58 NumPy interview questions to assess data science candidates

Questions

1. Can you explain what NumPy is and why it's useful?

2. What are the advantages of using NumPy arrays over Python lists?

3. How would you describe the concept of broadcasting in NumPy?

4. What is a NumPy ndarray?

5. Can you explain what a NumPy axis is?

6. How do you handle missing data in a NumPy array?

7. What are some common methods to reshape a NumPy array?

8. How do you concatenate two NumPy arrays?

9. What is the difference between a NumPy view and a copy?

10. How do you generate random numbers using NumPy?

11. How do you create a NumPy array from a Python list?

12. What is the syntax for accessing elements in a NumPy array?

13. How do you perform element-wise arithmetic operations on NumPy arrays?

14. Can you explain the difference between np.zeros() and np.ones()?

15. How do you sort a NumPy array?

16. What is the function of np.linspace()?

17. How can you find the unique elements in a NumPy array?

18. How do you calculate the mean of a NumPy array?

19. What methods can you use to transpose a NumPy array?

20. How do you stack arrays vertically and horizontally in NumPy?

21. Can you describe how to use boolean indexing in NumPy?

22. How do you flatten a NumPy array?

23. What is the difference between np.sum() and np.cumsum()?

24. How do you save and load a NumPy array to and from a file?

25. What is NaN and how does NumPy handle it?

26. How do you use slicing to access subarrays in NumPy?

27. What is the purpose of np.dot() in NumPy?

28. How do you apply a function to each element in a NumPy array?

29. Can you explain how to use fancy indexing in NumPy?

30. How do you use np.where() to conditionally select elements from a NumPy array?

31. How do you handle large datasets in NumPy?

32. Can you explain the concept of vectorization in NumPy?

33. Describe how you would perform statistical operations on a NumPy array.

34. What strategies do you use for optimizing NumPy code performance?

35. How do you handle errors and exceptions in NumPy?

36. Can you explain the importance of data types in NumPy arrays?

37. Describe a scenario where you had to debug a complex NumPy operation.

38. How do you validate the results of NumPy calculations?

39. What are some common pitfalls to watch out for when working with NumPy arrays?

40. How do you handle multi-dimensional data in NumPy?

41. What is the difference between a 1D and a 2D NumPy array?

42. How do you create a NumPy array filled with random integers within a specific range?

43. Can you explain how to perform matrix multiplication in NumPy?

44. How do you identify the shape and size of a NumPy array?

45. What functions would you use to calculate the standard deviation and variance of a NumPy array?

46. How do you extract a specific row or column from a 2D NumPy array?

47. Can you explain the use of the np.concatenate function with a practical example?

48. How do you use np.vstack() and np.hstack() to combine arrays?

49. What are structured arrays in NumPy and when would you use them?

50. How do you use np.meshgrid to create grid coordinates for 2D plots?

51. How would you use NumPy to find the median value of an array while ignoring any NaN values?

52. Can you explain how you would use NumPy to normalize data in an array?

53. How would you use NumPy to calculate the moving average of a time series data?

54. Explain how you would use NumPy to find the correlation between two variables in a dataset.

55. How would you use NumPy to remove outliers from a dataset?

56. Can you explain how you would use NumPy to perform a rolling window operation on a large dataset?

57. How would you use NumPy to perform element-wise operations on arrays of different shapes?

58. Can you explain how you would use NumPy to perform binning or discretization of continuous data?