ASSIGNMENTS ON NUMPY

EXERCISE 1 - Element-wise addition of 2 numpy arrays

Given are 2 similar dimensional numpy arrays, how to get a numpy array output in which every element is an element-wise sum of the 2 numpy arrays?

EXERCISE 2 - Multiplying a matrix (numpy array) by a scalar

Given a numpy array (matrix), how to get a numpy array output which is equal to the original matrix multiplied by a scalar?

EXERCISE 3 - Identity Matrix

Create an identity matrix of dimension 4-by-4

EXERCISE 4 - Array re-dimensioning

Convert a 1-D array to a 3-D array

EXERCISE 5 - Array datatype conversion

Convert all the elements of a numpy array from float to integer datatype

EXERCISE 6 - Obtaining Boolean Array from Binary Array

Convert a binary numpy array (containing only 0s and 1s) to a boolean numpy array

EXERCISE 7 - Horizontal Stacking of Numpy Arrays

Stack 2 numpy arrays horizontally i.e., 2 arrays having the same 1st dimension (number of rows in 2D arrays)

EXERCISE 8 - Vertically Stacking of Numpy Arrays

Stack 2 numpy arrays vertically i.e., 2 arrays having the same last dimension (number of columns in 2D arrays)

EXERCISE 9 - Custom Sequence Generation

Generate a sequence of numbers in the form of a numpy array from 0 to 100 with gaps of 2 numbers, for example: 0, 2, 4 ....

EXERCISE 10 - Getting the positions (indexes) where elements of 2 numpy arrays match

From 2 numpy arrays, extract the indexes in which the elements in the 2 arrays match

EXERCISE 11 - Generation of given count of equally spaced numbers within a specified range

Output a sequence of equally gapped 5 numbers in the range 0 to 100 (both inclusive)

EXERCISE 12 - Matrix Generation with one particular value

Output a matrix (numpy array) of dimension 2-by-3 with each and every value equal to 5

EXERCISE 13 - Array Generation by repeatition of a small array across each dimension

Output an array by repeating a smaller array of 2 dimensions, 10 times

EXERCISE 14 - Array Generation of random integers within a specified range

Output a 5-by-5 array of random integers between 0 (inclusive) and 10 (exclusive)

EXERCISE 15 - Array Generation of random numbers following normal distribution

Output a 3-by-3 array of random numbers following normal distribution

EXERCISE 16 - Matrix Multiplication

Given 2 numpy arrays as matrices, output the result of multiplying the 2 matrices (as a numpy array)

EXERCISE 17 - Matrix Transpose

Output the transpose of a matrix (as numpy array)

EXERCISE 18 - Sine of an Angle (in radians)

Calculate the sine of an array of angles (in radians) using NumPy

EXERCISE 19 - Cosine Similarity

Calculate the cosine similarity of 2 vectors (as numpy arrays)

EXERCISE 20 - Generating the array element indexes such that the array elements appear in ascending order

NUMPY EXERCISES TO BE DONE IN RECORDS

- *Exercise 1. Import numpy as np and see the version*
- *Exercise 2. How to create a 1D array?*
- *Exercise 3. How to create a boolean array?*
- *Exercise 4. How to extract items that satisfy a given condition from 1D array?*
- *Exercise 5. How to replace items that satisfy a condition with another value in numpy array?*

- Exercise 6. How to replace items that satisfy a condition without affecting the original array?

- Exercise 7. How to reshape an array?
- Exercise 8. How to stack two arrays vertically?
- Exercise 9. How to stack two arrays horizontally?
- Exercise 10. How to generate custom sequences in numpy without hardcoding?
- Exercise 11. How to get the common items between two python numpy arrays?
- Exercise 12. How to remove from one array those items that exist in another?
- Exercise 13. How to get the positions where elements of two arrays match?

- Exercise 14. How to extract all numbers between a given range from a numpy array?
- Exercise 15. How to make a python function that handles scalars to work on numpy arrays?
- Exercise 16. How to swap two columns in a 2d numpy array?
- Exercise 17. How to swap two rows in a 2d numpy array?
- Exercise 18. How to reverse the rows of a 2D array?
- Exercise 19. How to reverse the columns of a 2D array?
- Exercise 20. How to create a 2D array containing random floats between 5 and 10?
- Exercise 21. How to print only 3 decimal places in python numpy array?

- Exercise 22. How to pretty print a numpy array by suppressing the scientific notation (like 1e10)?
- Exercise 23. How to limit the number of items printed in output of numpy array?

- *Exercise 24. How to print the full numpy array without truncating*
- *Exercise 25. How to import a dataset with numbers and texts keeping the text intact in python numpy?*
- *Exercise 26. How to extract a particular column from 1D array of tuples?*
- *Exercise 27. How to convert a 1d array of tuples to a 2d numpy array?*
- *Exercise 28. How to compute the mean, median, standard deviation of a numpy array?*
- *Exercise 29. How to normalize an array so the values range exactly between 0 and 1?*
- *Exercise 30. How to compute the softmax score?*
- *Exercise 31. How to find the percentile scores of a numpy array?*
- *Exercise 32. How to insert values at random positions in an array?*
- *Exercise 33. How to find the position of missing values in numpy array?*
- *Exercise 34. How to filter a numpy array based on two or more conditions?*
- *Exercise 35. How to drop rows that contain a missing value from a numpy array?*
- *Exercise 36. How to find the correlation between two columns of a numpy array?*
- *Exercise 43. How to get the second largest value of an array when grouped by another array?*
- *Exercise 44. How to sort a 2D array by a column*
- *Exercise 45. How to find the most frequent value in a numpy array?*

- *Exercise 46. How to find the position of the first occurrence of a value greater than a given value?*
- *Exercise 47. How to replace all values greater than a given value to a given cutoff?*
- *Exercise 48. How to get the positions of top n values from a numpy array?*
- *Exercise 49. How to compute the row wise counts of all possible values in an array?*
- *Exercise 50. How to convert an array of arrays into a flat 1d array?*
- *Exercise 51.*
- How to get the n largest values of an array ?
- Given an arbitrary number of vectors, build the cartesian product (every combinations of every item).
- Consider a 16x16 array, how to get the blocksum (block size is 4x4)?
- Compute a matrix rank.
- How to find the most frequent value in an array?
- Extract all the contiguous 3x3 blocks from a random 10x10 matrix.