Python control structure:

- if
- elif
- else

In [ ]:
```python
# syntax
if logical_condition:
    print(yourmsg)
elif logical_condition:
    print(yourmsg)
elif logical_condition:
    print(yourmsg)
else:
    print(yourmsg)
```

In [2]:
```python
age = int(input("Enter your age: "))
if age >= 18:
    print("Eligible for vote")
else:
    print("Not applicable.")
```

```
Enter your age: 13
Not applicable.
```

In [5]:
```python
int(input()) # using this function we can take a input from the user.
```

```
000
```

Out[5]:
```
0
```

Q.

How to check entered number is positive, negative, or zero.

In [8]:
```python
number = int(input("enter your number: "))
if number >= 0:
    if number == 0:
        print("Zero")
    else:
        print("Positive")
else:
    print("negative")
```

```
enter your number: -10
negative
```

In [11]:
```
number = int(input("enter your number: "))
if number > 0:
    print("Positive Number")
elif number == 0:
    print("Zero")
else:
    print("Negative")
```

```
enter your number: -10
Negative
```

In [12]:
```
# check entered number is even or odd
```

In [15]:
```
number = int(input("Enter a number: "))
if number % 2 == 0:
    print("Even")
else:
    print("Odd")
```

```
Enter a number: 5
Odd
```

```
### For Loop:

for yourVariable in container:
    print(yourVariable)
```

In [16]:
```
lst = [10,20,30,40,20,4,50,10,45,38]
```

In [17]:
```
lst
```

Out[17]:
```
[10, 20, 30, 40, 20, 4, 50, 10, 45, 38]
```

In [18]:
```
for element in lst:
    print(element)
```

```
10
20
30
40
20
4
50
10
45
38
```

In [20]:
```
for element in lst:
    if element % 10 == 0:
        print(element, end = " ")
```

```
10 20 30 40 20 50 10
```

In [21]:
```
lst = [1,0,40,50,20,34,58,(12,40,50,30),[30,203],11,22,38,49,"A"]
```

In [22]:
```
lst
```

Out[22]:
```
[1, 0, 40, 50, 20, 34, 58, (12, 40, 50, 30), [30, 203], 11, 22, 38, 49, 'A']
```

In [23]:
```
for element in lst:
    print(element, end = " ")
```

```
1 0 40 50 20 34 58 (12, 40, 50, 30) [30, 203] 11 22 38 49 A
```

In [24]:
```
# how we can only the element from tuple
```

In [25]:
```
for elements in lst:
    if type(elements) == tuple:
        for item in elements:
            print(item)
```

```
12
40
50
30
```

In [26]:
```
for ele in lst:
    print(type(ele))
```

```
<class 'int'>
<class 'int'>
<class 'int'>
<class 'int'>
<class 'int'>
<class 'int'>
<class 'int'>
<class 'tuple'>
<class 'list'>
<class 'int'>
<class 'int'>
<class 'int'>
<class 'int'>
<class 'str'>
```

In [29]:
```
for elements in lst:
    if type(elements) == tuple:
        for ele in elements:
            print(ele)

```

```
12
40
50
30
```

In [30]:
```
lst = [1,0,40,50,20,34,58,(12,40,50,30),[30,203],11,(22,38,49),"A",(1,2,3,4)]
```

In [31]:
```
for elements in lst:
    if type(elements) == tuple:
        for ele in elements:
            print(ele, end = " ")

```

```
12 40 50 30 22 38 49 1 2 3 4
```

In [32]:
```
for elements in lst:
    if type(elements) == tuple:
        print(elements)
```

```
(12, 40, 50, 30)
(22, 38, 49)
(1, 2, 3, 4)
```

In [34]:
```
for elements in lst:
    if type(elements) == list:
        print(elements)
        for ele in elements:
            print(ele, end = " ")

```

```
[30, 203]
30 203
```

In [35]:
```
for elements in lst:
    if type(elements) == tuple:
        print(elements)
        for ele in elements:
            print(ele, end = " ")

```

```
(12, 40, 50, 30)
12 40 50 30 (22, 38, 49)
22 38 49 (1, 2, 3, 4)
1 2 3 4
```

Range function

Range function is very useful function for generating number and iterating the data structure etc

Range(start,end,stepsize)

Here, start and stepsize is optional perameter

by default start = 0 and stepsize = 1

In [37]:
```
1 range(0,10)
```

Out[37]: range(0, 10)

In [38]:
```
1 range(1,5)
```

Out[38]: range(1, 5)

In [40]:
```
1 list(range(5)) # list will be starts from 0 to n-1 (5-1=4)
```

Out[40]: [0, 1, 2, 3, 4]

In [41]:
```
1 list(range(5,20))
```

Out[41]: [5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]

In [42]:
```
1 list(range(3,20,2))
```

Out[42]: [3, 5, 7, 9, 11, 13, 15, 17, 19]

