



INDIAN SCHOOL AL WADI AL KABIR

Class: 12 th (IP)	Department: Computer Science	Date of submission:
Worksheet No: 06	Topic: Python Pandas Series and DataFrame	Note:

1) Consider the following data frame named Library

	BCode	Title	Author	Price
0	5478	Software Engineering	Patrick	1800
1	7382	System Analysis and Design	Mathews	650
2	4884	Data Analysis	Gilbert	1550
3	4727	Business Computing	Viveka	820
4	1683	Compiler Design	Dan	1230
5	9280	Simulation and Modeling	Sudev	700

i) Write a statement to extract Title, Author and Price column values of Book code 7382, 4727, 9280.

- a) `Library.loc[1:5, ['Title','Price']]`
- b) `Library.loc[1:5, 'Title':'Price']`
- c) `Library.loc[[1,3,5], 'Title':'Price']`
- d) `Library.loc[[1,3,5], ['Title','Price']]`

2) Mr. Samson is working as python programming expert. He has the following data frame with him. Help him to fill the blank given in Statement 1.

```
import pandas as _____ #Statement 1
df=pd1.DataFrame({'Flightcode':[3782,9390,1738],'Airways':['IX','WY','9W']})
print(df)
```

- a) pd
- b) df
- c) p
- d) pd1

3) Consider the following data frame named Library

	BCode	Title	Author	Price
0	5478	Software Engineering	Patrick	1800
1	7382	System Analysis and Design	Mathews	650
2	4884	Data Analysis	Gilbert	1550
3	4727	Business Computing	Viveka	820

4	1683	Compiler Design	Dan	1230
5	9280	Simulation and Modeling	Sudev	700

4) Write a statement to extract the records of those books price more than 1,500.

- a) Library[Library['Price']>1,500]]
- b) Library[Library['Price']>1500]]
- c) Library['Price']>1500]
- d) Library['Price']>1500]]

5) Find output of the following statements with respect to the pandas series Airways:

```
A1 Oman Air
A2 Qatar Air
A3 Emirates
A4 Go Air
A5 Air India
print(Airways.loc['A2':'A4'])
```

Option 1

- A2 Qatar Air
- A3 Emirates
- A4 Go Air
- A5 Air India

Option 2

- A3 Emirates
- A4 Go Air
- A5 Air India

Option 3

- A2 Qatar Air
- A3 Emirates

Option 4

- A2 Qatar Air
- A3 Emirates
- A4 Go Air

6) Consider the following data frame named Library

	BCode	Title	Author	Price
0	5478	Software Engineering	Patrick	1800
1	7382	System Analysis and Design	Mathews	650
2	4884	Data Analysis	Gilbert	1550
3	4727	Business Computing	Viveka	820
4	1683	Compiler Design	Dan	1230

5	9280	Simulation and Modeling	Sudev	700
---	------	-------------------------	-------	-----

7) Write a statement to change the default index with Title column.

- a) Library.setindex(Title, inplace=False)
- b) Library.set_index(Title, inplace=True)
- c) Library.setindex(Title, inplace=True)
- d) Library.set_index(Title)

8) Find output of the following statements with respect to the pandas series Airways:

```
A1 Oman Air  
A2 Qatar Air  
A3 Emirates  
A4 Go Air  
A5 Air India  
print(Airways.iloc[2:4])
```

Option 1

```
A3 Emirates  
A4 Go Air
```

Option 2

```
A3 Emirates  
A4 Go Air  
A5 Air India
```

Option 3

```
A2 Qatar Air  
A3 Emirates  
A4 Go Air
```

Option 4

```
A2 Qatar Air  
A3 Emirates
```

9) Find the output of the following statements:

```
Seminar=pd.Series(['Business Intelligence', 'Artificial Intelligence', 'Corporate Law',  
'Communication Technology', 'Virtual Reality'],  
index=['Sem1','Sem2','Sem3','Sem4','Sem5','Sem6'])  
print(Airlines)
```

Option 1:

- 1 Business Intelligence
- 2 Artificial Intelligence
- 3 Corporate Law
- 4 Communication Technology
- 5 Virtual Reality

Option 2:

- Sem1 Business Intelligence
Sem2 Artificial Intelligence
Sem3 Corporate Law
Sem4 Communication Technology
Sem5 Virtual Reality

Option 3

- sem1 Business Intelligence
sem2 Artificial Intelligence
sem3 Corporate Law
sem4 Communication Technology
sem5 Virtual Reality

Option 4

- 0 Business Intelligence
- 1 Artificial Intelligence
- 2 Corporate Law
- 3 Communication Technology
- 4 Virtual Reality

10) Consider the following data frame named Bakerydf

	ICode	IName	Rate
A	B001	Tea Cake	275
B	B002	Biscuits	75
C	B003	Chocolate Cake	350
D	B004	Bread	40
E	B005	Bun	30

Write the command to change the column name IName to Item Name.

