Advanced Python test

Time : 2 Hrs. 30 Marks

1	Create a 5X2 integer array from a range between 100 to 200 such that the difference between each element is 10 Expected Output: Creating 5X2 array using numpy.arange [[100 110] [120 130] [140 150] [160 170] [180 190]]	6
2	Following is the given numpy array return array of odd rows and even columns import numpy sampleArray = numpy.array([[3 ,6, 9, 12], [15 ,18, 21, 24], [27 ,30, 33, 36], [39 ,42, 45, 48], [51 ,54, 57, 60]]) Expected Output: Printing Input Array [[3 6 9 12] [15 18 21 24] [27 30 33 36] [39 42 45 48] [51 54 57 60]] Printing array of odd rows and even columns [[6 12] [30 36] [54 60]]	6
3	Concatenate two data frames using the following conditions Create two data frames using the following two dictionaries, concatenate those two data frames and create a key for each data frame.	6

	GermanCars = {'Company': ['Ford', 'Mercedes', 'BMV', 'Audi'], 'Price': [23845, 171995, 135925 , 71400]} JapaneseCars = {'Company': ['Toyota', 'Honda', 'Nissan', 'Mitsubishi '], 'Price': [29995, 23600, 61500 , 58900]} Expected Output: 	

		Company	Price
Germany	0	Ford	23845
	1	Mercedes	171995
	2	BMV	135925
	3	Audi	71400
Japan	0	Toyota	29995
	1	Honda	23600
	2	Nissan	61500
	3	Mitsubishi	58900

4	Write a Pandas program to count the number of rows and columns of a DataFrame. Sample Python dictionary data and list labels: exam_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'], 'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19], 'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1], 'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']} labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j'] Expected Output: Number of Rows: 10 Number of Columns: 4	6
5	Write a Pandas program to join the two given data frames. Perform all the joins, full outer, left, right and inner joins.	

student_data1:

	student_id	name	marks
0	S1	Danniella Fenton	200
1	S2	Ryder Storey	210
2	S3	Bryce Jensen	190
3	S4	Ed Bernal	222
4	S5	Kwame Morin	199

student_data2:

	student_id	name	marks
0	S4	Scarlette Fisher	201
1	S5	Carla Williamson	200
2	S6	Dante Morse	198
3	S7	Kaiser William	219
4	S8	Madeeha Preston	201

exam_data:

	student_id	exam_id
0	S1	23
1	S2	45
2	S3	12
3	S4	67
4	S5	21
5	S7	55
6	S8	33
7	S9	14
8	S10	56
9	S11	83
10	S12	88
11	S13	12

6