Numpy Exercise

1.Write a NumPy program to get the numpy version and show numpy build configuration.

2. Write a NumPy program to get help on the add function.

3. Write a NumPy program to test whether none of the elements of a given array is zero.

4. Write a NumPy program to test whether any of the elements of a given array is non-zero.

5. Write a NumPy program to test a given array element-wise for finiteness (not infinity or not a Number).

6. Write a NumPy program to test element-wise for positive or negative infinity.

7. Write a NumPy program to test element-wise for NaN of a given array.

8. Write a NumPy program to test element-wise for complex numbers, real numbers of a given array. Also test whether a given number is a scalar type or not.

9. Write a NumPy program to test whether two arrays are element-wise equal within a tolerance.

10. Write a NumPy program to create an element-wise comparison (greater, greater_equal, less and less_equal) of two given arrays.

11. Write a NumPy program to create an element-wise comparison (equal, equal within a tolerance) of two given arrays.

12. Write a NumPy program to create an array with the values 1, 7, 13, 105 and determine the size of the memory occupied by the array.

13. Write a NumPy program to create an array of 10 zeros,10 ones, 10 fives.

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14. Write a NumPy program to create an array of the integers from 30 to70.

15. Write a NumPy program to create an array of all the even integers from 30 to 70.

16. Write a NumPy program to create a 3x3 identity matrix.

17. Write a NumPy program to generate a random number between 0 and 1.

18. Write a NumPy program to generate an array of 15 random numbers from a standard normal distribution.

19. Write a NumPy program to create a vector with values ranging from 15 to 55 and print all values except the first and last.

20. Write a NumPy program to create a 3X4 array using and iterate over it.

21. Write a NumPy program to create a vector of length 10 with values evenly distributed between 5 and 50.

22. Write a NumPy program to create a vector with values from 0 to 20 and change the sign of the numbers in the range from 9 to 15.

23. Write a NumPy program to create a vector of length 5 filled with arbitrary integers from 0 to 10.

24. Write a NumPy program to multiply the values of two given vectors.

25. Write a NumPy program to create a 3x4 matrix filled with values from 10 to 21.

26. Write a NumPy program to find the number of rows and columns of a given matrix.

Numpy Exercise

27. Write a NumPy program to create a 3x3 identity matrix, i.e. diagonal elements are 1, the rest are 0.

28. Write a NumPy program to create a 10x10 matrix, in which the elements on the borders will be equal to 1, and inside 0.

29. Write a NumPy program to create a 5x5 zero matrix with elements on the main diagonal equal to 1, 2, 3, 4, 5.

30. Write a NumPy program to create a 4x4 matrix in which 0 and 1 are staggered, with zeros on the main diagonal.

31. Write a NumPy program to create a 3x3x3 array filled with arbitrary values.

32. Write a NumPy program to compute sum of all elements, sum of each column and sum of each row of a given array.

33. Write a NumPy program to compute the inner product of two given vectors.

34. Write a NumPy program to add a vector to each row of a given matrix.

35. Write a NumPy program to save a given array to a binary file .

36. Write a NumPy program to save two given arrays into a single file in compressed format (.npz format) and load it.

37. Write a NumPy program to save a given array to a text file and load it.

38. Write a NumPy program to convert a given array into bytes, and load it as array.

39. Write a NumPy program to convert a given list into an array, then again convert it into a list. Check the initial list and final list are equal or not.

Numpy Exercise

40. Write a NumPy program to compute the x and y coordinates for points on a sine curve and plot the points using matplotlib.

41. Write a NumPy program to convert numpy dtypes to native python types.

42. Write a NumPy program to add elements in a matrix. If an element in the matrix is 0, we will not add the element below this element.

43. Write a NumPy program to find the missing data in a given array.

44. Write a NumPy program to check whether two arrays are equal (element wise) or not.

45. Write a NumPy program to create a one-dimensional array of single, two and three digit numbers.

46. Write a NumPy program to create a two-dimensional array of specified format.

47. Write a NumPy program to create a one dimensional array of forty pseudo-randomly generated values. Select random numbers from a uniform distribution between 0 and 1.

48. Write a NumPy program to create a two-dimensional array with shape (8,5) of random numbers. Select random numbers from a normal distribution (200,7).

49. Write a NumPy program to generate a uniform, non-uniform random sample from a given 1-D array with and without replacement.

50. Write a NumPy program to create a 4x4 array with random values, now create a new array from the said array swapping first and last rows.

51. Write a NumPy program to create a new array of given shape (5,6) and type, filled with zeros.

Numpy Exercise

52. Write a NumPy program to sort a given array by row and column in ascending order.

53. Write a NumPy program to extract all numbers from a given array which are less and greater than a specified number.

54. Write a NumPy program to replace all numbers in a given array which is equal, less and greater to a given number.

55. Write a NumPy program to create an array of equal shape and data type of a given array.

56. Write a NumPy program to create a three-dimensional array with shape (3,5,4) and set to a variable.

57. Write a NumPy program to create a 4x4 array, now create a new array from the said array swapping first and last, second and third columns.

58. Write a NumPy program to swap rows and columns of a given array in reverse order.

59. Write a NumPy program to multiply two given arrays of the same size element-by-element.