



INDIAN SCHOOL AL WADI AL KABIR

Class: XII	SUB: INFORMATICS PRACTICES	Date of Completion: 20.08.2020
Worksheet No:7	TOPIC : Practical Questions- PYTHON-SOLUTION	Write these programs in your Record Book

Q1. Write a Python program to create a series from
a list of numbers,
a numpy array with arange() to generate numbers 0 to 5.
a dictionary with 4 subject names and marks.
(Write the sample output in your record book)

Ans:

```
import numpy as np
import pandas as pd
mylist = [10,20,30,40,50]
myarr = np.arange(6)
mydict = {"Eng": 87, "math": 99, "phy": 60, "chem": 85}
ser1 = pd.Series(mylist)
ser2 = pd.Series(myarr)
ser3 = pd.Series(mydict)
print(ser1)
print(ser2)
print(ser3)
```

OUTPUT:

```
0 10
1 20
2 30
3 40
4 50
dtype: int64
0 0
1 1
2 2
3 3
4 4
5 5
dtype: int32

Eng 87
math 99
phy 60
chem 85
dtype: int64
```

Q2. Write a Program in Pandas to create series using

User-defined Dictionary that contains stock details like itemname and qty of different items.

(Write the sample output in your record book)

Ans:

```
import pandas as pd
N = int(input("enter the number of items:"))
d = { }
for I in range(N):
    key=input("Enter the itemname")
    value=int(input("enter the qty"))
    d[key]=value
s=pd.Series(d)
print (s)
```

OUTPUT:

```
enter the number of items:3
Enter the itemname book
enter the qty 10
Enter the itemname pen
enter the qty 20
Enter the itemname folder
enter the qty 15
book    10
pen     20
folder  15
dtype: int64
```

Q3. Given a series that stores the marks of 10 students in a class. Write code to find out the biggest and the smallest 3 marks from the given series. (Write the sample output in your record book)

Ans:

```
import pandas as pd
S= pd.Series([78,65,89,98,56,45,54,76,78,86])
print("Top 3 marks are : ")
print(S.sort_values().tail(3))
print("Smallest 3 marks are : ")
print(S.sort_values().head(3))
```

OUTPUT:

```
Top 3 marks are :
9    86
2    89
3    98
dtype: int64
Smallest 3 marks are :
5    45
6    54
4    56
dtype: int64
```

Q4. Create a Series that stores the salary of 10 employees. Write a program to display the salary of those employees who are getting the salary more than 5000.(Write the sample output in your record book)

Ans:

```
import pandas as pd
Sal = pd.Series([ 4500,4300,4567,9878,6990,2345,4324,7390,5600,2500])
print( Sal[Sal>5000])
```

OUTPUT:

```
3  9878
4  6990
7  7390
8  5600
dtype: int64
```

Q5. Write a program to create 2 series namely S1 and S2 , where S1 contains the name and mark of students and S2 contains name and age of students. Create a dataframe df1 from S1 and S2. (Write the sample output in your record book)

Ans:

```
import pandas as pd
S1=pd.Series({'Vivek': 80,'Rahul': 87,'Geetha': 67,'Teena': 88})
S2=pd.Series({'Vivek': 16,'Rahul': 20,'Geetha': 17,'Teena': 21})
print(S1)
print(S2)
print("DataFrame is : ")
df1=pd.DataFrame({'Mark': S1, 'Age':S2})
print(df1)
```

OUTPUT:

```
Vivek  80
Rahul  87
Geetha  67
Teena  88
dtype: int64
```

```
Vivek  16
Rahul  20
Geetha  17
Teena  21
dtype: int64
```

dataframe is :

```
      Mark Age
Vivek   80  16
Rahul   87  20
Geetha  67  17
Teena   88  21
```

Q6. Write a program to create a dataframe containing empno, ename and salary of 5 employees. Change the index as [a,b,c,d,e] and display the first two and the last two records.(Write the sample output in your record book)