In [43]:
```
1 list(range(5,100,5))
```

Out[43]: [5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95]

In [44]:
```
1 list(range(12,121,12))
```

Out[44]: [12, 24, 36, 48, 60, 72, 84, 96, 108, 120]

In [45]:
```
1 list(range(10,0,-1))
```

Out[45]: [10, 9, 8, 7, 6, 5, 4, 3, 2, 1]

In [46]:
```
1 list(range(2,21,2))
```

Out[46]: [2, 4, 6, 8, 10, 12, 14, 16, 18, 20]

In [47]:
```
list(range(1,21,2))
```

Out[47]:
```
[1, 3, 5, 7, 9, 11, 13, 15, 17, 19]
```

In [48]:
```
lst = [12,20,5,10,1,5,20,30,20,34,50,23,10.20,1.4,6.5,15.3,45.34,
      "AB","BD","MD","A","C","A","MBA","MTech","BCA","Btech","MBBA","Corey",23.45
```

- Create a separate list of whole number which are greater than 10
- Create a separate list of decimal number
- Create s separate list of string, a string has the length greater than or equal to 3

In [49]:
```
print(lst)
```

```
[12, 20, 5, 10, 1, 5, 20, 30, 20, 34, 50, 23, 10.2, 1.4, 6.5, 15.3, 45.34, 'AB', 'B
D', 'MD', 'A', 'C', 'A', 'MBA', 'MTech', 'BCA', 'Btech', 'MBBA', 'Corey', 23.45]
```

In [50]:
```
listofNumber = []; listOfDecimal = []; listOfString = []
for ele in lst:
    if type(ele) == int and ele > 10:
        listofNumber.append(ele)
    elif type(ele) == float:
        listOfDecimal.append(ele)
    elif type(ele) == str and len(ele) >= 3:
        listOfString.append(ele)
```

In [51]:
```
listofNumber
```

Out[51]:
```
[12, 20, 20, 30, 20, 34, 50, 23]
```

In [52]:
```
listOfDecimal
```

Out[52]:
```
[10.2, 1.4, 6.5, 15.3, 45.34, 23.45]
```

In [53]:
```
listOfString
```

Out[53]:
```
['MBA', 'MTech', 'BCA', 'Btech', 'MBBA', 'Corey']
```

In [54]:
```
lst = [10,20,30]
```

In [55]:
```
lst.append("AnkitKumar")
```

In [56]:
```
lst
```

Out[56]:
```
[10, 20, 30, 'AnkitKumar']
```

In [57]:
```
for ele in lst:
    print(ele)
else:
    print("No element is found.")
```

```
10
20
30
AnkitKumar
No element is found.
```

In [59]:
```
lst.append(5)
```

In [60]:
```
lst
```

Out[60]: [10, 20, 30, 'AnkitKumar', 5]

In [63]:
```
prod = 1
for ele in lst:
    if type(ele) ==  int:
        prod = prod * ele
```

In [64]:
```
prod
```

Out[64]: 30000

In [65]:
```
for i in range(30):
    if i >= 10 and i<=25:
        continue
    else:
        print(i, end =  " ")
```

```
0 1 2 3 4 5 6 7 8 9 26 27 28 29
```

In [66]:
```
for i in range(30):
    if i == 10:
        break
    else:
        print(i, end = ' ')
```

```
0 1 2 3 4 5 6 7 8 9
```

In [67]:
```
i
```

Out[67]: 10

In [71]:
```
data = [[1,2,3],[4,5,6,7],[8,9]]
```

In [78]:
```
newlst = []
for pair in data:
    newlst.extend(pair)
```

In [79]:
```
newlst
```

Out[79]:
```
[1, 2, 3, 4, 5, 6, 7, 8, 9]
```

In [80]:
```
newlist = []
for pair in data:
    for ele in pair:
        newlist.append(ele)
```

In [81]:
```
newlist
```

Out[81]:
```
[1, 2, 3, 4, 5, 6, 7, 8, 9]
```

In [83]:
```
data = ["a","b","g","c","b","b","a",10,10,20,20,10,20,"a","g","c"]
```

from above query can you give me the occurence of each element example:

a : 3, b : 3, g: 2 and so on.

In [86]:
```
dct = dict()
for item in data:
    if item not in dct:
        dct[item] = data.count(item)

```

In [87]:
```
dct
```

Out[87]:
```
{'a': 3, 'b': 3, 'g': 2, 'c': 2, 10: 3, 20: 3}
```

In [88]:
```
dct = dict()
for item in data:
    if item in dct:
        dct[item] = dct[item] + 1
    else:
        dct[item] = 1
```

In [89]:
```
dct
```

Out[89]:
```
{'a': 3, 'b': 3, 'g': 2, 'c': 2, 10: 3, 20: 3}
```

In [ ]:
```

```