- esc+m--- markdown format
- esc+y----code
- execute the cell---shift+enter
- create a new cell above --- esc+a
- create a new cell below --esc+b
- delete - dd or esc+dd

Heading1

Heading2

Heading6

- Displaying an image
- syntax : ![image name](image url/link)

- Link
- syntax:[link name](link address)

Apssdc portal Link (http://engineering.apssdc.in/register/)

- Create an variable

In [3]:
```
a = 20
b = 30
a
b
```

Out[3]:
```
30
```

In [4]:
```
print(a)
print(b)
```

```
20
30
```

In [5]:
```
1c = 90
```

```
  File "<ipython-input-5-891ed3ac7f8e>", line 1
    1c = 90
     ^
SyntaxError: invalid syntax
```

In [6]:
```
_a = 90
```

Data Types

- integer
- float
- string
- complex
- boolean

In [7]:
```
a = 10
type(a)
```

Out[7]:
```
int
```

In [12]:
```
c = "apssdc@123"
```

In [13]:
```
c
```

Out[13]:
```
'apssdc@123'
```

In [14]:
```
type(c)
```

Out[14]:
```
str
```

In [15]:
```
b = 5.6
type(b)
```

Out[15]: float

In [19]:
```
d = 2j+3
d
```

Out[19]: (3+2j)

In [20]:
```
type(d)
```

Out[20]: complex

In [22]:
```
e = True
```

In [23]:
```
type(e)
```

Out[23]: bool

Conversion of datatypes

In [24]:
```
a = 56
float(a)
```

Out[24]: 56.0

In [25]:
```
a = "apssdc@123"
int(a)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
<ipython-input-25-da3fa2f62d8b> in <module>
      1 a = "apssdc@123"
----> 2 int(a)

ValueError: invalid literal for int() with base 10: 'apssdc@123'
```

In [26]:
```
a = "123"
int(a)
```

Out[26]: 123

In [30]:
```
s = input("enter a value")
```

```
enter a value89
```

In [31]:
```
type(s)
```

Out[31]:
```
str
```

In [32]:
```
s1 = int(input("enter a value"))
s1
```

```
enter a value78
```

Out[32]:
```
78
```

In [33]:
```
type(s1)
```

Out[33]:
```
int
```

In [34]:
```
float(input("enter a value"))
```

```
enter a value90
```

Out[34]:
```
90.0
```

Operators

- Arithemetic operator
- Assignment operator : +=,-=,=,/=,%=
- Comparision operator
- Logical operator
- Bitwise operator
- Identity operator : is ,isnot
- Membership operator : in,notin

In [35]:
```
# Identity operator
a = 10
b = 30
```

In [36]:
```
a is b # a==b
```

Out[36]:
```
False
```

In [37]:
```
a is not b
```

Out[37]:
```
True
```

In [38]:
```
# Membership operators
a = "apssdc"
b = "h"
b in a
```

Out[38]:
```
False
```

In [39]:
```
1 b not in a
```

Out[39]: True

In [40]:
```
1 "h" in "apssdc"
```

Out[40]: False

In [41]:
```
1 a =10
2 b = 45
3 b+=a # b=b+a
4 b
```

Out[41]: 55

In [42]:
```
1 b-=a #b=b-a
```

In [43]:
```
1 b
```

Out[43]: 45

Conditional Programming

- if
- elif
- else

In [46]:
```
1  # write a program to print which number is greatest
2
3  a = int(input("enter a value"))
4  b = int(input("enter b value"))
5  if a>b:
6      print("a is greatest")
7  elif a==b:
8      print("both the values are same")
9  else:
10     print("b is greatest")
11
```

```
enter a value78
enter b value67
a is greatest
```

Loops

- For
  - for variable in iterator
- while

In [52]:
```
for i in range(1,11): # start value,end value,step value
    print(i,end = " ")
```

```
1 2 3 4 5 6 7 8 9 10
```

In [51]:
```
for i in range(1,11,2): # start value,end value,step value
    print(i,end = " ")
```

```
1 3 5 7 9
```

In [56]:
```
for i in range(10,1,-1):
    print(i,end= " ")
```

```
10 9 8 7 6 5 4 3 2
```

In [57]:
```
for i in range(10,1,-2):
    print(i,end= " ")
```

```
10 8 6 4 2
```

