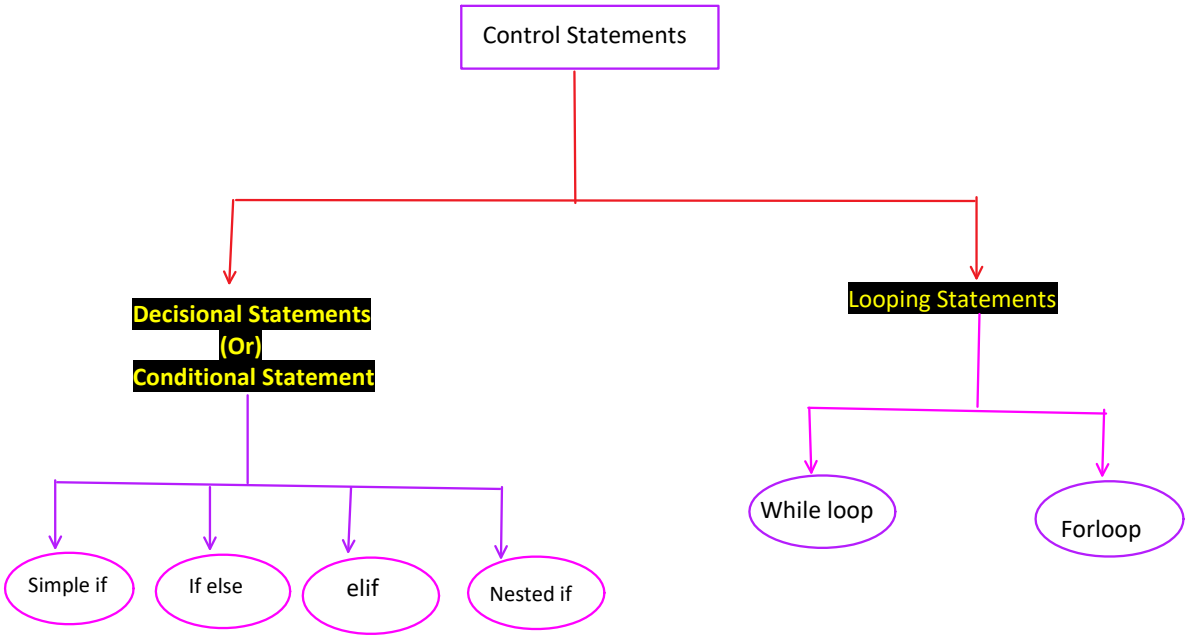
```
a = 10
b = 20
c = a + b
c + b
print('hi')
print('meow')
```

In the above example, Python executes the code **line by line**, from top to bottom. That's the default behavior of the Python interpreter — it follows a **sequential execution** flow.

But what if we want to **change the order of execution**? For example, we want to **print 'meow' before 'hi'**, or **skip some lines** based on a condition?

To **break this default sequential rule** and execute instructions based on **conditions, loops, or jumps**, we use **control statements**.

Classifications of Control Statements:



Conditional Statements:

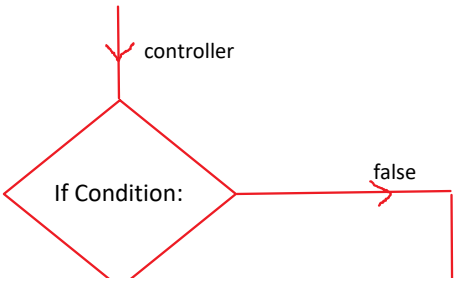
They are used to control the flow of execution based on a condition.

1.Simple if:

The if keyword is used to check a condition. If the condition is True, the block of code under the if statement will be executed. If the condition is False, the block will be ignored.

Syntax: if Condition:

Flow Diagram:



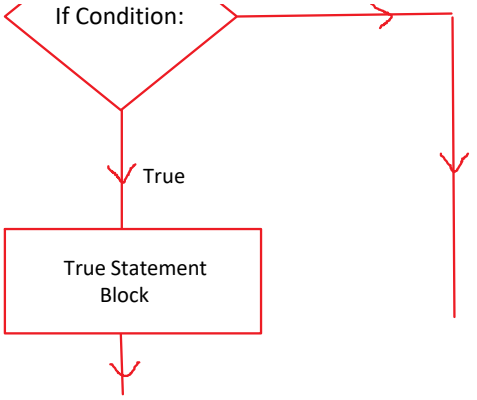
Examples:

