In [2]:
```
#Understanding loc[] and iloc[]
#Accessing the data of DataFrame by using loc[]
import pandas as pd
```

In [3]:
```
df=pd.read_csv("D:\\Python-Workspace\\Pandas\\studentmarks1.csv")
print(df,type(df))
```

```
    htno     name  telugu  english  hindi  maths  science  social
0    100   Ramesh      50       60     66     98       66      55
1    101   Rajesh      45       67     34     67       66      78
2    102   Rossum      56       88     56     99       44      77
3    103     Raji      56       78     34     56       88      55
4    104   Kalyan      51       63     62     93       67      51
5    105  Karthik      48       62     39     68       65      88
6    106   Kambli      53       81     59     92       48      73
7    107  Praveen      46       88     74     86       78      45
8    108   Ganesh      53       62     76     88       76      35
9    109     Nags      55       77     44     77       86      58
10   110    Biswa      66       48     86     95       48      47
11   111   Ritchi      66       68     64     76       98      75
12   104   Kalyan      51       63     62     93       67      51
13   112  shareef      50       63     99     90       76      67
14   113     sonu      60       89     98     87       77      68
15   114   Rajesh      45       67     77     55       66      46
16   115   Rakesh      67       78     88     78       67      49 <class 'pan
das.core.frame.DataFrame'>
```

In [4]:
```
df.loc[11]
```

Out[4]:
```
htno          111
name       Ritchi
telugu         66
english        68
hindi          64
maths          76
science        98
social         75
Name: 11, dtype: object
```

In [5]:
```
df.loc[5:8]
```

Out[5]:

	htno	name	telugu	english	hindi	maths	science	social
5	105	Karthik	48	62	39	68	65	88
6	106	Kambli	53	81	59	92	48	73
7	107	Praveen	46	88	74	86	78	45
8	108	Ganesh	53	62	76	88	76	35

In [6]:
```
df.loc[5::2]
```

Out[6]:

	htno	name	telugu	english	hindi	maths	science	social
5	105	Karthik	48	62	39	68	65	88
7	107	Praveen	46	88	74	86	78	45
9	109	Nags	55	77	44	77	86	58
11	111	Ritchi	66	68	64	76	98	75
13	112	shareef	50	63	99	90	76	67
15	114	Rajesh	45	67	77	55	66	46

In [7]:
```
df.loc[10,["name"]]
```

Out[7]:
```
name    Biswa
Name: 10, dtype: object
```

In [8]:
```
df.loc[10,["name","maths","english"]]
```

Out[8]:
```
name       Biswa
maths         95
english       48
Name: 10, dtype: object
```

In [9]:
```
df.loc[10,["htno","name","maths","english"]]
```

Out[9]:
```
htno         110
name       Biswa
maths         95
english       48
Name: 10, dtype: object
```

In [10]:
```
print(df)
```

```
    htno     name  telugu  english  hindi  maths  science  social
0    100   Ramesh      50       60     66     98       66      55
1    101   Rajesh      45       67     34     67       66      78
2    102   Rossum      56       88     56     99       44      77
3    103     Raji      56       78     34     56       88      55
4    104   Kalyan      51       63     62     93       67      51
5    105  Karthik      48       62     39     68       65      88
6    106   Kambli      53       81     59     92       48      73
7    107  Praveen      46       88     74     86       78      45
8    108   Ganesh      53       62     76     88       76      35
9    109     Nags      55       77     44     77       86      58
10   110    Biswa      66       48     86     95       48      47
11   111   Ritchi      66       68     64     76       98      75
12   104   Kalyan      51       63     62     93       67      51
13   112  shareef      50       63     99     90       76      67
14   113     sonu      60       89     98     87       77      68
15   114   Rajesh      45       67     77     55       66      46
16   115   Rakesh      67       78     88     78       67      49
```

In [11]:
```
df.loc[::2,["htno","name","maths","english"]]
```

Out[11]:

	htno	name	maths	english
0	100	Ramesh	98	60
2	102	Rossum	99	88
4	104	Kalyan	93	63
6	106	Kambli	92	81
8	108	Ganesh	88	62
10	110	Biswa	95	48
12	104	Kalyan	93	63
14	113	sonu	87	89
16	115	Rakesh	78	78

In [13]:
```
df.loc[::2,"htno":"social"]
```

Out[13]:

	htno	name	telugu	english	hindi	maths	science	social
0	100	Ramesh	50	60	66	98	66	55
2	102	Rossum	56	88	56	99	44	77
4	104	Kalyan	51	63	62	93	67	51
6	106	Kambli	53	81	59	92	48	73
8	108	Ganesh	53	62	76	88	76	35
10	110	Biswa	66	48	86	95	48	47
12	104	Kalyan	51	63	62	93	67	51
14	113	sonu	60	89	98	87	77	68
16	115	Rakesh	67	78	88	78	67	49