- a) Bakerydf.rename('IName':'ItemName', axis='columns')
- b) Bakerydf.rename({'IName':'ItemName'}, axis=columns)
- c) Bakerydf.rename({'IName':'ItemName'}, axis='columns')
- d) Bakerydf.rename(['IName':'ItemName'], axis='columns')

11) Find the output of the following statements:

```
S1=pd.Series([30,25,36,18], index=[1,2,3,4])  
print(S1*5)
```

Option 1

- 0 150
- 1 125
- 2 180
- 3 90

Option 2

- 0 150.0
- 1 125.0
- 2 180.0
- 3 90.0

Option 3

- 1 150.0
- 2 125.0
- 3 180.0
- 4 90.0

Option 4

- 1 150
- 2 125
- 3 180
- 4 90

12) _____ helps to display the output (5,3) for the following data frame named Bakerydf.

	ICode	IName	Rate
A	B001	Tea Cake	275
B	B002	Biscuits	75
C	B003	Chocolate Cake	350
D	B004	Bread	40
E	B005	Bun	30

a) Labdata.dtypes b) Labdata.columns c) Labdata.shape d) Labdata.size

13) Find the output of the following statements:

```
ser3=pd.Series([110,120,130,140], index=['A','B','C','D'])  
ser4=pd.Series([2,3,4], index=['A','B','C'])  
print(ser3.mul(Ser2, fill_value=2))
```

Option 1

- A 220.0
- B 360.0
- C 520.0

Option 2

- A 220.0
- B 360.0
- C 520.0
- D 280.0

Option 3

- 0 220.0
- 1 360.0
- 2 520.0
- 3 NaN

Option 4

- A 220.0
- B 360.0
- C 520.0
- D NaN

14) Consider the following DataFrame.

```
import pandas as pd
df1 = pd.DataFrame({"Name": ['Bismi', 'Sherwin', 'Reena'], "CSTheory": [75, 62, 84]},
index=['s1', 's2', 's3'])
print(df)
```

	Name	CSTheory
s1	Bismi	75
s2	Sherwin	62
s3	Reena	84

15) Write command to Add a new column 'CSLab' to the DataFrame with values 29,28,30.

- a) df.CSLab = [29,28,30]
- b) df.loc['CSLab'] = [29,28,30]
- c) df['CSLab'] = [29,28,30]
- d) df[CSLab] = [29,28,30]

16) Consider the following DataFrame.

```
import pandas as pd
df1 = pd.DataFrame({"Name": ['Bismi', 'Sherwin', 'Reena'], "CSTheory": [75, 62, 84]},
index=['s1', 's2', 's3'])
print(df)
```

	Name	CSTheory	CSLab
s1	Bismi	75	29
s2	Sherwin	62	28
s3	Reena	84	30

17) Write the statement to add a new column CSAvg = (CSTheory + CSLab) / 2

- a) `df1['CSavg'] = df1['CSTheory']+df1['CSLab'] / 2`
- b) `df1['CSavg'] = (df1['CSTheory']+df1['CSLab']) / 2`
- c) `df1['CSavg'] = (df1[CSTheory]+df1[CSLab]) / 2`
- d) `df1['CSavg'] = df1['CSTheory']+df1['CSLab'] / 2`

18) Find the output of the following statements:

```
import numpy as np
A1=np.arange(10,25,6)
SER1=pd.Series(A1, index=['a1','a2','a3','a4'])
print(ser1)
```

Option 1

```
a1 10
a2 16
a3 22
a4 25
```

Option 2

```
a1 10
a2 16
a3 22
```

Option 3

```
0 10
1 16
2 22
```

Option 4

None of the above

19) Mr. Samson is working as python programming expert. He has the following data frame with him. Help him to fill the blank given in Statement 2.

```
import pandas as _____ #Statement 1
Ser5=pd1. _____ ([20,40,50,60,80],index:[1,2,3,4,5])
print(Ser5)
```

- a) List b) DataFrame c) Series d) Dictionary

20) _____ helps to display the output 15 for the following data frame

named Bakerydf.

	ICode	IName	Rate
A	B001	Tea Cake	275
B	B002	Biscuits	75
C	B003	Chocolate Cake	350
D	B004	Bread	40
E	B005	Bun	30

a) Bakerydf.shape() b) Bakerydf.size c) Bakerydf.total d) Bakerydf.cols

21) Consider the following data frame named Bakerydf.

	ICode	IName	Rate
A	B001	Tea Cake	275
B	B002	Biscuits	75
C	B003	Chocolate Cake	350
D	B004	Bread	40
E	B005	Bun	30

22) Consider the following data frame named Empdf.

	Name	CSTheory	CSLab
s1	Bismi	75	29
s2	Sherwin	62	28
s3	Reena	84	30

Which command will give the output ?

`Index(['Name', 'CSTheory', 'CSLab'], dtype='object')`.

a) Empdf.index b) Empdf.values c) Empdf.columns d) Empdf.dtypes

23) Find the output of the following statements:

```
DATA=np.arange(30,10,-6)
```

```
SER4=pd.Series(DATA, index=['D1','D2','D3','D4'])
```

```
print(SER4)
```

Option 1

D1 30

D2 24

D3 18

D4 12

Option 2

- 30 D1
- 24 D2
- 18 D3
- 12 D4
- Option 3
- D1 30
- D2 24
- D3 18
- D4 12
- D5 6
- Option 4
- 0 30
- 1 24
- 2 18
- 3 12

24) Consider a given DataFrame, Customerdf

	CName	BillAmt
0	Kamlesh	7500
1	Vinitha	3400
2	Jeeva	4000
3	Shreya	2800

25) Write a statement in Python Pandas to create the DataFrame with above values.
 import pandas as pd
 _____ # statement to create data frame student.

