

Coding-Based Questions:

Pandas: Create a DataFrame from a dictionary and display the first 5 rows.

Pandas: How do you select a single column 'age' from a DataFrame called df?

Pandas: Write code to remove all rows in a DataFrame where the 'score' column is less than 50.

NumPy: Create a 3x3 identity matrix using NumPy.

Pandas: How can you find the number of missing values in each column of a DataFrame?

Pandas: Calculate the mean and median of a numeric column 'price' in a DataFrame.

NumPy: Create a NumPy array with values ranging from 0 to 9, and reshape it into a 3x3 matrix.

Pandas: Merge two DataFrames, df1 and df2, on a common column 'id'.

Pandas: Sort a DataFrame by the 'date' column in descending order.

NumPy: Calculate the dot product of two NumPy arrays a and b.

Pandas: How do you rename a column 'old_name' to 'new_name' in a DataFrame?

NumPy: Calculate the mean, median, and standard deviation of a NumPy array 'data'.

Pandas: Write code to filter rows in a DataFrame where the 'category' column contains the string 'A' or 'B'.

NumPy: Create a 4x4 matrix with random values between 0 and 1 using NumPy.

Pandas: How can you drop a column 'column_name' from a DataFrame 'df'?

Pandas: Calculate the correlation matrix for all numeric columns in a DataFrame.

NumPy: Reshape a 1D NumPy array 'arr' into a 2D array with 4 rows and 3 columns.

Pandas: How do you group data in a DataFrame by the 'category' column and calculate the mean for each group?

Pandas: Find the maximum value in the 'value' column of a DataFrame 'df' while excluding NaN values.

NumPy: Calculate the determinant of a 3x3 matrix 'A' using NumPy.

Pandas: Create a new column 'total' in a DataFrame by summing two existing columns 'column1' and 'column2'.

Pandas: How can you extract rows from a DataFrame 'df' where the 'date' column falls between 'start_date' and 'end_date'?

NumPy: Compute the element-wise square root of a NumPy array 'arr'.

Pandas: Calculate the 75th percentile of a numeric column 'score' in a DataFrame.

Pandas: Write code to replace all occurrences of 'Old' with 'New' in a specific column 'text' of a DataFrame.

MCQS:

Which library is primarily used for data manipulation and analysis in Python?

- a) Matplotlib
- b) Pandas
- c) NumPy
- d) SciPy

What data structure is used to store 2D data in Pandas?

- a) Series
- b) Dictionary
- c) DataFrame
- d) Array

Which NumPy function is used to generate evenly spaced values within a specified range?

- a) linspace()
- b) arange()
- c) range()
- d) linspace_range()

In Pandas, which function is used to remove duplicate rows from a DataFrame?

- a) drop_duplicates()
- b) remove_duplicates()
- c) drop_rows()
- d) remove_rows()

What is the purpose of the .loc[] accessor in Pandas?

- a) It is used to select columns from a DataFrame.
- b) It is used to locate rows and columns by labels.
- c) It is used to compute the logarithm of numeric values.
- d) It is used to perform local statistical analysis.

In Pandas, which function is used to drop duplicate rows in a DataFrame?

- a) drop_duplicates()

- b) `remove_duplicates()`
- c) `drop_rows()`
- d) `remove_rows()`

What is the primary data structure in NumPy for storing and manipulating data?

- a) Series
- b) DataFrame
- c) Array
- d) Dictionary

Which Pandas function is used to check for missing values in a DataFrame?

- a) `check_null()`
- b) `isna()`
- c) `has_missing()`
- d) `null_check()`

In NumPy, what function is used to find the index of the maximum value in an array 'arr'?

- a) `max_index(arr)`
- b) `np.max_index(arr)`
- c) `argmax(arr)`
- d) `find_max_index(arr)`

When performing a left join between two DataFrames in Pandas, which rows are retained in the resulting DataFrame?

- a) Only rows present in the left DataFrame
- b) Only rows present in the right DataFrame
- c) Rows present in both DataFrames
- d) All rows from both DataFrames