Ans:

```
import pandas as pd
D={ 'empno': [11,22,33,44,55], 'ename': [ 'Akhil', 'Bobby', 'charles', 'David', 'Sam '],
    'salary': [ 7900, 6578, 6546, 8500, 7500]}
df=pd.DataFrame(D)
df.index=['a', 'b', 'c', 'd', 'e']
print( "employee Details : ")
print(df)
print("The first two records: ")
print(df.head(2))
print("The last two records :")
print(df.tail(2))
```

OUTPUT:

employee Details :

	empno	ename	salary
a	11	Akhil	7900
b	22	Bobby	6578
c	33	charles	6546
d	44	David	8500
e	55	Sam	7500

The first two records:

	empno	ename	salary
a	11	Akhil	7900
b	22	Bobby	6578

The last two records :

	empno	ename	salary
d	44	David	8500
e	55	Sam	7500

Q7. Write a Program to enter multiple values based data in multiple columns/rows to represent cityname highest temp and lowest temp and show that data in python using dataFrames and pandas. Display the highest temperature of the second , third and fourth city using iloc.(Write the sample output in your record book)

Ans:

```
import pandas as pd
t={ 'cname': [ 'mumbai', 'Chennai', 'Delhi', 'Balgalore', 'Kolkata'],
    'htemp': [ 35,34,36,38,40], 'ltemp':[ 25,26,27,26,29]}
Weather=pd.DataFrame(t)
print(Weather)
print(Weather.iloc[1:4,1])
```

OUTPUT:

```
   cname  htemp  ltemp
0  mumbai   35    25
1  Chennai   34    26
2   Delhi   36    27
3  Balgalore 38    26
4   Kolkata 40    29
```

```
1  34
2  36
3  38
```

Name: htemp, dtype: int64

Q8. Write a program to create a dataframe with the help of a dictionary that represents name , salary and commissison of 5 employees and sort the dataframe in descending order of their salary. (Write the sample output in your record book)

Ans:

```
import pandas as pd
D= df = pd.DataFrame({' name':['Amaan', 'Fathima', 'Sumeet', 'Deepa', 'Rahul'],
                      'Salary': [8547,7761,8964,5487,9084],
                      'Comm': [850,756,637,565,989]})
emp = pd.DataFrame(D)
print("DataFrame")
print(emp)
print( "Details of employees in descending order of salary:")
print(emp.sort_values(by=['Salary'],ascending=False))
```

OUTPUT:

Data Frame :

```
   name  Salary  Comm
0  Amaan   8547   850
1  Fathima  7761   756
2  Sumeet   8964   637
3  Deepa   5487   565
4  Rahul   9084   989
```

Details of employees in descending order of salary:

```
   name  Salary  Comm
4  Rahul   9084   989
2  Sumeet   8964   637
0  Amaan   8547   850
1  Fathima  7761   756
3  Deepa   5487   565
```

Q9. Write a program to create dataframe for 5 students including name and 3 subject marks and add new columns Total that contains the total marks obtained by each student . (Write the sample output in your record book)

Ans:

```
import pandas as pd
df = pd.DataFrame({' name': ['Ali', 'Fahra', 'Sumi', 'Derik', 'Allan'], 'Eng': [87,71,64,87,84],
                  'Acc': [85,76,67,65,89], 'BSt': [ 76,45,87,89,60]})
df['total'] = df['Eng'] + df['Acc'] + df['BSt']
print(" dataframe - df ")
print(df)
```

OUTPUT:

```
dataFrame - df
  name Eng Acc BSt total
0  Ali  87  85  76  248
1  Fahra  71  76  45  192
2  Sumi  64  67  87  218
3  Derik  87  65  89  241
4  Allan  84  89  60  233
```

Q10. Write a Program to read CSV file that contains itemno,itemname, qty and price and show its data in python using dataFrames and pandas.Please enter the details of Item table in a notepad as Comma separated values and save at "D:\item.csv".(Write the sample output in your record book)

Ans:

```
import pandas as pd
df=pd.read_csv("D:\item.csv")
print(df)
```

OUTPUT:

Item.csv

No	Name	Qty	Price
1	milk	2	10
2	bread	5	12
3	biscut	10	25
4	juice	3	15
5	butter	2	10

```
No  Name Qty Price
0 1  milk  2  10
1 2  bread 5  12
2 3  biscut 10 25
3 4  juice  3  15
4 5  butter 2  10
```