In [59]:
```
a = "apssdc"
for i in a:
    print(i)
```

```
a
p
s
s
d
c
```

In [61]:
```
len(a)
```

Out[61]:
```
6
```

In [64]:
```
for i in range(len(a)):
    print(a[i],end= " ")
```

```
a p s s d c
```

In [66]:
```
# While
a = 1
while a<10:
    print(a)
    a+=1 # a = a+1

```

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

In [67]:
```
# While
a = 1
while a<10:
    print(a)
    if a==5:
        break
    a+=1 # a = a+1

```

```
1
2
3
4
5
```

In [71]:
```
# While
a = 1
while a<10:

    if a==5:
        continue
    print(a)
    a+=1 # a = a+1


```

```
1
2
3
4

---------------------------------------------------------------------------
KeyboardInterrupt                         Traceback (most recent call last)
<ipython-input-71-549ad150081d> in <module>
      4
      5     if a==5:
----> 6         continue
      7     print(a)
      8     a+=1 # a = a+1

KeyboardInterrupt:
```

Data Structures

- List
- Tuples
- Dictionary
- Sets
- Strings

- Strings
  - Strings are immutable

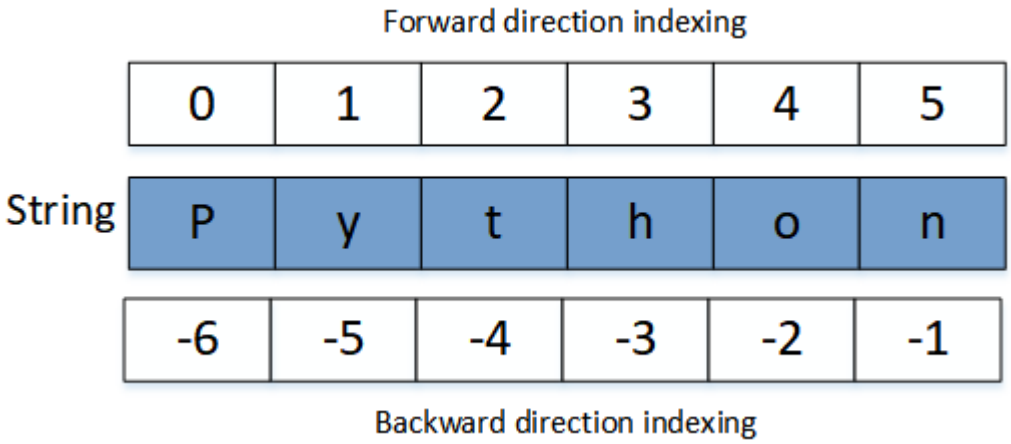
In [72]:
```
a  = "apssdc@1234"
type(a)
```

Out[72]:
```
str
```

In [73]:
```
len(a)
```

Out[73]:
```
11
```

- indexing:
  - forward indexing --> 0 to (len(str)-1)
  - backward indexing --> -len(str) to -1



In [74]:
```
1 a[7]
```

Out[74]: '1'

In [75]:
```
1 a[-1]
```

Out[75]: '4'

In [76]:
```
1 a
```

Out[76]: 'apssdc@1234'

In [77]:
```
1 a[-10]
```

Out[77]: 'p'

In [78]:
```
1 a[-15]
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
<ipython-input-78-9ee8a4a017d9> in <module>
----> 1 a[-15]

IndexError: string index out of range
```

Slicing

- Dividing strings into sub strings

In [79]:
```
1 a[0:4] # start,end,step
```

Out[79]: 'apss'

In [83]:
```
a
```

Out[83]: 'apssdc@1234'

In [85]:
```
a[4:len(a)]
```

Out[85]: 'dc@1234'

In [82]:
```
a[5:11]
```

Out[82]: 'c@1234'

In [86]:
```
a[-4:]
```

Out[86]: '1234'

In [88]:
```
a[-1:-5:-1]
```

Out[88]: '4321'

In [89]:
```
a[0:len(a):2]
```

Out[89]: 'asd@24'

In [90]:
```
a
```

Out[90]: 'apssdc@1234'

In [ ]:
```
range(1,10,3)
range(10,1,-1)
```

In [ ]:
```

```