

# NB 02 - Python Fundamentals (Conditions & Loops)

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## 1 Conditions & Branching

### 2 if condition

```
[1]: x=20

if x>10:
    print("X is greater than 10")
```

X is greater than 10

```
[2]: x=20

if x<10:
    print("X is less than 10")

#Here no output is given
```

```
[3]: x=30

if True:
    print("Statement is true")
```

Statement is true

```
[4]: x=30

if False:
    print("Statement is false")
```

```
[5]: L=[10,20,30,40,50]

if 20 in L:
    print("20 is a member of L")
```

20 is a member of L

### 3 if else conditions

```
[6]: x=20

if x>10:
    print("X is greater than 10")
else:
    print("X is less than 10")
```

X is greater than 10

### 4 if elif else conditions

```
[7]: mark=75

if mark>=80:
    Grade="A"
elif mark>=65:
    Grade="B"
elif mark>=50:
    Grade="C"
else:
    Grade="Repeat"
```

```
[8]: Grade
```

```
[8]: 'B'
```

### 5 Making decisions with logical operators

```
[9]: x=30

if x>10 and x<50:
    print("X is in the correct region")
else:
    print("X is out of the region")
```

X is in the correct region

```
[10]: x=30

if x>10 or x==50:
    print("X is in the correct region")
else:
    print("X is out of the region")
```

X is in the correct region

```
[11]: x=30

if not x>10 or x==50:
    print("X is in the correct region")
else:
    print("X is out of the region")
```

X is out of the region

```
[12]: det={"Sam":"ABC","Kane":"XYZ"}

username=input("Please enter the username:")
password=input("Please enter the password:")

if username in det and password==det[username]:
    print("You have logged successfully")
else:
    print("Please check your username or password")
```

Please check your username or password

## 6 For loop

### 7 Basic for loop

```
[13]: L=[11,22,33,44,55,66,77]
```

```
[14]: for i in L:
        print(i)
```

11  
22  
33  
44  
55  
66  
77

```
[15]: for i in L:
        print(i, end="*")
```

11\*22\*33\*44\*55\*66\*77\*

```
[16]: for i in L:
        print(2*i, end=",")
```

22,44,66,88,110,132,154,

```
[17]: for i in L:
      if i%2==0:
          print(i, end=" ")
```

22 44 66

## 8 Range function

```
[18]: range(1,10)
```

```
[18]: range(1, 10)
```

```
[19]: list(range(1,10))
```

```
[19]: [1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
[20]: list(range(1,11))
```

```
[20]: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

```
[21]: list(range(11))
```

```
[21]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

```
[22]: list(range(1,11,2))
```

```
[22]: [1, 3, 5, 7, 9]
```

## 9 For loop with range function

```
[23]: for i in range(10):
      print(i)
```

0  
1  
2  
3  
4  
5  
6  
7  
8  
9

```
[24]: for i in range(11,21):
      print(i, end=" ")
```

11 12 13 14 15 16 17 18 19 20

```
[25]: for i in range(1,11):  
        if i%2==0:  
            print("Even", end=" ")  
        else:  
            print("Odd", end=" ")
```

Odd Even Odd Even Odd Even Odd Even Odd Even

## 10 Break keyword

```
[26]: for i in [12,22,23,34,56,43,67]:  
        if i>=50:  
            break  
        print(i)
```

12  
22  
23  
34

## 11 Continue keyword

```
[27]: for i in [12,22,23,34,56,43,67]:  
        if i>=50:  
            continue  
        print(i)
```

12  
22  
23  
34  
43

## 12 For loop inside lists

```
[28]: L=[23,33,21,45,56]
```

```
[29]: L_new=[2*i for i in L]  
        print(L_new)
```

[46, 66, 42, 90, 112]

```
[30]: K=[3*j for j in range(1,11)]  
        print(K)
```

[3, 6, 9, 12, 15, 18, 21, 24, 27, 30]

```
[31]: H=[23,33,34,45,56,78]
      S=[H[i] for i in [1,2,4]]
      print(S)
```

[33, 34, 56]

### 13 For loop inside lists with if condition

```
[32]: L=[11,23,24,46,57,68,43,50]
```

```
[33]: L_new=[j for j in L if j%2==0]
      print(L_new)
```

[24, 46, 68, 50]

### 14 For loop inside lists with if else conditions

```
[34]: L=[11,23,24,46,57,68,43,50]
```

```
[35]: L_new=["Even" if i%2==0 else "Odd" for i in L]
      print(L_new)
```

['Odd', 'Odd', 'Even', 'Even', 'Odd', 'Even', 'Odd', 'Even']

```
[36]: mark=[90,34,56,78,83,45,68]
```

```
[ ]: Grade=["A" if i>=80 else "B" if i>=65 else "C" if i>=50 else "Repeat" for i in
      ↪mark]
      print(Grade)
```

### 15 Enumerate function

```
[ ]: L=[12,22,34,45]
```

```
for i,j in enumerate(L):
    print(i)
    print(j)
    print("----")
```

```
[ ]: H=[23,33,44,43,45,56,43,32,56,67]
      S=[j for i,j in enumerate(H) if i in [1,4,9]]
      S
```

## 16 Zip function

```
[ ]: L1=[12,22,23,34,54]
      L2=[23,33,45,67,43]

      for i,j in zip(L1,L2):
          print(i,j)
```

```
[ ]: L1=[12,22,23,34,54]
      L2=[23,33,45,67,43]

      L_Sum=[]
      for i,j in zip(L1,L2):
          L_Sum.append(i+j)
```

```
[ ]: L_Sum
```

```
[ ]: L_sum2=[i+j for i,j in zip(L1,L2)]
      print(L_sum2)
```

## 17 While loop

```
[ ]: x=0

      while x<5:
          print(2*x)
          x=x+1
```

```
[ ]: pin=12345678

      check=True
      while check:
          entered_pin=int(input("Please enter your car pin number:"))
          if entered_pin==pin:
              check=False
      else:
          print("You have accessed to the machine")
```

```
[ ]: pin=12345678

      entered_pin=int(input("Please enter your car pin number:"))

      while entered_pin!=pin:
          entered_pin=int(input("Please enter your car pin number:"))
      else:
          print("You have accessed to the machine")
```

```
[ ]: val=int(input("Enter a value:"))
flag=True
while flag:
    val=int(input("Enter a value:"))
    if val>30 and val<40:
        flag=False
```