



Unit 4 - Pandas Reference Sheet

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[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.loc[rows] / df.loc[rows, cols]</code>	Returns a Series/DataFrame with rows (and columns) selected by their index values.
<code>s.isna() / df.isna()</code>	Returns boolean Series/DataFrame identifying missing values
<code>s.fillna(value) / df.fillna(value)</code>	Returns a Series/DataFrame where missing values are replaced by <code>value</code>
<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 of <code>s</code> in the order that they appear
<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 <code>inner</code>
<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 <code>columns</code> (column name or list), and rows are unique values from <code>index</code> (column name or list); cells are collected <code>values</code> 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.

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().min().max()</code>	Return a Series/DataFrame containing mean/min/max of each group for each column, excluding missing values
<code>grouped.first().last()</code>	Return a Series/DataFrame containing first/last entry of each group for each column, excluding missing values



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string operation useful for data cleaning tasks.

Function	Description
<code>s.str.len()</code>	Returns a Series containing length of each string.
<code>s.str[a:b]</code>	Returns a Series where each element is a slice of the corresponding string indexed from <code>a</code> (inclusive, optional) to <code>b</code> (non-inclusive, optional).
<code>s.str.lower()/s.str.upper()</code>	Returns a Series of lowercase/uppercase versions of each string.
<code>s.str.replace(pat, repl)</code>	Returns a Series that replaces occurrences of substrings matching <code>pat</code> with string <code>repl</code> .
<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>	Extracts capture groups in the regex <code>pat</code> from each string. Returns a DataFrame with the extracted substrings, where the columns in the returned DataFrame correspond to the capture groups in <code>pat</code> .
<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.