CASE STUDY 1

Solve the following problems using Python

Q1: What is numpy and what is the main advantage using numpy also provide a example?
Q2: Create a numpy array of 1D,2D,3D array.
Q3: Create a numpy array from the tuple and describe about its basic property like Shape/Size/ Dimension/Dtype ? using some inbuilt function like shape/size/ndim/dtype
Q4: Creating a 3X4 array with all zeros and 4X4 array with all Ones.
Q5:
```
arr = np.array([[-1, 2, 0, 4],
[4, -0.5, 6, 0],
[2.6, 0, 7, 8],
[3, -7, 4, 2.0]])
```
You are provide with this arr and you are asked to extract Array with first 2 rows and alternate-columns(0 and 2) ?
Output:
```
Array with first 2 rows and alternate-columns(0 and 2):
[[-1. 0.]
[ 4. 6.]]
```

Q6: Extarct the following data from the arr array:
Output:[[-0.5,6],
[0,7],
[-7,2]]

Q7: You are provide with the following data as given u have to convert it into ndarray and find the transpose and trace of the ndarray?
Input taken as raw data
```
Var=[[1, 2, 3], [3, 4, 5], [9, 6, 0]]
```
#output should be:
```
Transpose of array:
[[1 3 9]
[2 4 6]
[3 5 0]]
```
Trace of array: 5

Q8: you are given a array of age of student calculate the following of the group of student?
1)mean
2)standard deviation
3)mode
4)median
#input
#data=[25,34,21,30,28,29,27,25,26,33,20,24,25,24,23,25,26,26,27,25]

CASE STUDY-2

Solve the following problems using Python

Q1:
```
arr = np.array([[1, 5, 6],
[4, 7, 2],
[3, 1, 9]])
```
Find the Maximum and minimum element from the array?

Q2: calculate the sum of the arr name array ?

Q3:
```
arr = np.array([[1, 5, 6],
[4, 7, 2],
[3, 1, 9]])
```
Find out "Row-wise maximum elements output should be like:
#output: Row-wise maximum elements: [6 7 9]

Q4: Find out "Column-wise minimum elements: output is as follows:
#output: Column-wise minimum elements: [1 1 2]

Q5: Find out "Cumulative sum along each row" and the output is:
```
#output: [[1 6 12]
[4 11 13]
[3 4 13]]
```

Q7: Find out the Squareroot and exponential and log of the following array?
Array=[125,200,300,350,420,510,590]

Q8:
```
a = np.array([[1, 4, 2],
[3, 4, 6],
[0, -1, 5]])
```
#sorted array
Find the Array elements in sorted according to row ?
```
#output: Row-wise sorted array:
[[1 2 4]
[3 4 6]
[-1 0 5]]
```
#Column wise sort by applying merge-sort:
```
[[0-1 2]
[1 4 5]
[3 4 6]]
```

Q9:
```
a = np.array([[1, 2],
[3, 4]])
b = np.array([[5, 6],
[7, 8]])
```
Find out the Vstack and Hstack of the two array?
```
#output:
Vertical stacking:
[[1 2]
[3 4]
[5 6]
[7 8]]
```

Q10:What do you understand broadcasting of array?

CASE STUDY 3

Q1: Pandas has how many data-structure answer with an example?
Q1(b): How to import pandas library in python

Q2: what is the basic unit used to create a dataframe and which method is used to create dataframe?

Q3: You are provide with a dictionary which has data consist student name/age/marks
Data={"Name":["manas","jishan","raman","kabir","shubham"],
"Age":[21,20,22,21,20],
"Marks":[78,85,62,42,88]}
Create a dataframe using this dictionary and find the datatype of dataframe and store in df variable?

Q4: Convert the give dataframe which is store in df to a csv file with the name file:"studentdata.csv"?

Q5: Import the data from a csv file into your software for processing the file you can download from the link given below: https://www.google.com/search?client=firefox-b-d&q=kaggle+titanic

Q6: you are provide with the excel workbook which contain multiple sheet now how u can import data from sheet 2 directly without accessing sheet1 and without copy and paste using pandas?

