🌟 Essential NumPy and Pandas Functions 🌟

Essential NumPy Functions 🔢

1. `array()` : Creates a NumPy array from lists or other data structures.
2. `arange()` : Generates evenly spaced values within a specified range.
3. `linspace()` : Generates evenly spaced numbers over a specified interval.
4. `reshape()` : Reshapes an array without changing its data.
5. `ravel()` : Flattens a multi-dimensional array into a one-dimensional array.
6. `transpose()` : Transposes the axes of an array (rows become columns and vice versa).
7. `ones()` : Creates an array filled with ones of a specified shape.
8. `zeros()` : Creates an array filled with zeros of a specified shape.
9. `eye()` : Creates a 2D identity matrix with ones on the diagonal.
10. `full()` : Creates an array filled with a specified value.
11. `mean()` : Calculates the average of the elements along a specified axis.
12. `std()` : Computes the standard deviation of the array elements.
13. `max()` : Returns the maximum value in the array.
14. `min()` : Returns the minimum value in the array.
15. `sqrt()` : Computes the square root of all elements in the array.
16. `exp()` : Calculates the exponential of all elements in the array.
17. `log10()` : Computes the base-10 logarithm of all elements in the array.
18. `random.randint()` : Generates random integers within a specified range.
19. `random.rand()` : Generates random values between 0 and 1 in a specified shape.
20. `random.randn()` : Generates random values from a standard normal distribution.
21. `shape` : Returns the dimensions of the array as (rows, columns).
22. `size` : Returns the total number of elements in the array.
23. `ndim` : Returns the number of dimensions in the array.
24. `dtype` : Returns the data type of the elements in the array.
25. `astype()` : Converts the data type of the elements in the array.

26. `@` : Performs matrix multiplication (alternative to `matmul()`).

27. `dot()` : Computes the dot product of two arrays.

28. `sort()` : Sorts the elements of an array in ascending order.

29. `concatenate()` : Combines multiple arrays along a specified axis.

30. `clip()` : Limits values in an array to a specified range.

Essential Pandas Functions 📊

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1. `read_csv()` : Loads a CSV file into a pandas DataFrame for analysis.

2. `head()` / `tail()` : Displays the first or last few rows of a DataFrame.

3. `shape` : Returns the dimensions of the DataFrame as (rows, columns).

4. `info()` : Provides a summary of the DataFrame structure, including data types and non-null values.

5. `describe()` : Generates summary statistics for numerical columns.

6. `isnull()` : Detects missing values in the DataFrame.

7. `fillna()` : Fills missing values with a specified value or method.

8. `dropna()` : Removes rows or columns with missing data.

9. `rename()` : Renames columns or indexes in the DataFrame.

10. `sort_values()` : Sorts the DataFrame by specified column values.

11. `groupby()` : Groups data based on one or more keys for aggregation.

12. `merge()` : Combines two DataFrames using a specified join method.

13. `concat()` : Concatenates multiple DataFrames along rows or columns.

14. `pivot_table()` : Creates a pivot table for summarizing data.

15. `to_csv()` : Exports the DataFrame to a CSV file.

16. `value_counts()` : Counts the unique values in a column.

17. `corr()` : Calculates correlation between numerical columns.

18. `duplicated()` / `drop_duplicates()` : Identifies or removes duplicate rows.

19. `sample()` : Selects a random sample of rows from the DataFrame.

20. `apply()` : Applies a custom function to elements in a column or row.

21. `astype()` : Converts a column to a specified data type.

22. `set_index()` : Sets a specified column as the index of the DataFrame.

23. `reset_index()`: Resets the index of the DataFrame to the default integer index.
24. `iloc[]`: Selects rows and columns by integer position.
25. `loc[]`: Selects rows and columns by labels or a Boolean array.
26. `nunique()`: Counts the number of unique values in each column.
27. `replace()`: Replaces specific values in the DataFrame with others.
28. `query()`: Filters rows based on a query expression.
29. `transform()`: Applies a function to each group in a grouped DataFrame.
30. `rolling()`: Performs rolling computations, like moving averages, on a specified window size.