Assignment based on PANDAS

Python Programming Lab (DSC2151)

AIML 3rd Semester

Q1 Write a Pandas program to create and display a one-dimensional array-like object containing an array of data using Pandas module.

Change index for each data point to new one. like 0,1,2,3 to index = [‘d’, ‘b’, ‘a’, ‘c’]

Update data point with new index

Use different fancy indexing to display object.

Q2 Given two series S1 and S2

S1	
A	39
B	41
C	42
D	44

S2	
A	10
B	10
D	10
F	10

Find the output for following python pandas statements.

a. S1[: 2]*100

b. S1 * S2

c. S2[: : -1]*10

Q3 From series S1 in Q2 filter with Boolean array (S1>40) and create one new Series object based on Boolean array. Do scalar multiplication, and apply math functions sqrt to new Series object.

Q4 Create a Series from a dictionary as given and display it .

{'a': 100, 'b': 200, 'c': 300, 'd': 400, 'e': 800}

Again create a new Series object from this dictionary with index values ['d','b','e','a'] and display it.

Use ‘isnull’ or ‘notnull’ functions to check values.

Q5

Using Pandas data structure, create a data frame from a dictionary of marks in Physics, Chemistry and Mathematics of four students, as given below:

Name	Physics	Chemistry	Mathematics
Abhishek	88	82	95
Usha	81	91	97
Shreya	90	85	89
Vijay	87	89	91

Add another column showing the marks in Biology as 82, 79, 90, 80 respectively
Find the aggregate marks of each student and show it in a new column 'Aggregate'
Display in tabular form, the descriptive statistics of all the four subjects and the aggregate

Q6 Create a data frame in Pandas containing 4 rows and 3 columns with some missing values. Use two different methods to fill in the missing values.

Using Pandas data structure, create a data frame from a dictionary of population (in crores) in the year 2020 and 2019 of three cities in India, as given below:

City	2020	2019
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Delhi	3.029	2.94
Kolkata	1.485	1.4755
Mumbai	2.0411	2.0185

Add another column showing the population in the year 2018 as 2.85, 1.468, 1.998 crores respectively
Find the average population of each city in the 3 years and show it in a new column 'Average'