1. Using pandas in python demonstrate the following operations for the sample dataset given,

i) Indexing of Dataframe

ii) Grouping and aggregating

iii) Adding and removing attributes

iv) Joining dataframes

v) Filtering the data

vi)Handling Missing values

```
import pandas as pd

df = pd.DataFrame({"Name":["Tejas", "Nas", "Pat"], "Age":[20, 21, 22],
"Sub1":[90, 80, 70], "Sub2":[80, 70, 60], "Team": ['A', 'B', 'A']})
print(df.head())
```

```
    Name  Age  Sub1  Sub2 Team
0  Tejas   20    90    80    A
1    Nas   21    80    70    B
2    Pat   22    70    60    A
```

```
print(df.loc[0:1])
```

```
    Name  Age  Sub1  Sub2 Team
0  Tejas   20    90    80    A
1    Nas   21    80    70    B
```

```
c = df.groupby("Team")
c.get_group("A")
```

```
    Name  Age  Sub1  Sub2 Team
0  Tejas   20    90    80    A
2    Pat   22    70    60    A
```

```
print(df.aggregate({"Sub1":["sum"]}))
```

```
     Sub1
sum   240
```

```
df["Total"] = df["Sub1"]+df["Sub2"]
df["Total"]
```

```
0    170
1    150
2    130
Name: Total, dtype: int64
```

```
df.drop("Total", axis = 1, inplace=True)
```

```
df.head()
```

```
    Name  Age  Sub1  Sub2 Team
0  Tejas   20    90    80    A
```

```
1    Nas   21    80    70    B
2    Pat   22    70    60    A
```

```
df.isnull()
```

```
df.fillna(0)
```

```
    Name    Age   Sub1   Sub2   Team
0  False  False  False  False  False
1  False  False  False  False  False
2  False  False  False  False  False
```

```
df1 = pd.DataFrame({"Name":['A', 'B', 'C'], "ID":[1, 2, 3]})
df2 = pd.DataFrame({"ID":[2, 3, 4], "Sub":["Math", "Phy", "Chem"]})
```

```
df1.head()
```

```
  Name  ID
0    A   1
1    B   2
2    C   3
```

```
df2.head()
```

```
   ID   Sub
0   2  Math
1   3   Phy
2   4  Chem
```

```
df1.merge(df2, on="ID", how="inner")
```

```
  Name  ID   Sub
0    B   2  Math
1    C   3   Phy
```