

In [7]: 

```
print("Manav: 19IT016")
```

Manav: 19IT016

## Pandas

In [8]: 

```
import pandas as pd
```

### Creating data frame

In [9]: 

```
dict1 = {
    "Name":["Manav", "Raj", "Rut", "Jenish"],
    "Marks":[90,91,92,93],
    "city":["Anand", "Junagadh", "Surat", "nadiad"]
}
```

In [10]: 

```
df = pd.DataFrame(dict1)
```

In [11]: 

```
df
```

	Name	Marks	city
0	Manav	90	Anand
1	Raj	91	Junagadh
2	Rut	92	Surat
3	Jenish	93	nadiad

### Reading files

In [15]: 

```
pd.read_csv("C:\\Users\\Manav\\Music\\Untitled Folder\\manav.csv")
```

Out[15]: 

	Train No	Arrival	Departure	Traveling Time	Price
0	NaN	NaN	NaN	NaN	NaN
1	21.0	8 hr	8 hr	9.0	555.0
2	12.0	9 hr	9 hr	8.0	66.0
3	24.0	10 hr	10 hr	7.0	99.0
4	3568.0	11 hr	11 hr	6.0	1000.0
5	4896415.0	7 hr	7 hr	5.0	562.0
6	567.0	21 hr	21 hr	4.0	789.0
7	1654.0	20 hr	20 hr	3.0	15.0

### Slicing manipulations

In [16]: 

```
df.iloc[0:3, 1:4]
```

Out[16]: 

	Marks	city
0	90	Anand
1	91	Junagadh
2	92	Surat

In [17]: 

```
df[0:2] # first two rows
```

Out[17]: 

	Name	Marks	city
0	Manav	90	Anand
1	Raj	91	Junagadh

In [18]: 

```
df.loc[0, ['Name', 'city']]
```

Out[18]: 

```
Name      Manav
city      Anand
Name: 0, dtype: object
```

### Exporting data to files

In [19]: 

```
mydataset = {
    'cars': ["BMW", "Volvo", "Ford"],
    'passings': [3, 7, 2]
}
```

In [20]: 

```
x= pd.DataFrame(mydataset)
```

In [21]: 

```
x.to_csv("cardata.csv")
```

### Columns and row manipulations with loops

In [22]: 

```
student_data = {'First_name': ['Manav', 'Mohan', 'Tina', 'Jeetu', 'Meera'],
                'Last_name': ['Butani', 'Sharma', 'Ali', 'Gandhi', 'Kumari'],
                'Marks': [50, 52, 16, 105, 23] }
```

In [23]: 

```
df1 = pd.DataFrame(student_data)
```

In [24]: 

```
result = []
for value in df1["Marks"]:
    if value < 0 or value > 100:
        result.append("Invalid")
    elif value>=33:
        result.append("Pass")
    else:
        result.append("Fail")

df1["Result"] = result
print(df1)
```

	First_name	Last_name	Marks	Result
0	Manav	Butani	50	Pass
1	Mohan	Sharma	52	Pass
2	Tina	Ali	16	Fail
3	Jeetu	Gandhi	105	Invalid
4	Meera	Kumari	23	Fail

In [25]: 

```
for i, row in df1.iterrows():
    print(f"Index: {i}")
    print(f"{row}\n")
```

```
Index: 0
First_name      Manav
Last_name      Butani
Marks           50
Result          Pass
Name: 0, dtype: object
```

```
Index: 1
First_name      Mohan
Last_name      Sharma
Marks           52
Result          Pass
Name: 1, dtype: object
```

```
Index: 2
First_name      Tina
Last_name      Ali
Marks           16
Result          Fail
Name: 2, dtype: object
```

```
Index: 3
First_name      Jeetu
Last_name      Gandhi
Marks           105
Result          Invalid
Name: 3, dtype: object
```

```
Index: 4
First_name      Meera
Last_name      Kumari
Marks           23
Result          Fail
Name: 4, dtype: object
```

### Use pandas for masking data and reading if in Boolean format.

In [26]: 

```
MANAV= {
    "A": [True, False, True, False],
    "b": [False, False, True, True],
    "A": [False, False, False, False]
}

DF0 = pd.DataFrame(MANAV)
DF0
```

Out[26]: 

	A	b
0	False	False
1	False	False
2	False	True
3	False	True

In [27]: 

```
DF0.mask(DF0 <=0, "19IT16")
```

Out[27]: 

	A	b
0	19IT16	19IT16
1	19IT16	19IT16
2	19IT16	True
3	19IT16	True

In [28]: 

```
df2 = pd.DataFrame({"A": [12, 4, 5, None, 1],
                    "B": [7, 2, 54, 3, None],
                    "C": [20, 16, 11, 3, 8],
                    "D": [14, 3, None, 2, 6]})
```

In [29]: 

```
df2.mask(df2.isna(), "19it016")
```

Out[29]: 

	A	B	C	D
0	12.0	7.0	20	14.0
1	4.0	2.0	16	3.0
2	5.0	54.0	11	19it016
3	19it016	3.0	3	2.0
4	1.0	19it016	8	6.0

In [30]: 

```
df3 = pd.DataFrame({"A": [12, 4, 5, 44, 1],
                    "B": [5, 2, 54, 3, 2],
                    "C": [20, 16, 7, 3, 8],
                    "D": [14, 3, 17, 2, 6]})
```

In [31]: 

```
df3.mask(df3 > 10, -25)
```

Out[31]: 

	A	B	C	D
0	-25	5	-25	-25
1	4	2	-25	3
2	5	-25	7	-25
3	-25	3	3	2
4	1	2	8	6

In [ ]:

In [ ]: