## Input/output

## **Pickling**

- readpickle (filepathor\_buffer[, ...]) Load pickled pandas object (or any object) from file.
- DataFrame.to\_pickle (path, \*[, compression, ...]) Pickle (serialize) object to file.

#### Flat file

- readtable (filepathor\_buffer, \*[, sep, ...]) Read general delimited file into DataFrame.
- readcsv (filepathor\_buffer, \*[, sep, ...]) Read a commaseparated values (csv) file into DataFrame.
- DataFrame.tocsv ([pathorbuf, sep, narep, ...]) Write object to a comma-separated values (csv) file.
- readfwf (filepathor\_buffer, \*[, colspecs, ...]) Read a table of fixed-width formatted lines into DataFrame.

### Clipboard

- readclipboard ([sep, dtypebackend]) Read text from clipboard and pass to read\_csv() .
- DataFrame.to\_clipboard (\*[, excel, sep]) Copy object to the system clipboard.

#### **Excel**

- readexcel (io[, sheetname, header, names, ...]) Read an Excel file into a pandas DataFrame .
- DataFrame.toexcel (excelwriter, \*[, ...]) Write object to an Excel sheet.
- ExcelFile (pathorbuffer[, engine, ...]) Class for parsing tabular Excel sheets into DataFrame objects.
- ExcelFile.book -
- ExcelFile.sheet names -
- ExcelFile.parse ([sheet\_name, header, names, ...]) Parse specified sheet(s) into a DataFrame.
- Styler.toexcel (excelwriter[, sheet\_name, ...]) Write Styler to an Excel sheet.
- ExcelWriter (path[, engine, date\_format, ...]) Class for writing DataFrame objects into excel sheets.

#### **JSON**

- readjson (pathor\_buf, \*[, orient, typ, ...]) Convert a JSON string to pandas object.
- jsonnormalize (data[, recordpath, meta, ...]) Normalize semi-structured JSON data into a flat table.
- DataFrame.tojson ([pathor\_buf, orient, ...]) Convert the object to a JSON string.
- buildtableschema (data[, index, ...]) Create a Table schema from data .

#### HTML

- read\_html (io, \*[, match, flavor, header, ...]) Read HTML tables into a list of DataFrame objects.
- DataFrame.tohtml ([buf, columns, colspace, ...]) Render a DataFrame as an HTML table.
- Styler.tohtml ([buf, tableuuid, ...]) Write Styler to a file, buffer or string in HTML-CSS format.

#### **XML**

- readxml (pathor\_buffer, \*[, xpath, ...]) Read XML document into a DataFrame object.
- DataFrame.toxml ([pathor\_buffer, index, ...]) Render a DataFrame to an XML document.

#### Latex

- DataFrame.to\_latex ([buf, columns, header, ...]) Render object to a LaTeX tabular, longtable, or nested table.
- Styler.tolatex ([buf, columnformat, ...]) Write Styler to a file, buffer or string in LaTeX format.

### **HDFStore: PyTables (HDF5)**

- readhdf (pathor\_buf[, key, mode, errors, ...]) Read from the store, close it if we opened it.
- HDFStore.put (key, value[, format, index, ...]) Store object in HDFStore.
- HDFStore.append (key, value[, format, axes, ...]) Append to Table in file.
- HDFStore.get (key) Retrieve pandas object stored in file.

- HDFStore.select (key[, where, start, stop, ...]) Retrieve pandas object stored in file, optionally based on where criteria.
- HDFStore.info () Print detailed information on the store.
- HDFStore.keys ([include]) Return a list of keys corresponding to objects stored in HDFStore.
- **HDFStore.groups** () Return a list of all the top-level nodes.
- **HDFStore.walk ([where])** Walk the pytables group hierarchy for pandas objects.

#### Feather

- readfeather (path[, columns, usethreads, ...]) Load a feather-format object from the file path.
- DataFrame.to\_feather (path, \*\*kwargs) Write a DataFrame to the binary Feather format.

#### **Parquet**

- read\_parquet (path[, engine, columns, ...]) Load a parquet object from the file path, returning a DataFrame.
- DataFrame.to\_parquet ([path, engine, ...]) Write a DataFrame to the binary parquet format.

#### **ORC**

- readorc (path[, columns, dtypebackend, ...]) Load an ORC object from the file path, returning a DataFrame.
- DataFrame.to\_orc ([path, engine, index, ...]) Write a DataFrame to the ORC format.

#### **SAS**

• readsas (filepathor\_buffer, \*[, format, ...]) - Read SAS files stored as either XPORT or SAS7BDAT format files.

#### **SPSS**

• read\_spss (path[, usecols, ...]) - Load an SPSS file from the file path, returning a DataFrame.

#### **SQL**

- readsqltable (table\_name, con[, schema, ...]) Read SQL database table into a DataFrame.
- readsqlquery (sql, con[, index\_col, ...]) Read SQL query into a DataFrame.
- readsql (sql, con[, indexcol, ...]) Read SQL query or database table into a DataFrame.
- DataFrame.to\_sql (name, con, \*[, schema, ...]) Write records stored in a DataFrame to a SQL database.

## Google BigQuery

• readgbq (query[, projectid, index\_col, ...]) - (DEPRECATED) Load data from Google BigQuery.

#### STATA

- readstata (filepathor\_buffer, \*[, ...]) Read Stata file into DataFrame.
- DataFrame.tostata (path, \*[, convertdates, ...]) Export DataFrame object to Stata dta format.
- StataReader.data\_label Return data label of Stata file.
- StataReader.value\_labels () Return a nested dict associating each variable name to its value and label.
- StataReader.variable\_labels () Return a dict associating each variable name with corresponding label.
- StataWriter.write\_file () Export DataFrame object to Stata dta format.

## **General functions**

#### Data manipulations

- melt (frame[, idvars, valuevars, var\_name, ...]) Unpivot a DataFrame from wide to long format, optionally leaving identifiers set.
- pivot (data, \*, columns[, index, values]) Return reshaped DataFrame organized by given index / column values.
- pivot\_table (data[, values, index, columns, ...]) Create a spreadsheet-style pivot table as a DataFrame.
- crosstab (index, columns[, values, rownames, ...]) Compute a simple cross tabulation of two (or more) factors.
- cut (x, bins[, right, labels, retbins, ...]) Bin values into discrete intervals.
- qcut (x, q[, labels, retbins, precision, ...]) Quantilebased discretization function.

- merge (left, right[, how, on, left\_on, ...]) Merge DataFrame or named Series objects with a database-style join.
- mergeordered (left, right[, on, lefton, ...]) Perform a merge for ordered data with optional filling/interpolation.
- mergeasof (left, right[, on, lefton, ...]) Perform a merge by key distance.
- concat (objs, \*[, axis, join, ignore\_index, ...]) Concatenate pandas objects along a particular axis.
- getdummies (data[, prefix, prefixsep, ...]) Convert categorical variable into dummy/indicator variables.
- fromdummies (data[, sep, defaultcategory]) Create a categorical DataFrame from a DataFrame of dummy variables.
- factorize (values[, sort, usenasentinel, ...]) Encode the object as an enumerated type or categorical variable.
- unique (values) Return unique values based on a hash table.
- lreshape (data, groups[, dropna]) Reshape wide-format data
  to long.
- widetolong (df, stubnames, i, j[, sep, suffix]) Unpivot a DataFrame from wide to long format.

#### Top-level missing data

- isna (obj) Detect missing values for an array-like object.
- isnull (obj) Detect missing values for an array-like object.
- **notna (obj)** Detect non-missing values for an array-like object.
- notnull (obj) Detect non-missing values for an array-like object.

#### Top-level dealing with numeric data

• to\_numeric (arg[, errors, downcast, ...]) - Convert argument to a numeric type.

## Top-level dealing with datetimelike data

- to\_datetime (arg[, errors, dayfirst, ...]) Convert argument to datetime.
- to\_timedelta (arg[, unit, errors]) Convert argument to timedelta.
- date\_range ([start, end, periods, freq, tz, ...]) Return a fixed frequency DatetimeIndex.
- bdate\_range ([start, end, periods, freq, tz, ...]) Return a fixed frequency DatetimeIndex with business day as the default.
- period\_range ([start, end, periods, freq, name]) Return a fixed frequency PeriodIndex.

- timedelta\_range ([start, end, periods, freq, ...]) Return a fixed frequency TimedeltaIndex with day as the default.
- infer\_freq (index) Infer the most likely frequency given
  the input index.

## Top-level dealing with Interval data

• interval\_range ([start, end, periods, freq, ...]) - Return a fixed frequency IntervalIndex.

### Top-level evaluation

• eval (expr[, parser, engine, local\_dict, ...]) - Evaluate a Python expression as a string using various backends.

#### **Datetime formats**

• tseries.api.guessdatetimeformat (dt\_str[, ...]) - Guess the datetime format of a given datetime string.

## Hashing

- util.hasharray (vals[, encoding, hashkey, ...]) Given a 1d array, return an array of deterministic integers.
- util.hashpandasobject (obj[, index, ...]) Return a data hash of the Index/Series/DataFrame.

## Importing from other DataFrame libraries

• api.interchange.fromdataframe (df[, allowcopy]) - Build a pd.DataFrame from any DataFrame supporting the interchange protocol.

## Series

#### Constructor

• Series ([data, index, dtype, name, copy, ...]) - Onedimensional ndarray with axis labels (including time series).

#### **Attributes**

• Series.index - The index (axis labels) of the Series.

- **Series.array** The ExtensionArray of the data backing this Series or Index.
- Series.values Return Series as ndarray or ndarray-like depending on the dtype.
- Series.dtype Return the dtype object of the underlying data.
- Series.shape Return a tuple of the shape of the underlying data.
- Series.nbytes Return the number of bytes in the underlying data.
- **Series.ndim** Number of dimensions of the underlying data, by definition 1.
- Series.size Return the number of elements in the underlying data.
- Series.T Return the transpose, which is by definition self.
- Series.memory\_usage ([index, deep]) Return the memory usage of the Series.
- Series.hasnans Return True if there are any NaNs.
- Series.empty Indicator whether Series/DataFrame is empty.
- Series.dtypes Return the dtype object of the underlying data.
- Series.name Return the name of the Series.
- **Series.flags** Get the properties associated with this pandas object.
- Series.set\_flags (\*[, copy, ...]) Return a new object with updated flags.

#### Conversion

- Series.astype (dtype[, copy, errors]) Cast a pandas object to a specified dtype dtype .
- Series.convertdtypes ([inferobjects, ...]) Convert columns to the best possible dtypes using dtypes supporting pd.NA .
- Series.infer\_objects ([copy]) Attempt to infer better dtypes for object columns.
- Series.copy ([deep]) Make a copy of this object's indices and data.
- Series.bool () (DEPRECATED) Return the bool of a single element Series or DataFrame.
- Series.tonumpy ([dtype, copy, navalue]) A NumPy ndarray representing the values in this Series or Index.
- Series.to\_period ([freq, copy]) Convert Series from DatetimeIndex to PeriodIndex.
- Series.to\_timestamp ([freq, how, copy]) Cast to DatetimeIndex of Timestamps, at beginning of period.
- Series.to\_list () Return a list of the values.
- Series.\_array\_ ([dtype, copy]) Return the values as a NumPy array.

## Indexing, iteration

- Series.get (key[, default]) Get item from object for given key (ex: DataFrame column).
- Series.at Access a single value for a row/column label pair.
- Series.iat Access a single value for a row/column pair by integer position.
- Series.loc Access a group of rows and columns by label(s) or a boolean array.
- **Series.iloc** (DEPRECATED) Purely integer-location based indexing for selection by position.
- Series.\_iter\_ () Return an iterator of the values.
- Series.items () Lazily iterate over (index, value) tuples.
- Series.keys () Return alias for index.
- Series.pop (item) Return item and drops from series.
- Series.item () Return the first element of the underlying data as a Python scalar.
- Series.xs (key[, axis, level, drop\_level]) Return crosssection from the Series/DataFrame.

## **Binary operator functions**

- Series.add (other[, level, fill\_value, axis]) Return Addition of series and other, element-wise (binary operator add ).
- Series.sub (other[, level, fill\_value, axis]) Return Subtraction of series and other, element-wise (binary operator sub ).
- Series.mul (other[, level, fill\_value, axis]) Return Multiplication of series and other, element-wise (binary operator mul ).
- Series.div (other[, level, fill\_value, axis]) Return Floating division of series and other, element-wise (binary operator truediv ).
- Series.truediv (other[, level, fill\_value, axis]) Return Floating division of series and other, element-wise (binary operator truediv ).
- Series.floordiv (other[, level, fill\_value, axis]) Return Integer division of series and other, element-wise (binary operator floordiv ).
- Series.mod (other[, level, fill\_value, axis]) Return Modulo of series and other, element-wise (binary operator mod ).
- Series.pow (other[, level, fill\_value, axis]) Return Exponential power of series and other, element-wise (binary operator pow ).
- Series.radd (other[, level, fill\_value, axis]) Return Addition of series and other, element-wise (binary operator radd ).

- Series.rsub (other[, level, fill\_value, axis]) Return Subtraction of series and other, element-wise (binary operator rsub ).
- Series.rmul (other[, level, fill\_value, axis]) Return Multiplication of series and other, element-wise (binary operator rmul).
- Series.rdiv (other[, level, fill\_value, axis]) Return Floating division of series and other, element-wise (binary operator rtruediv ).
- Series.rtruediv (other[, level, fill\_value, axis]) Return Floating division of series and other, element-wise (binary operator rtruediv ).
- Series.rfloordiv (other[, level, fill\_value, ...]) Return Integer division of series and other, element-wise (binary operator rfloordiv ).
- Series.rmod (other[, level, fill\_value, axis]) Return Modulo of series and other, element-wise (binary operator rmod ).
- Series.rpow (other[, level, fill\_value, axis]) Return Exponential power of series and other, element-wise (binary operator rpow ).
- Series.combine (other, func[, fill\_value]) Combine the Series with a Series or scalar according to func .
- Series.combine\_first (other) Update null elements with value in the same location in 'other'.
- Series.round ([decimals]) Round each value in a Series to the given number of decimals.
- Series.lt (other[, level, fill\_value, axis]) Return Less than of series and other, element-wise (binary operator lt ).
- Series.gt (other[, level, fill\_value, axis]) Return Greater than of series and other, element-wise (binary operator gt ).
- Series.le (other[, level, fill\_value, axis]) Return Less than or equal to of series and other, element-wise (binary operator le ).
- Series.ge (other[, level, fill\_value, axis]) Return Greater than or equal to of series and other, element-wise (binary operator ge ).
- Series.ne (other[, level, fill\_value, axis]) Return Not equal to of series and other, element-wise (binary operator ne ).
- Series.eq (other[, level, fill\_value, axis]) Return Equal to of series and other, element-wise (binary operator eq ).
- Series.product ([axis, skipna, numeric\_only, ...]) Return the product of the values over the requested axis.
- Series.dot (other) Compute the dot product between the Series and the columns of other.

#### Function application, GroupBy & window

• Series.apply (func[, convertdtype, args, byrow]) - Invoke function on values of Series.

- Series.agg ([func, axis]) Aggregate using one or more operations over the specified axis.
- Series.aggregate ([func, axis]) Aggregate using one or more operations over the specified axis.
- Series.transform (func[, axis]) Call func on self producing a Series with the same axis shape as self.
- Series.map (arg[, na\_action]) Map values of Series according to an input mapping or function.
- Series.groupby ([by, axis, level, as\_index, ...]) Group Series using a mapper or by a Series of columns.
- Series.rolling (window[, min\_periods, ...]) Provide rolling window calculations.
- Series.expanding ([min\_periods, axis, method]) Provide expanding window calculations.
- Series.ewm ([com, span, halflife, alpha, ...]) Provide exponentially weighted (EW) calculations.
- Series.pipe (func, args, \*kwargs) Apply chainable functions that expect Series or DataFrames.

### **Computations / descriptive stats**

- Series.abs () Return a Series/DataFrame with absolute numeric value of each element.
- Series.all ([axis, bool\_only, skipna]) Return whether all elements are True, potentially over an axis.
- Series.any (\*[, axis, bool\_only, skipna]) Return whether any element is True, potentially over an axis.
- Series.autocorr ([lag]) Compute the lag-N autocorrelation.
- Series.between (left, right[, inclusive]) Return boolean Series equivalent to left <= series <= right.
- Series.clip ([lower, upper, axis, inplace]) Trim values at input threshold(s).
- Series.corr (other[, method, min\_periods]) Compute correlation with other Series, excluding missing values.
- Series.count () Return number of non-NA/null observations in the Series.
- Series.cov (other[, min\_periods, ddof]) Compute covariance with Series, excluding missing values.
- Series.cummax ([axis, skipna]) Return cumulative maximum over a DataFrame or Series axis.
- Series.cummin ([axis, skipna]) Return cumulative minimum over a DataFrame or Series axis.
- Series.cumprod ([axis, skipna]) Return cumulative product over a DataFrame or Series axis.
- Series.cumsum ([axis, skipna]) Return cumulative sum over a DataFrame or Series axis.
- Series.describe ([percentiles, include, exclude]) Generate descriptive statistics.
- Series.diff ([periods]) First discrete difference of element.

