

Reference Sheet for CN240

Suppose `df` is a DataFrame; `s` is a Series. `import pandas as pd`

Function	Description
<code>df.shape</code>	Returns a tuple containing the number of rows and columns, in that order
<code>df.index</code>	Returns the index (row labels) of <code>df</code> as an Index object
<code>df[col]</code>	Returns the column labeled <code>col</code> from <code>df</code> as a Series
<code>df[[col1, col2]]</code>	Returns a DataFrame containing the columns labeled <code>col1</code> and <code>col2</code>
<code>s.astype(dtype)</code>	Returns a Series casted to the specified type <code>dtype</code>
<code>s.loc[rows] / df.loc[rows, cols]</code>	Returns a Series/DataFrame with rows (and columns) selected by their index values
<code>s.iloc[rows] / df.iloc[rows, cols]</code>	Returns a Series/DataFrame with rows (and columns) selected by their positions
<code>s.isnull() / df.isnull()</code>	Returns boolean Series/DataFrame identifying missing values
<code>s.isin(values) / df.isin(values)</code>	Returns a Series/DataFrame of booleans indicating if each element is in <code>values</code> .
<code>df.drop(labels, axis)</code>	Returns a DataFrame without the rows or columns named <code>labels</code> along <code>axis</code> (either 0 or 1)
<code>df.rename(index=None, columns=None)</code>	Returns a DataFrame with renamed columns from a dictionary <code>index</code> and/or <code>columns</code>
<code>df.sort_values(by, ascending=True)</code>	Returns a DataFrame where rows are sorted by the values in columns <code>by</code>
<code>s.sort_values(ascending=True)</code>	Returns a sorted Series
<code>s.unique()</code>	Returns a NumPy array of the unique values
<code>s.value_counts()</code>	Returns the number of times each unique value appears in a Series
<code>pd.merge(left, right, how='inner', left_on=col1, right_on=col2)</code>	Returns a DataFrame joining <code>left</code> and <code>right</code> on columns labeled <code>col1</code> and <code>col2</code> ; the join is of type inner
<code>left.merge(right, left_on=col1, right_on=col2)</code>	Returns a DataFrame joining <code>left</code> and <code>right</code> on columns labeled <code>col1</code> and <code>col2</code>
<code>pd.melt(frame, id_vars=None, value_vars=None, var_name=None, value_name='value')</code>	Returns a DataFrame that unpivots a DataFrame from wide to long format, increasing the number of rows and decreasing the number of columns
<code>df.pivot_table(values=None, index=None, columns=None, aggfunc='mean', fill_value=None)</code>	Returns a DataFrame pivot table where columns are unique values from columns (column name or list), and rows are unique values from index (column name or list); cells are collected values using <code>aggfunc</code> . If <code>values</code> is not provided, cells are collected for each remaining column with multi-level column indexing
<code>df.set_index(col)</code>	Returns a DataFrame that uses the values in the column labeled <code>col</code> as the row index
<code>df.reset_index()</code>	Returns a DataFrame that has row index 0, 1, etc., and adds the current index as a column
<code>df['column'].map(arg)</code>	Returns a Series with each element mapped according to the input

	correspondence (dict, Series, or function)
<code>df['column'].apply(func)</code>	Returns a Series with the function applied to each element in the column

Let `grouped = df.groupby(by)` where `by` can be a column label or a list of labels

Function	Description
<code>grouped.count()</code>	Return a DataFrame containing the size of each group, excluding missing values
<code>grouped.size()</code>	Return a Series containing size of each group, including missing values
<code>grouped.mean()/std()/min()/max()</code>	Return a Series/DataFrame containing mean/std/min/max of each group for each column, excluding missing values
<code>grouped.filter(f)</code> <code>grouped.agg(f)</code>	Filters or aggregates using the given function <code>f</code>

String Methods

Function	Description
<code>s.str.lower()/s.str.upper()</code>	Returns a Series of lowercase/uppercase versions of each string
<code>s.str.replace(pat, repl, regex=False)</code>	Returns a Series that replaces occurrences of substrings matching <code>pat</code> with string <code>repl</code> . When <code>regex=False</code> , <code>pat</code> is treated as a literal string; when <code>regex=True</code> , <code>pat</code> is treated as a RegEx pattern.
<code>s.str.contains(pat)</code>	Returns a boolean Series indicating if a substring matching the regex <code>pat</code> is contained in each string
<code>s.str.extract(pat)</code>	Returns a DataFrame of the first subsequence of each string that matches the regex <code>pat</code> . If <code>pat</code> contains one group, then only the substring matching the group is extracted
<code>s.str.split(pat=" ")</code>	Splits the strings in <code>s</code> at the delimiter <code>pat</code> (defaults to a whitespace). Returns a Series of lists, where each list contains strings of the characters before and after the split.
<code>s.str[i]</code>	Extracts the character at position <code>i</code> from each string in <code>s</code> . Returns a Series with the selected characters.

Visualization

Function	Description
<code>ggplot(data=None, mapping=None)</code>	Creates a new <code>ggplot</code> object. It is used as the foundation for building plots layer by layer. ' <code>data</code> ' is the dataset to be plotted, and ' <code>mapping</code> ' defines the aesthetic (<code>aes</code>) mappings.
<code>geom_bar(mapping=None, data=None, stat='count', position='stack')</code>	Adds a bar chart layer to the plot. <code>mapping</code> defines aesthetic mappings, <code>data</code> overrides the plot data, <code>stat</code> specifies the statistical transformation, and <code>position</code> adjusts the position of overlapping objects. <code>stat="identity"</code> to plot <code>y</code> in mapping.
<code>geom_boxplot(mapping=None, data=None, stat='boxplot', position='dodge')</code>	Adds a box plot layer to the plot. Arguments function similarly to other geoms.
<code>geom_density(mapping=None, data=None, stat='density', position='dodge')</code>	Adds a density plot layer to the plot. Arguments function similarly to other geoms.

<code>position='identity')</code>	
<code>geom_freqpoly(mapping=None, data=None, stat='bin', position='identity')</code>	Adds a frequency polygon layer to the plot. Arguments work as in <code>geom_histogram()</code> .
<code>geom_histogram(mapping=None, data=None, stat='bin', position='stack')</code>	Adds a histogram layer to the plot. Arguments function similarly to other geoms.
<code>geom_line(mapping=None, data=None, stat='identity', position='identity')</code>	Adds a line plot layer to the plot. Arguments function similarly to other geoms.
<code>geom_point(mapping=None, data=None, stat='identity', position='identity')</code>	Adds a scatter plot layer to the plot. Arguments function as in previous geoms.
<code>geom_tile(mapping=None, data=None, stat='identity', position='identity')</code>	Adds a tile plot layer to the plot. Arguments function similarly to other geoms.