1.write a program to check whether the number Is even or not?

```
n=int(input('enter the number:'))
if n%2==0:
```

1.write a program to check whether the number is even or not?

```
n=int(input('enter the number:'))
if n%2==0:
   print('it is even number')
```



2.write a program to check user enter character is vowel or not?

```
ch=input('enter the character:')
if ch in 'aeiouAEIOU':
   print('it is vowel')
```

```
#5.Write a program to check given data is float or not?

data=eval(input('enter the data:'))
if type(data)==float:
   print('it is float data type or float value')
```

3.Wap to print the square of the number only if it multiple of 3.

```
a=int(input('enter the number:'))
if a%3==0:
   print('square of the number:',a**2)
print('it is example for simple if')
```

4.wap to check whether the number is 2 digit number or not.

```
num=int(input('enter the number:'))
if num>9 and num<100:
   print('it is 2 digit number')
          (or)

num=int(input('enter the number:'))
if 9< num<100:
   print('it is 2 digit number')
```

5.wap to check whether the character is uppercase or not?

```
ch=input('enter the character:')
if ch>='A' and ch<='Z':
   print('the character is  uppercase')

          (or)
ch=input('enter the character:')
if 'A'<=ch<='Z':
   print('uppercase')
```

6.Wap program to check whether the string has Exactly 5 characters in it.

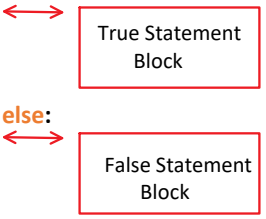
```
s=input('enter the string:')
if len(s)==5:
   print('the string has exactly 5 characters')
```

2.If else:

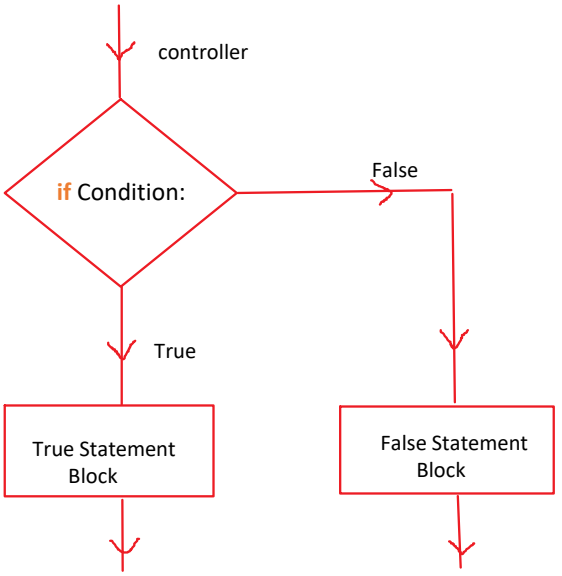
It is an advanced version of the if statement. It is used to check a condition.

- If the condition is **True**, it will execute the **True Statement block**.
- Otherwise, it will execute the **False Statement block**.

Syntax: if Condition:



Flow Diagram



Examples:

1.Wap to check the given character is uppercase or not

```
ch=input('enter the character:')
if 'A'<=ch<='Z':
   print('uppercase')
else:
   print('it is not upper case')
```

2.wap to check whether the given data is single value data type or not

```
data=eval(input('Enter the Data:'))
if type(data) in [int,float,complex,bool]:
   print('yes it is single value data type')
else:
   print('it is multi value data type')
```

3.wap program to check whether the data is palindrome or not

Example:madam,nitin,mom,dad,malayalam

```
n=input('enter the string:')
if n==n[::-1]:
   print('it is palindrome')
else:
   print('not a palindrome')
```

4.Wap to check whether the given data is float or not.

```
Data=eval(input('enter the data:'))
If type(data)==float:
     print('Float Data Type')
else:
     print('Not a Float Data')
```

5.Wap program to check whether the string has Exactly 5 characters in it.

```
s=input('enter the string:')
if len(s)==5:
   print('the string has exactly 5 characters')
else:
     print('It has more than 5 characters')
```