In [14]:
```
df.loc[::2,"name":"social":2]
```

Out[14]:

	name	english	maths	social
0	Ramesh	60	98	55
2	Rossum	88	99	77
4	Kalyan	63	93	51
6	Kambli	81	92	73
8	Ganesh	62	88	35
10	Biswa	48	95	47
12	Kalyan	63	93	51
14	sonu	89	87	68
16	Rakesh	78	78	49

In [15]:
```
print(df)
```

```
    htno     name  telugu  english  hindi  maths  science  social
0    100   Ramesh      50       60     66     98       66      55
1    101   Rajesh      45       67     34     67       66      78
2    102   Rossum      56       88     56     99       44      77
3    103     Raji      56       78     34     56       88      55
4    104   Kalyan      51       63     62     93       67      51
5    105  Karthik      48       62     39     68       65      88
6    106   Kambli      53       81     59     92       48      73
7    107  Praveen      46       88     74     86       78      45
8    108   Ganesh      53       62     76     88       76      35
9    109     Nags      55       77     44     77       86      58
10   110    Biswa      66       48     86     95       48      47
11   111   Ritchi      66       68     64     76       98      75
12   104   Kalyan      51       63     62     93       67      51
13   112  shareef      50       63     99     90       76      67
14   113     sonu      60       89     98     87       77      68
15   114   Rajesh      45       67     77     55       66      46
16   115   Rakesh      67       78     88     78       67      49
```

In [16]:
```
#Accessing the data of DataFrame by using iloc[]
df.iloc[3]
```

Out[16]:
```
htno        103
name       Raji
telugu       56
english      78
hindi        34
maths        56
science      88
social       55
Name: 3, dtype: object
```

In [17]:
```
df.iloc[3:9]
```

Out[17]:

	htno	name	telugu	english	hindi	maths	science	social
3	103	Raji	56	78	34	56	88	55
4	104	Kalyan	51	63	62	93	67	51
5	105	Karthik	48	62	39	68	65	88
6	106	Kambli	53	81	59	92	48	73
7	107	Praveen	46	88	74	86	78	45
8	108	Ganesh	53	62	76	88	76	35

In [18]:
```
df.iloc[3:9,[1]]
```

Out[18]:

	name
3	Raji
4	Kalyan
5	Karthik
6	Kambli
7	Praveen
8	Ganesh

In [19]:
```
df.iloc[::,[1,5]]
```

Out[19]:

	name	maths
0	Ramesh	98
1	Rajesh	67
2	Rossum	99
3	Raji	56
4	Kalyan	93
5	Karthik	68
6	Kambli	92
7	Praveen	86
8	Ganesh	88
9	Nags	77
10	Biswa	95
11	Ritchi	76
12	Kalyan	93
13	shareef	90
14	sonu	87
15	Rajesh	55
16	Rakesh	78

In [20]:
```
df.iloc[::-1,[1,5,7]]
```

Out[20]:

	name	maths	social
16	Rakesh	78	49
15	Rajesh	55	46
14	sonu	87	68
13	shareef	90	67
12	Kalyan	93	51
11	Ritchi	76	75
10	Biswa	95	47
9	Nags	77	58
8	Ganesh	88	35
7	Praveen	86	45
6	Kambli	92	73
5	Karthik	68	88
4	Kalyan	93	51
3	Raji	56	55
2	Rossum	99	77
1	Rajesh	67	78
0	Ramesh	98	55

In [21]:
```
df.iloc[2:10,1:6]
```

Out[21]:

	name	telugu	english	hindi	maths
2	Rossum	56	88	56	99
3	Raji	56	78	34	56
4	Kalyan	51	63	62	93
5	Karthik	48	62	39	68
6	Kambli	53	81	59	92
7	Praveen	46	88	74	86
8	Ganesh	53	62	76	88
9	Nags	55	77	44	77

In [22]:
```
df.iloc[::2,::2]
```

Out[22]:

	htno	telugu	hindi	science
0	100	50	66	66
2	102	56	56	44
4	104	51	62	67
6	106	53	59	48
8	108	53	76	76
10	110	66	86	48
12	104	51	62	67
14	113	60	98	77
16	115	67	88	67

In [23]:
```
df.iloc[1::2,1::2]
```

Out[23]:

	name	english	maths	social
1	Rajesh	67	67	78
3	Raji	78	56	55
5	Karthik	62	68	88
7	Praveen	88	86	45
9	Nags	77	77	58
11	Ritchi	68	76	75
13	shareef	63	90	67
15	Rajesh	67	55	46

In [24]:
```
df.iloc[[2,10,14]]
```

Out[24]:

	htno	name	telugu	english	hindi	maths	science	social
2	102	Rossum	56	88	56	99	44	77
10	110	Biswa	66	48	86	95	48	47
14	113	sonu	60	89	98	87	77	68

In [ ]:
```

```