Pandas LAb Manual

(A) Python Data Series:-

1. Write a Pandas program to create and display a one-dimensional array-like object containing an array of data using Pandas module. ### python Code:

In [1]:
```
import pandas as pd
import numpy as np
ds1=pd.Series([1,3,5,7,9])
print(ds1)
```

```
0    1
1    3
2    5
3    7
4    9
dtype: int64
```

1. Write a pandas program to convert a pandas module series to python list and its type. ### Python Code:

In [2]:
```
ds2=pd.Series([2,4,6,8,10])
print("Pandas Series and Type")
print(ds2)
type(ds2)
type(ds1)
print("Convert pandas Series to list")
print(ds1.tolist())
print(type(ds1.tolist()))
```

```
Pandas Series and Type
0     2
1     4
2     6
3     8
4    10
dtype: int64
Convert pandas Series to list
[1, 3, 5, 7, 9]
<class 'list'>
```

1. Write a pandas program to add, subtract, multiple and divide two pandas series. ### Python Code:

In [3]:
```
ds1=pd.Series([1,3,5,7,9])
ds2=pd.Series([2,4,6,8,10])
sum=ds1+ds2
print("Add Two Series:")
print(sum)
sub=ds1-ds2
print("Subtract Two Series:")
print(sub)
mul=ds1*ds2
```

```
print("Multiply Two Series:")
print(mul)
divide=ds1/ds2
print("Divide Two Series:\n")
print(divide)
```

```
Add Two Series:
0     3
1     7
2    11
3    15
4    19
dtype: int64
Subtract Two Series:
0   -1
1   -1
2   -1
3   -1
4   -1
dtype: int64
Multiply Two Series:
0     2
1    12
2    30
3    56
4    90
dtype: int64
Divide Two Series:

0    0.500000
1    0.750000
2    0.833333
3    0.875000
4    0.900000
dtype: float64
```

1. Write a pandas program to convert a Numpy array to a pandas series. ### Python Code:

In [4]:
```
array=np.array([10,20,30,40,50])
print("Numpy Array:")
print(array)
series=pd.Series(array)
print("Converted Array to pandas series")
print(series)
```

```
Numpy Array:
[10 20 30 40 50]
Converted Array to pandas series
0    10
1    20
2    30
3    40
4    50
dtype: int32
```

(B) Python Data Frames:-

1. write a Pandas program to create and display a DataFrame from a specified dictionary data which has the index labels. ### Python Code:

In [5]:
```
data={
    'Name':['Amir','Aziz','Wahid','Ali','Abu bakar'],
    'Score':[3.1,1.3,3.6,2.7,3.9],
    'Attempts':[1,3,2,5,1],
    'Qualify':['Yas','No','Yas','No','Yas']
}
labels=['a','b','c','d','f']
df=pd.DataFrame(data, index=labels)
df
```

Out[5]:

	Name	Score	Attempts	Qualify
a	Amir	3.1	1	Yas
b	Aziz	1.3	3	No
c	Wahid	3.6	2	Yas
d	Ali	2.7	5	No
f	Abu bakar	3.9	1	Yas

1. Write a Pandas program to change the name 'Ali' to 'Taimur' in name column of the DataFrame. ### Python Code:

In [6]:
```
print("Orignal rows:")
df
```

```
Orignal rows:
```

Out[6]:

	Name	Score	Attempts	Qualify
a	Amir	3.1	1	Yas
b	Aziz	1.3	3	No
c	Wahid	3.6	2	Yas
d	Ali	2.7	5	No
f	Abu bakar	3.9	1	Yas

In [7]:
```
print("\n Change the name 'Ali' to 'Taimur':")
df['Name']=df['Name'].replace('Ali','Taimur')
df
```

```
 Change the name 'Ali' to 'Taimur':
```

Out[7]:

	Name	Score	Attempts	Qualify
a	Amir	3.1	1	Yas
b	Aziz	1.3	3	No
c	Wahid	3.6	2	Yas
d	Taimur	2.7	5	No
f	Abu bakar	3.9	1	Yas

1. Write a Pandas program to insert a new column in existing DataFrame. ### Python Code:

In [8]:
```
print('Orignal rows:')
df
```

```
Orignal rows:
```

Out[8]:

	Name	Score	Attempts	Qualify
a	Amir	3.1	1	Yas
b	Aziz	1.3	3	No
c	Wahid	3.6	2	Yas
d	Taimur	2.7	5	No
f	Abu bakar	3.9	1	Yas

In [9]:
```
color=['Red','Blue','Orange','White','Green']
df['Color']=color
print("\n New DataFrame after inserting the 'Color' column")
df
```

```
 New DataFrame after inserting the 'Color' column
```

Out[9]:

	Name	Score	Attempts	Qualify	Color
a	Amir	3.1	1	Yas	Red
b	Aziz	1.3	3	No	Blue
c	Wahid	3.6	2	Yas	Orange
d	Taimur	2.7	5	No	White
f	Abu bakar	3.9	1	Yas	Green

1. Write a Pandas program to get list from DataFrame column headers ### Python Code:

In [10]:
```
print(list(df.columns.values))
```

```
['Name', 'Score', 'Attempts', 'Qualify', 'Color']
```

1. Write a Pandas program to get list from DataFrame column headers. ### Python Code

In [11]:
```
df.columns
```

Out[11]:
```
Index(['Name', 'Score', 'Attempts', 'Qualify', 'Color'], dtype='object')
```