- Series.factorize ([sort, usenasentinel]) Encode the object as an enumerated type or categorical variable.
- Series.kurt ([axis, skipna, numeric\_only]) Return unbiased kurtosis over requested axis.
- Series.max ([axis, skipna, numeric\_only]) Return the maximum of the values over the requested axis.
- Series.mean ([axis, skipna, numeric\_only]) Return the mean of the values over the requested axis.
- Series.median ([axis, skipna, numeric\_only]) Return the median of the values over the requested axis.
- Series.min ([axis, skipna, numeric\_only]) Return the minimum of the values over the requested axis.
- Series.mode ([dropna]) Return the mode(s) of the Series.
- Series.nlargest ([n, keep]) Return the largest n elements.
- Series.nsmallest ([n, keep]) Return the smallest n elements.
- Series.pctchange ([periods, fillmethod, ...]) Fractional change between the current and a prior element.
- Series.prod ([axis, skipna, numeric\_only, ...]) Return the product of the values over the requested axis.
- Series.quantile ([q, interpolation]) Return value at the given quantile.
- Series.rank ([axis, method, numeric\_only, ...]) Compute numerical data ranks (1 through n) along axis.
- Series.sem ([axis, skipna, ddof, numeric\_only]) Return unbiased standard error of the mean over requested axis.
- Series.skew ([axis, skipna, numeric\_only]) Return unbiased skew over requested axis.
- Series.std ([axis, skipna, ddof, numeric\_only]) Return sample standard deviation over requested axis.
- Series.sum ([axis, skipna, numeric\_only, ...]) Return the sum of the values over the requested axis.
- Series.var ([axis, skipna, ddof, numeric\_only]) Return unbiased variance over requested axis.
- Series.kurtosis ([axis, skipna, numeric\_only]) Return unbiased kurtosis over requested axis.
- Series.unique () Return unique values of Series object.
- Series.nunique ([dropna]) Return number of unique elements in the object.
- Series.is\_unique Return boolean if values in the object are unique.
- **Series.ismonotonicincreasing** Return boolean if values in the object are monotonically increasing.
- Series.ismonotonicdecreasing Return boolean if values in the object are monotonically decreasing.
- Series.value\_counts ([normalize, sort, ...]) Return a Series containing counts of unique values.

## Reindexing / selection / label manipulation

- Series.align (other[, join, axis, level, ...]) Align two objects on their axes with the specified join method.
- Series.case\_when (caselist) Replace values where the conditions are True.
- Series.drop ([labels, axis, index, columns, ...]) Return Series with specified index labels removed.
- Series.droplevel (level[, axis]) Return Series/DataFrame with requested index / column level(s) removed.
- Series.drop\_duplicates (\*[, keep, inplace, ...]) Return Series with duplicate values removed.
- Series.duplicated ([keep]) Indicate duplicate Series values.
- Series.equals (other) Test whether two objects contain the same elements.
- Series.first (offset) (DEPRECATED) Select initial periods of time series data based on a date offset.
- Series.head ([n]) Return the first n rows.
- Series.idxmax ([axis, skipna]) Return the row label of the maximum value.
- Series.idxmin ([axis, skipna]) Return the row label of the minimum value.
- Series.isin (values) Whether elements in Series are contained in values .
- Series.last (offset) (DEPRECATED) Select final periods of time series data based on a date offset.
- Series.reindex ([index, axis, method, copy, ...]) Conform Series to new index with optional filling logic.
- Series.reindex\_like (other[, method, copy, ...]) Return an object with matching indices as other object.
- Series.rename ([index, axis, copy, inplace, ...]) Alter Series index labels or name.
- Series.rename\_axis ([mapper, index, axis, ...]) Set the name of the axis for the index or columns.
- Series.reset\_index ([level, drop, name, ...]) Generate a new DataFrame or Series with the index reset.
- Series.sample ([n, frac, replace, weights, ...]) Return a random sample of items from an axis of object.
- Series.set\_axis (labels, \*[, axis, copy]) Assign desired index to given axis.
- Series.take (indices[, axis]) Return the elements in the given positional indices along an axis.
- Series.tail ([n]) Return the last n rows.
- Series.truncate ([before, after, axis, copy]) Truncate a Series or DataFrame before and after some index value.
- Series.where (cond[, other, inplace, axis, level]) Replace values where the condition is False.
- Series.mask (cond[, other, inplace, axis, level]) Replace values where the condition is True.

- Series.add\_prefix (prefix[, axis]) Prefix labels with string prefix .
- Series.add\_suffix (suffix[, axis]) Suffix labels with string suffix .
- Series.filter ([items, like, regex, axis]) Subset the dataframe rows or columns according to the specified index labels.

### Missing data handling

- Series.backfill (\*[, axis, inplace, limit, ...]) (DEPRECATED) Fill NA/NaN values by using the next valid observation to fill the gap.
- Series.bfill (\*[, axis, inplace, limit, ...]) Fill NA/NaN values by using the next valid observation to fill the gap.
- Series.dropna (\*[, axis, inplace, how, ...]) Return a new Series with missing values removed.
- Series.ffill (\*[, axis, inplace, limit, ...]) Fill NA/NaN values by propagating the last valid observation to next valid.
- Series.fillna ([value, method, axis, ...]) Fill NA/NaN values using the specified method.
- Series.interpolate ([method, axis, limit, ...]) Fill NaN values using an interpolation method.
- Series.isna () Detect missing values.
- Series.isnull () Series.isnull is an alias for Series.isna.
- Series.notna () Detect existing (non-missing) values.
- Series.notnull () Series.notnull is an alias for Series.notna.
- Series.pad (\*[, axis, inplace, limit, downcast]) (DEPRECATED) Fill NA/NaN values by propagating the last valid observation to next valid.
- Series.replace ([toreplace, value, inplace, ...]) Replace values given in toreplace with value .

#### Reshaping, sorting

- Series.argsort ([axis, kind, order, stable]) Return the integer indices that would sort the Series values.
- Series.argmin ([axis, skipna]) Return int position of the smallest value in the Series.
- Series.argmax ([axis, skipna]) Return int position of the largest value in the Series.
- Series.reorder\_levels (order) Rearrange index levels using input order.
- Series.sort\_values (\*[, axis, ascending, ...]) Sort by the values.

- Series.sort\_index (\*[, axis, level, ...]) Sort Series by index labels.
- Series.swaplevel ([i, j, copy]) Swap levels i and j in a MultiIndex .
- Series.unstack ([level, fill\_value, sort]) Unstack, also known as pivot, Series with MultiIndex to produce DataFrame.
- Series.explode ([ignore\_index]) Transform each element of a list-like to a row.
- Series.searchsorted (value[, side, sorter]) Find indices where elements should be inserted to maintain order.
- **Series.ravel** ([order]) (DEPRECATED) Return the flattened underlying data as an ndarray or ExtensionArray.
- Series.repeat (repeats[, axis]) Repeat elements of a Series.
- Series.squeeze ([axis]) Squeeze 1 dimensional axis objects into scalars.
- Series.view ([dtype]) (DEPRECATED) Create a new view of the Series.

## Combining / comparing / joining / merging

- Series.compare (other[, align\_axis, ...]) Compare to another Series and show the differences.
- Series.update (other) Modify Series in place using values from passed Series.

#### Time Series-related

- Series.asfreq (freq[, method, how, ...]) Convert time series to specified frequency.
- Series.asof (where[, subset]) Return the last row(s) without any NaNs before where .
- Series.shift ([periods, freq, axis, ...]) Shift index by desired number of periods with an optional time freq .
- Series.firstvalidindex () Return index for first non-NA value or None, if no non-NA value is found.
- Series.lastvalidindex () Return index for last non-NA value or None, if no non-NA value is found.
- Series.resample (rule[, axis, closed, label, ...]) Resample time-series data.
- Series.tz\_convert (tz[, axis, level, copy]) Convert tz-aware axis to target time zone.
- Series.tz\_localize (tz[, axis, level, copy, ...]) Localize tz-naive index of a Series or DataFrame to target time zone.
- Series.at\_time (time[, asof, axis]) Select values at particular time of day (e.g., 9:30AM).

• Series.betweentime (starttime, end\_time[, ...]) - Select values between particular times of the day (e.g., 9:00-9:30 AM).

#### Accessors

- Series.str alias of StringMethods
- Series.cat alias of CategoricalAccessor
- Series.dt alias of CombinedDatetimelikeProperties
- Series.sparse alias of SparseAccessor
- DataFrame.sparse alias of SparseFrameAccessor
- Index.str alias of StringMethods
- Datetime, Timedelta, Period dt
- String str
- Categorical cat
- **Sparse** sparse
- **Series.dt.date** Returns numpy array of python datetime.date objects.
- Series.dt.time Returns numpy array of datetime.time objects.
- **Series.dt.timetz** Returns numpy array of datetime.time objects with timezones.
- Series.dt.year The year of the datetime.
- Series.dt.month The month as January=1, December=12.
- Series.dt.day The day of the datetime.
- Series.dt.hour The hours of the datetime.
- Series.dt.minute The minutes of the datetime.
- Series.dt.second The seconds of the datetime.
- Series.dt.microsecond The microseconds of the datetime.
- Series.dt.nanosecond The nanoseconds of the datetime.
- Series.dt.dayofweek The day of the week with Monday=0, Sunday=6.
- Series.dt.dayofweek The day of the week with Monday=0, Sunday=6.
- Series.dt.weekday The day of the week with Monday=0, Sunday=6.
- Series.dt.dayofyear The ordinal day of the year.
- Series.dt.dayofyear The ordinal day of the year.
- Series.dt.daysinmonth The number of days in the month.
- Series.dt.quarter The quarter of the date.
- **Series.dt.ismonthstart** Indicates whether the date is the first day of the month.
- **Series.dt.is**monthend Indicates whether the date is the last day of the month.
- Series.dt.isquarterstart Indicator for whether the date is the first day of a quarter.
- Series.dt.isquarterend Indicator for whether the date is the last day of a quarter.
- Series.dt.isyearstart Indicate whether the date is the first day of a year.
- **Series.dt.is**yearend Indicate whether the date is the last day of the year.

- Series.dt.isleapyear Boolean indicator if the date belongs to a leap year.
- Series.dt.daysinmonth The number of days in the month.
- Series.dt.daysinmonth The number of days in the month.
- Series.dt.tz Return the timezone.
- **Series.dt.freq** Return the frequency object for this PeriodArray.
- Series.dt.unit -
- Series.dt.isocalendar () Calculate year, week, and day according to the ISO 8601 standard.
- Series.dt.to\_period (args, \*kwargs) Cast to PeriodArray/ PeriodIndex at a particular frequency.
- Series.dt.to\_pydatetime () (DEPRECATED) Return the data as an array of datetime.datetime objects.
- Series.dt.tz\_localize (args, \*kwargs) Localize tz-naive Datetime Array/Index to tz-aware Datetime Array/Index.
- Series.dt.tz\_convert (args, \*kwargs) Convert tz-aware Datetime Array/Index from one time zone to another.
- Series.dt.normalize (args, \*kwargs) Convert times to midnight.
- Series.dt.strftime (args, \*kwargs) Convert to Index using specified date\_format.
- Series.dt.round (args, \*kwargs) Perform round operation on the data to the specified freq .
- Series.dt.floor (args, \*kwargs) Perform floor operation on the data to the specified freq .
- Series.dt.ceil (args, \*kwargs) Perform ceil operation on the data to the specified freq .
- Series.dt.month\_name (args, \*kwargs) Return the month names with specified locale.
- Series.dt.day\_name (args, \*kwargs) Return the day names with specified locale.
- Series.dt.as\_unit (args, \*kwargs) -
- Series.dt.qvear -
- Series.dt.start\_time Get the Timestamp for the start of the period.
- **Series.dt.end\_time** Get the Timestamp for the end of the period.
- Series.dt.days Number of days for each element.
- Series.dt.seconds Number of seconds (>= 0 and less than 1 day) for each element.
- Series.dt.microseconds Number of microseconds (>= 0 and less than 1 second) for each element.
- Series.dt.nanoseconds Number of nanoseconds (>= 0 and less than 1 microsecond) for each element.
- **Series.dt.components** Return a Dataframe of the components of the Timedeltas.
- Series.dt.unit -
- Series.dt.to\_pytimedelta () Return an array of native datetime.timedelta objects.
- Series.dt.total\_seconds (args, \*kwargs) Return total duration of each element expressed in seconds.
- Series.dt.as\_unit (args, \*kwargs) -

- Series.str.capitalize () Convert strings in the Series/ Index to be capitalized.
- Series.str.casefold () Convert strings in the Series/Index to be casefolded.
- Series.str.cat ([others, sep, na\_rep, join]) Concatenate strings in the Series/Index with given separator.
- Series.str.center (width[, fillchar]) Pad left and right side of strings in the Series/Index.
- Series.str.contains (pat[, case, flags, na, ...]) Test if pattern or regex is contained within a string of a Series or Index.
- Series.str.count (pat[, flags]) Count occurrences of pattern in each string of the Series/Index.
- Series.str.decode (encoding[, errors]) Decode character string in the Series/Index using indicated encoding.
- Series.str.encode (encoding[, errors]) Encode character string in the Series/Index using indicated encoding.
- Series.str.endswith (pat[, na]) Test if the end of each string element matches a pattern.
- Series.str.extract (pat[, flags, expand]) Extract capture groups in the regex pat as columns in a DataFrame.
- Series.str.extractall (pat[, flags]) Extract capture groups in the regex pat as columns in DataFrame.
- Series.str.find (sub[, start, end]) Return lowest indexes in each strings in the Series/Index.
- Series.str.findall (pat[, flags]) Find all occurrences of pattern or regular expression in the Series/Index.
- Series.str.fullmatch (pat[, case, flags, na]) Determine if each string entirely matches a regular expression.
- Series.str.get (i) Extract element from each component at specified position or with specified key.
- Series.str.index (sub[, start, end]) Return lowest indexes in each string in Series/Index.
- Series.str.join (sep) Join lists contained as elements in the Series/Index with passed delimiter.
- Series.str.len () Compute the length of each element in the Series/Index.
- Series.str.ljust (width[, fillchar]) Pad right side of strings in the Series/Index.
- Series.str.lower () Convert strings in the Series/Index to lowercase.
- Series.str.lstrip ([to\_strip]) Remove leading characters.
- Series.str.match (pat[, case, flags, na]) Determine if each string starts with a match of a regular expression.
- Series.str.normalize (form) Return the Unicode normal form for the strings in the Series/Index.
- Series.str.pad (width[, side, fillchar]) Pad strings in the Series/Index up to width.
- Series.str.partition ([sep, expand]) Split the string at the first occurrence of sep .
- Series.str.removeprefix (prefix) Remove a prefix from an object series.