Q6(b) If you are provide a connection connection with database how will you extract data from a specific table?**
Q7: How many types of data are there and provide the names?

Q8: What step Involve in Data Understanding and discuss its importance?

Q9: you are asked to create a series of pandas data-structure using list?

Q10: create the dataframe you are provided by the data in from of list as given below
Df= [["aman","male",45],
["tanvi","female",65],
["ravi","male",78]]
Columns name are also provide in from list:
Col=["Name","Gender","Marks"]

CASE STUDY 4

Solve the following problems using Python

Q1:create a dataframe as shown in the picture extract all names from the dataframe?

	Name	Qualification
0	Jai	Msc
1	Princi	MA
2	Gaurav	MCA
3	Anuj	Phd

Q2: You are provided with the dictionary as given and solve the following question?

```
data = {'Name':['Jai', 'Princi', 'Gaurav',
'Anuj',"anil","javed","rama","sudha"],
'Age':[27, 36, 22, 32,30,21,45,28],
'Address':['Delhi', 'Kanpur', 'Allahabad', 'Kannauj',"Delhi",
„Agra","Kanpur","Noida"],
'Qualification':['Msc', 'MA', 'MCA', 'Phd',"Phd","MA","MA","MA"]}
```

#Extract the data of all student who's qualification is "MA"

#Extract the data of all student according to following condition when Age>30 and Qualification="MA"

Q3: : You are provided with the dictionary as given and solve the following question?

```
data = {'Name':['Jai', 'Princi', 'Gaurav',
'Anuj',"anil","javed","rama","sudha"],
'Age':[27, 36, 22, 32,30,21,45,28],
'Address':['Delhi', 'Kanpur', 'Allahabad', 'Kannauj',"Delhi",
„Agra","Kanpur","Noida"],
'Qualification':['Msc', 'MA', 'MCA', 'Phd',"Phd","MA","MA","MA"],
"Gender":["male","female","male","male","male","male","female","female"],
"Marks":[100,98,78,88,90,45,86,66}
```

#Extract the data from the dataframe colname Name and Marks?

Q4: you are given with the dictionary you have to convert the dictionary into dataframe and Describe the summary of the data?

```
data = {'Name':['Jai', 'Princi', 'Gaurav',
'Anuj',"anil","javed","rama","sudha"],
'Age':[27, 36, 22, 32,30,21,45,28],
"Marks":[100,98,78,88,90,45,86,66]}
```

Q5: use the same dictionary form it a data-frame as given above find number of row and columns with information of the datasets?

```
data = {'Name':['Jai', 'Princi', 'Gaurav',
'Anuj',"anil","javed","rama","sudha"],
'Age':[27, 36, 22, 32,30,21,45,28],
"Marks":[100,98,78,88,90,45,86,66],
„gender":[„M","F","M","M","M","M","F","F"]}
```

Q6: Find any missing value in the datasets form by the dictionary using the pandas method?

```
data = {'Name':['Jai', 'Princi', 'Gaurav',
'Anuj',"anil","javed","rama","sudha"],
'Age':[27, 36, 22, 32,30,21,45,28],
"Marks":[100,98,78,88,90,45,86,66],
„gender":[„M","F","M","M","M","M","F","F"]}
```

Q7: You are require to calculate the mean/median/mode/SD of the marks column in the datasets

```
import pandas as pd
data =pd.DataFrame({'Name':['Jai', 'Princi', 'Gaurav',
'Anuj',"anil","javed","rama","sudha"],
'Age':[27, 36, 22, 32,30,21,45,28],
"Marks":[100,98,78,88,90,45,86,66],
„gender":[„M","F","M","M","M","M","F","F"])}
```

Q8: Someone want to know how many male(M) and Female(F) are there in the datasets which you from using this dictionary?

```
import pandas as pd

data =pd.DataFrame({'Name':['Jai', 'Princi', 'Gaurav',
'Anuj',"anil","javed","rama","sudha"],
'Age':[27, 36, 22, 32,30,21,45,28],
"Marks":[100,98,78,88,90,45,86,66],
„gender":[„M","F","M","M","M","M","F","F"])}
```