- a) Customerdf = pd.dataframe({'CName':['Kamlesh', 'Vinitha', 'Jeeva','Shreya'], 'BillAmt':[7500,3400,400,2800]})
- b) Customerdf = pd.DataFrame({'CName':[Kamlesh, Vinitha, Jeeva,Shreaya], 'BillAmt':[7500,3400,400,2800]})
- c) Customerdf = pd.DataFrame({'CName':['Kamlesh', 'Vinitha', 'Jeeva','Shreya'], 'BillAmt':[7500,3400,400,2800]})
- d) Customerdf = pd.dataFrame({'CName':['Kamlesh', 'Vinitha', 'Jeeva','Shreaya'], 'BillAmt':[7500,3400,400,2800]})

26) _____ is a one-dimensional data structure used in python pandas.

- a) Panel b) Data Frame c) Series d) Numpy

27) Consider a given DataFrame, Customerdf

	CName	BillAmt
0	Kamlesh	7500
1	Vinitha	3400
2	Jeeva	4000
3	Shreya	2800

Write command to add a new row at index 4 with values 'Jimson' and 5500

- a) Customerdf[4] = ['Jimson',5500]
- b) Customerdf.loc[4] = ['Jimson',5500]
- c) Customerdf.insert[4] = ['Jimson',5500]
- d) Customerdf.add[4] = ['Jimson',5500]

28) Consider a given DataFrame, Customerdf

	CName	BillAmt
0	Kamlesh	7500
1	Vinitha	3400
2	Jeeva	4000
3	Shreya	2800
4	Jimson	5500

29) Write command to remove the column 'BillAmt' from the data frame Customerdf.

- a) df1.drop('BillAmt',axis=0)
- b) df1.drop('BillAmt',axis=1)
- c) df1.del('BillAmt',axis=1)
- d) df1.delete('BillAmt',axis=1)

30) Write a python statement to write the content of the data frame stockdf to a file Sports.csv in the following statement:

```
import pandas as pd
stockdf = pd.DataFrame({'Item':['TV','Radio','AC'],'Price':[2000,350,1600]})
stockdf._____('stockdata.csv')
a) write      b) to_csv    c) write_csv d) output_csv
```

31) Find the output of the following operations over the series SER8
SER8=pd.Series([12,14,16,18,20,25,30,40])
SER6=pd.Series([1,3,4,6,8,10])
print(SER8 – SER6)

Option A

0 11

1 11

2 12

3 12

4 12

5 15

Option B

0 11

1 11

2 12

3 12

4 12

5 15

6 NaN

7 NaN

Option C

0 11

1 11

2 12

3 12

4 12

5 15

6 30

7 40

Option D

1 11

2 11

3 12

4 12

5 12

6 15

7 NaN

8 NaN

32) What is the statement to add a new element 80 in a series MySeries at index d5.

MySeries

d1 16

d2 32

d3 48

d4 64

Option 1

MySeries['d5']=80

Option 2

MySeries[4]=80

Option 3

MySeries[d5]=80

Option 4

MySeries['4']=80

33) Consider the following data frame named Bakerydf.

	ICode	IName	Rate
A	B001	Tea Cake	275
B	B002	Biscuits	75
C	B003	Chocolate Cake	350
D	B004	Bread	40
E	B005	Bun	30

Write the statement to remove the record of Bread

- a) Bakerydf.del('D', axis=0)
- b) Bakerydf.drop('D', axis=1)
- c) Bakerydf.drop('D', axis=0)
- d) Bakerydf.del('D', axis=1)

34) Find the output of the following statements over the series MarkSeries

MarkSeries

1 72

2 48

3 86

4 59

5 36

6 90

7 62

print(MarkSeries1[MarkSeries1<60])

Option 1

1 72

3 86

6 90

7 62

Option 2

- 2 48
 - 4 59
 - 5 36
- Option 3
- 1 False
 - 2 True
 - 3 False
 - 4 True
 - 5 True
 - 6 False
 - 7 False

Option 4
None of the above

35) Consider the following data frame named Library

	BCode	Title	Author	Price
0	5478	Software Engineering	Patrick	1800
1	7382	System Analysis and Design	Mathews	650
2	4884	Data Analysis	Gilbert	1550
3	4727	Business Computing	Viveka	820
4	1683	Compiler Design	Dan	1230
5	9280	Simulation and Modeling	Sudev	700

Write the command to display the Title and Price of the books written by 'Patrick', 'Gilbert' and 'Sudev' of Library

- a) `Library.loc[0:5,['Title','Price']]`
- b) `Library.loc[[0,2,5],['Title','Price']]`
- c) `Library.loc[0:5,'Title':'Price']`
- d) `Library.loc[[0,2,5],['Title','Price']]`