In [1]:
```
import pandas as pd
```

In [2]:
```
#empty dataframe
df=pd.DataFrame()
```

In [3]:
```
#create a dataframe

name=["mrityunjay", "manish","pankaj","ankit"]
age=[45,23,25,30]
degree=["BBA","Bsc","MBA","Msc"]
data=zip(name,age,degree)
pd.DataFrame(data)
```

Out[3]:

	0	1	2
0	mrityunjay	45	BBA
1	manish	23	Bsc
2	pankaj	25	MBA
3	ankit	30	Msc

In [4]:
```
#craete dataftame and provide index and columns

name=["mrityunjay", "manish","pankaj","ankit"]
age=[45,23,25,30]
degree=["BBA","Bsc","MBA","Msc"]
data=zip(name,age,degree)
col=["name","age","degree"]
indx=["A","B","C","D"]
df1=pd.DataFrame(data,columns=col,index=indx)
df1
```

Out[4]:

	name	age	degree
A	mrityunjay	45	BBA
B	manish	23	Bsc
C	pankaj	25	MBA
D	ankit	30	Msc

In [5]:
```
#type of dataframe

type(df1)
```

Out[5]:
```
pandas.core.frame.DataFrame
```

In [6]:
```
#add new columns in exisit dataframe
df1["goal"]=["BM","Scientist","officer","manager"]
df1
```

Out[6]:

	name	age	degree	goal
A	mrityunjay	45	BBA	BM
B	manish	23	Bsc	Scientist
C	pankaj	25	MBA	officer
D	ankit	30	Msc	manager

In [7]:
```
#create a empty dataframe and add value use list comprehension

import pandas as pd
df2=pd.DataFrame()
l1=[i for i in range(10)]
l2=[i*2 for i in range(10)]
l3=[i*3 for i in range(10)]
df2["number"]=l1
df2["square"]=l2
df2["cube"]=l3

df2
```

Out[7]:

	number	square	cube
0	0	0	0
1	1	2	3
2	2	4	6
3	3	6	9
4	4	8	12
5	5	10	15
6	6	12	18
7	7	14	21
8	8	16	24
9	9	18	27

In [8]:
```
#update columns in existing table
l4=[i**4 for i in range(10)]
df2["cube"]=l4
df2
```

Out[8]:

	number	square	cube
0	0	0	0
1	1	2	1
2	2	4	16
3	3	6	81
4	4	8	256
5	5	10	625
6	6	12	1296
7	7	14	2401
8	8	16	4096
9	9	18	6561

In [9]:
```
#drop coulms in coulmns and row in exisiting table
col_op=df2.drop("cube",axis=1)   #for column axis =1
row_op=df2.drop(9,axis=0)        #for column axis=0
col_op
```

Out[9]:

	number	square
0	0	0
1	1	2
2	2	4
3	3	6
4	4	8
5	5	10
6	6	12
7	7	14
8	8	16
9	9	18

In [10]:
```
row_op
```

Out[10]:

	number	square	cube
0	0	0	0
1	1	2	1
2	2	4	16
3	3	6	81
4	4	8	256
5	5	10	625
6	6	12	1296
7	7	14	2401
8	8	16	4096

In [11]:
```
# how to remove two and more columns and row

col_op=df2.drop(["cube","square"],axis=1)   #for column axis =1
row_op=df2.drop([9,5],axis=0)        #for column axis=0
col_op
```

Out[11]:

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

In [12]:
```
row_op
```

Out[12]:

	number	square	cube
0	0	0	0
1	1	2	1
2	2	4	16
3	3	6	81
4	4	8	256
6	6	12	1296
7	7	14	2401
8	8	16	4096

In [13]:
```
import pandas as pd
df2=pd.DataFrame()
l1=[i for i in range(10)]
l2=[i*2 for i in range(10)]
l3=[i*3 for i in range(10)]
df2["number"]=l1
df2["square"]=l2
df2["cube"]=l3

df2
```

Out[13]:

	number	square	cube
0	0	0	0
1	1	2	3
2	2	4	6
3	3	6	9
4	4	8	12
5	5	10	15
6	6	12	18
7	7	14	21
8	8	16	24
9	9	18	27

In [14]:
```
#serise type

df2["cube"]
```

Out[14]:
```
0     0
1     3
2     6
3     9
4    12
5    15
6    18
7    21
8    24
9    27
Name: cube, dtype: int64
```

In [15]:
```
type(df2["cube"])
```

Out[15]:
```
pandas.core.series.Series
```

In [16]:
```
#dataframe type

df2[["cube"]]
```

Out[16]:

	cube
0	0
1	3
2	6
3	9
4	12
5	15
6	18
7	21
8	24
9	27

In [17]:
```
type(df2[["cube"]])
```

Out[17]:
```
pandas.core.frame.DataFrame
```

In [18]:
```
#serise type

df2.cube
```

Out[18]:
```
0     0
1     3
2     6
3     9
4    12
5    15
6    18
7    21
8    24
9    27
Name: cube, dtype: int64
```

In [19]:
```
type(df2.cube)
```

Out[19]:
```
pandas.core.series.Series
```

In [20]:
```
df2["cube"].values
```

Out[20]:
```
array([ 0,  3,  6,  9, 12, 15, 18, 21, 24, 27], dtype=int64)
```

In [21]:
```
df2["CUBE"]=df2["cube"].values
df2
```

Out[21]:

	number	square	cube	CUBE
0	0	0	0	0
1	1	2	3	3
2	2	4	6	6
3	3	6	9	9
4	4	8	12	12
5	5	10	15	15
6	6	12	18	18
7	7	14	21	21
8	8	16	24	24
9	9	18	27	27

In [ ]:
```
# how to save dataframe in directory
df2.to_csv("data2.csv")

df2.to_excel("data2.xlsx")
```

In [26]:
```
pd.read_csv("data2.csv")
```

Out[26]:

	Unnamed: 0	number	square	cube	CUBE
0	0	0	0	0	0
1	1	1	2	3	3
2	2	2	4	6	6
3	3	3	6	9	9
4	4	4	8	12	12
5	5	5	10	15	15
6	6	6	12	18	18
7	7	7	14	21	21
8	8	8	16	24	24
9	9	9	18	27	27

In [27]:
```
pd.read_excel("data2.xlsx")
```

Out[27]:

	Unnamed: 0	number	square	cube	CUBE
0	0	0	0	0	0
1	1	1	2	3	3
2	2	2	4	6	6
3	3	3	6	9	9
4	4	4	8	12	12
5	5	5	10	15	15
6	6	6	12	18	18
7	7	7	14	21	21
8	8	8	16	24	24
9	9	9	18	27	27

In [32]:
```
df2.to_csv("data1.csv",index=False)
df2.to_excel("data1.xlsx",index=False)
```

In [33]:
```
pd.read_csv("data1.csv")
```

Out[33]:

	number	square	cube	CUBE
0	0	0	0	0
1	1	2	3	3
2	2	4	6	6
3	3	6	9	9
4	4	8	12	12
5	5	10	15	15
6	6	12	18	18
7	7	14	21	21
8	8	16	24	24
9	9	18	27	27

In [34]:
```
pd.read_excel("data1.xlsx")
```

Out[34]:

	number	square	cube	CUBE
0	0	0	0	0
1	1	2	3	3
2	2	4	6	6
3	3	6	9	9
4	4	8	12	12
5	5	10	15	15
6	6	12	18	18
7	7	14	21	21
8	8	16	24	24
9	9	18	27	27

In [ ]:
```

```