

Assignment No 1

Topic: NumPy

1. Write a code to create a 1D array from a list [1, 2, 3, 4, 5].
2. How would you create a 3x3 array of zeros?
3. Write code to create a 4x4 array filled with ones.
4. Create an array of 10 evenly spaced numbers between 0 and 5.
5. Create a 1D array of 20 random integers between 1 and 100
6. Write a code to create an array of 5 random floating-point numbers between 0 and 1.
7. Generate a 2D array with the shape (5, 3) containing random values from a normal distribution.
8. Create a diagonal matrix from the list [2, 4, 6].
9. Write code to create a 3x3 identity matrix.
10. How do you create an array from 1 to 9 and reshape it into a 3x3 matrix?
11. Given a NumPy array `arr = np.array([10, 20, 30, 40, 50])`, write code to access the 3rd element.
12. How do you slice the array `arr = np.array([10, 20, 30, 40, 50])` to get the first 3 elements?
13. Write code to get all elements from the array except the last two.
14. How do you access the element at row 2, column 3 in a 2D array?
15. Write a code to reverse a 1D NumPy array.
16. How do you extract all even numbers from a 1D array using boolean indexing?
17. Given a 2D array `arr`, how do you access the second column?
18. Write code to replace all negative values in an array with zero.
19. How do you select specific rows from a 2D NumPy array?
20. Given an array `arr = np.array([1, 2, 3, 4, 5])`, replace the value 3 with 99.
21. Write a code to add two NumPy arrays element-wise.
22. How do you subtract one NumPy array from another?
23. Write code to multiply two 2D arrays element-wise.
24. How do you perform matrix multiplication using NumPy?
25. Write a code to divide one NumPy array by another element-wise.
26. How do you compute the dot product of two vectors in NumPy?
27. Write code to find the sum of all elements in a NumPy array.
28. How do you calculate the mean of a NumPy array?
29. Write code to compute the standard deviation of an array.
30. How do you find the minimum and maximum values in a NumPy array?
31. Write code to reshape a 1D array of 12 elements into a 3x4 matrix.
32. How do you flatten a 2D array into a 1D array?
33. Write a code to transpose a 3x2 matrix.
34. How do you concatenate two 1D arrays horizontally?
35. Write a code to stack two 2D arrays vertically.



36. How do you split a 1D array into three equal parts?
37. Write code to repeat an array 3 times.
38. How do you append a new row to a 2D array?
39. Write a code to delete the second column of a 2D array.
40. How do you insert a new column into a 2D NumPy array?
41. Write a code to find the shape of a NumPy array.
42. How do you check the data type of elements in a NumPy array?
43. Write code to find the number of dimensions in a NumPy array.
44. How do you get the total number of elements in a NumPy array?
45. Write a code to change the data type of a NumPy array to float64.
46. How do you check whether a NumPy array contains NaN values?
47. Write code to find the index of the maximum value in a NumPy array.
48. How do you find the cumulative sum of elements in a 1D array?
49. Write code to count the number of occurrences of each value in a NumPy array.
50. How do you sort a NumPy array in ascending order? `np.flip(arr)`