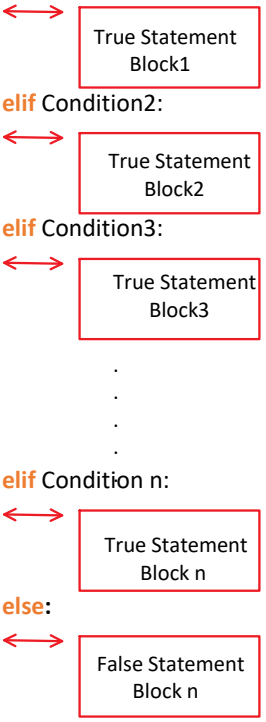
6.program to check whether the number is positive or not.

```
 n = int(input('Enter the number: '))
if n >= 0:
      print('positive number')
else:
     print('negative number')
```

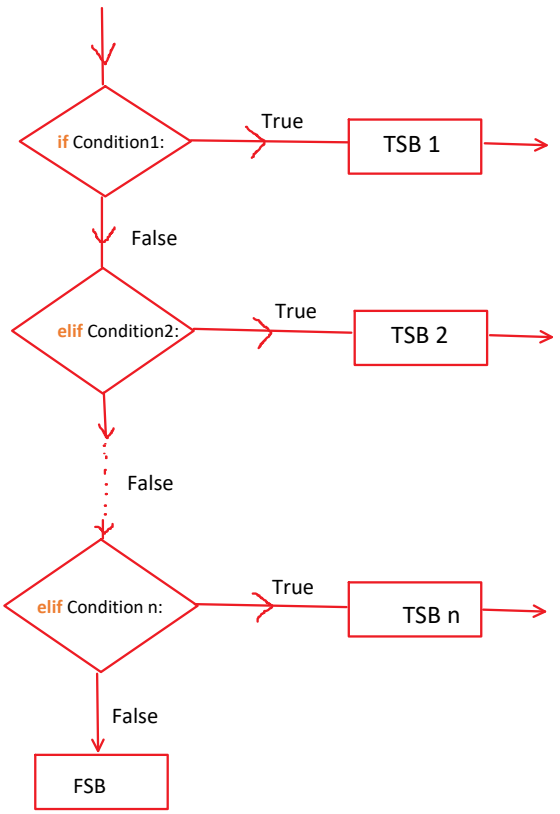
3.elif:

- it is used to check multiple conditions one after another.
- If a condition is **True**, it will execute the **statement block** of that specific condition.
- Only the block for the first matching condition will be executed, and the rest will be ignored.

Syntax: if Condition1:



Flow Diagram



Examples:

1.Program to define the relation between 2 integers

```
a = int(input('Enter the number: '))
 b = int(input('Enter the number: '))
if a>b:
      print(a,'is greater')
elif a<b:
     Print(a,'is smaller')
Else:
     print('both are equal')
```

Q2.find the greatest among 4 number.

```
n1=int(input('enter the number1:'))
n2=int(input('enter the number2:'))
n3=int(input('enter the number3:'))
n4=int(input('enter the number4:'))
if n1>n2 and n1>n3 and n1>n4:
   print('n1, is greatest')
elif n2>n1 and n2>n3 and n2>n4:
   print('n2 is greatest')
elif n3>n1 and n3>n2 and n3>n4:
   print('n3 is greatest')
elif n4>n1 and n4>n2 and n4>n1:
   print('n4 is greatest')
```

Q3.Wap to check given integer is single digit or two digit or 3 digit or more than 3 digit number

```
n=int(input('enter the number'))
if 0<=n<=9:
   print('single digit')
elif 10<=n<=99:
   print('two digit')
```

```
elif 100<=n<=999:
   print('three digit')
elif n>=1000:
   print('more than 3 digit')
```

Q4.Wap to predict the status of your result based on the obtained percentage[int or float]

```
# total marks--->100
        per=int(input('enter the marks:'))
        if per<0 or per>100:
           print('invalid markes')
        elif 70<=per<=100:
           print('Distinction')
        elif 60<=per<=70:
           print('first class')
        elif 45<=per<=60:
           print('second class')
        elif 35<=per<=45:
           print('just pass')
        elif per<35:
           print('lucky student')
```

Q5. Program to check whether the character is uppercase, lowercase, digit or special character

```
ch = input('Enter the number: ')
if 'A'<=ch<='Z':
      print(ch,' = Uppercase')
elif 'a'<=ch<='z':
      print(ch,' = Lowercase')
elif '0'<=ch<='9':
      print(ch,' = Digits')
else:
      print(ch,' = Special Character')
```