Assessment 1-MACHINE LEARNING WINTER SEMESTER 2022 - 23, CSE4020

For all below exercises import numpy as np and using NumPy only you have to solve all questions

Numpy exercises

1. Create an array of 6 zeros

2. Create an array of 6 ones

3.Create an array of 6 fives

4. Create an array of integers from 1 to 99

5. Create an array of all the odd integers ranging from 1 to 99

6. Create a 2X2 matrix filled with values from 1 to 4

7. Create a 3X3 matrix filled with values from 9 to 17

8. Make an identity matrix of 4X4

9. With the help of Numpy generate a random nos in between 0 to 1

10. Create 10 points that are space linearly from each.

11. Compare two 3d array and display the results in terms of true and false.

12. Create a null vector of size 20 where the 6th value should be updated as 5.

13. Reverse an array of size 100 using numpy.

14. Find the minimum and maximum values of a 20X20 array using numpy.

15. Find mean value of a randomly generated array of size 50.

16. " A 20 X20 array filled with zeros at all borders and all 1's inside"-create such array.

17. Create an array of size 10X10 with 10 element valued as nan

18. Create a 4X4 matrix and the values just below the diagonal is 9 8 7

19. Create a check board pattern using numpy

20. Print the dtype of int32 and float64 data type.

Pandas Practice Problems

1. Create a pandas Series using lists and dictionaries?
2. Create series using NumPy functions in Pandas?
3. Find index and values of series in Pandas?
4. How to specify an index while creating Series in Pandas? Find Length Size and Shape of a Series in Pandas?
5. Find the first or last few rows from a Series in Pandas?
6. Demonstrate possible missing value analysis approaches using any real world data.
7. Checking the duplicate rows and columns using pandas.

8. Suppose you have height and weight data for a group of people. For example: Heights are in feet, like 6.5, and weight is in grams, like 80000. In many machine learning situations, you want to normalize the data — scale the data so that the values in different columns have roughly the same magnitude so that large values (like the weight) don't overwhelm smaller values (like the heights).
   Create a raw data of minimum 40 records of height and weight in above mentioned format and use MinMax Normalization to normalize the weights in the range from (-10.0 to 10) as well as use Z-score to normalize the weights.