Pandas

Data Structures

- pd.DataFrame(): Creates an empty DataFrame with no rows or columns.
- pd.Series(): Creates an empty Series with no elements

Import and Export

- pandas.read_csv: Reads a CSV file and returns a DataFrame.
- pandas.read_excel: Reads an Excel file and returns a DataFrame.
- pandas.read_sql: Reads SQL query results into a DataFrame.
- DataFrame.to_csv: Writes a DataFrame to a CSV file.
- DataFrame.to_excel: Writes a DataFrame to an Excel file

Cleaning and Transformation

- DataFrame.isnull: Checks for missing values in the DataFrame.
- DataFrame.fillna: Fills missing values in the DataFrame with specified values.
- DataFrame.replace: Replaces specified values in the DataFrame.
- DataFrame.apply: Applies a function along an axis of the DataFrame.
- DataFrame.map: Maps values of a Series to new values based on a specified mapping.
- DataFrame.duplicated: Identifies duplicated rows in the DataFrame.
- DataFrame.drop_duplicates: Drops duplicated rows from the DataFrame

Visualization

- DataFrame.plot: Creates various types of plots (line, bar, scatter, etc.).
- DataFrame.hist: Plots histograms of specified columns.
- DataFrame.boxplot: Generates box plots of specified columns

Slicing and Indexing

- DataFrame.loc: Accesses a group of rows and columns by label(s).
- DataFrame.iloc: Accesses a group of rows and columns by integer position(s).
- DataFrame.at: Accesses a single value by label(s) and column(s).
- DataFrame.iat: Accesses a single value by integer position(s) and column(s).
- DataFrame.filter: Selects columns based on specified criteria.

Time Series and Date Handling

- DataFrame.resample: Resamples time series data to a specified frequency.
- DataFrame.shift: Shifts the index by a specified number of periods.
- DataFrame.asfreq: Converts the time series to a specified frequency.
- DataFrame.to_datetime: Converts a column to datetime format.
- DataFrame.dt: Provides convenient datetime properties and methods.

Exploration and Manipulation

- DataFrame.head: Returns the first n rows of the DataFrame.
- DataFrame.tail: Returns the last n rows of the DataFrame.
- DataFrame.info: Provides a summary of the DataFrame's structure and data types.
- DataFrame.describe: Generates descriptive statistics of the DataFrame.
- DataFrame.shape: Returns the dimensions of the DataFrame.
- DataFrame.drop: Drops specified rows or columns from the DataFrame.
- DataFrame.groupby: Groups data based on specified variables.
- DataFrame.sort_values: Sorts the DataFrame by specified columns.
- DataFrame.merge: Merges two DataFrames based on common columns.

Aggregation and Summary

- DataFrame.groupby: Groups data based on specified variables for aggregation.
- DataFrame.agg: Applies multiple aggregation functions to specific columns.
- DataFrame.pivot_table: Creates a pivot table based on specified variables.
- DataFrame.value_counts: Counts unique values in a column.

Descriptive Statistics

- DataFrame.count: Counts the number of non-null values in each column.
- DataFrame.mean: Computes the mean (average) value of each column.
- DataFrame.median: Computes the median value of each column.
- DataFrame.std: Computes the standard deviation of each column.
- DataFrame.var: Computes the variance of each column.
- DataFrame.min: Finds the minimum value of each column.
- DataFrame.max: Finds the maximum value of each column

Correlation and Covariance

- DataFrame.corr: Computes the correlation matrix of columns in a DataFrame.
- Series.corr: Computes the correlation coefficient between two Series objects.
- DataFrame.cov: Computes the covariance matrix of columns in a DataFrame.
- Series.cov: Computes the covariance between two Series objects.

Transformation

- DataFrame.applymap: Applies a function element-wise to a DataFrame.
- DataFrame.transform: Applies a function group-wise to a DataFrame.
- DataFrame.melt: Unpivots a DataFrame from wide to long format.
- DataFrame.stack: Stacks the prescribed level(s) from columns to index.
- DataFrame.unstack: Unstacks the prescribed level(s) from index to columns.

String Operations

- Series.str.contains: Checks if a pattern is contained in each string element.
- Series.str.extract: Extracts substrings matching a pattern.
- Series.str.replace: Replaces occurrences of a pattern with a specified value

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