- Series.str.removesuffix (suffix) Remove a suffix from an object series.
- Series.str.repeat (repeats) Duplicate each string in the Series or Index.
- Series.str.replace (pat, repl[, n, case, ...]) Replace each occurrence of pattern/regex in the Series/Index.
- Series.str.rfind (sub[, start, end]) Return highest indexes in each strings in the Series/Index.
- Series.str.rindex (sub[, start, end]) Return highest indexes in each string in Series/Index.
- Series.str.rjust (width[, fillchar]) Pad left side of strings in the Series/Index.
- Series.str.rpartition ([sep, expand]) Split the string at the last occurrence of sep .
- Series.str.rstrip ([to\_strip]) Remove trailing characters.
- Series.str.slice ([start, stop, step]) Slice substrings from each element in the Series or Index.
- Series.str.slice\_replace ([start, stop, repl]) Replace a positional slice of a string with another value.
- Series.str.split ([pat, n, expand, regex]) Split strings around given separator/delimiter.
- Series.str.rsplit ([pat, n, expand]) Split strings around given separator/delimiter.
- Series.str.startswith (pat[, na]) Test if the start of each string element matches a pattern.
- Series.str.strip ([to\_strip]) Remove leading and trailing characters.
- Series.str.swapcase () Convert strings in the Series/Index to be swapcased.
- Series.str.title () Convert strings in the Series/Index to titlecase.
- Series.str.translate (table) Map all characters in the string through the given mapping table.
- Series.str.upper () Convert strings in the Series/Index to uppercase.
- Series.str.wrap (width, \*\*kwargs) Wrap strings in Series/ Index at specified line width.
- Series.str.zfill (width) Pad strings in the Series/Index by prepending '0' characters.
- Series.str.isalnum () Check whether all characters in each string are alphanumeric.
- Series.str.isalpha () Check whether all characters in each string are alphabetic.
- Series.str.isdigit () Check whether all characters in each string are digits.
- **Series.str.isspace** () Check whether all characters in each string are whitespace.
- Series.str.islower () Check whether all characters in each string are lowercase.
- Series.str.isupper () Check whether all characters in each string are uppercase.
- Series.str.istitle () Check whether all characters in each string are titlecase.

- Series.str.isnumeric () Check whether all characters in each string are numeric.
- Series.str.isdecimal () Check whether all characters in each string are decimal.
- Series.str.get\_dummies ([sep]) Return DataFrame of dummy/indicator variables for Series.
- Series.cat.categories The categories of this categorical.
- **Series.cat.ordered** Whether the categories have an ordered relationship.
- Series.cat.codes Return Series of codes as well as the index.
- Series.cat.rename\_categories (args, \*kwargs) Rename categories.
- Series.cat.reordercategories (\*args, \*\*kwargs) Reorder categories as specified in newcategories.
- Series.cat.add\_categories (args, \*kwargs) Add new categories.
- Series.cat.remove\_categories (args, \*kwargs) Remove the specified categories.
- Series.cat.removeunusedcategories (\*args, ...) Remove categories which are not used.
- Series.cat.set\_categories (args, \*kwargs) Set the categories to the specified new categories.
- Series.cat.as\_ordered (args, \*kwargs) Set the Categorical to be ordered.
- Series.cat.as\_unordered (args, \*kwargs) Set the Categorical to be unordered.
- Series.sparse.npoints The number of non- fill\_value points.
- Series.sparse.density The percent of non- fill\_value points, as decimal.
- Series.sparse.fillvalue Elements in data that are fillvalue are not stored.
- **Series.sparse.spvalues** An ndarray containing the non-fillvalue values.
- Series.sparse.fromcoo (A[, denseindex]) Create a Series with sparse values from a scipy.sparse.coo\_matrix.
- Series.sparse.tocoo ([rowlevels, ...]) Create a scipy.sparse.coo\_matrix from a Series with MultiIndex.
- Series.list.flatten () Flatten list values.
- Series.list.len () Return the length of each list in the Series.
- Series.list.\_getitem\_ (key) Index or slice lists in the Series.
- Series.struct.dtypes Return the dtype object of each child field of the struct.
- Series.struct.field (nameorindex) Extract a child field of a struct as a Series.
- Series.struct.explode () Extract all child fields of a struct as a DataFrame.
- Flags (obj, \*, allowsduplicatelabels) Flags that apply to pandas objects.

• Series.attrs - Dictionary of global attributes of this dataset.

### **Plotting**

- Series.plot ([kind, ax, figsize, ....]) Series plotting accessor and method
- Series.plot.area ([x, y, stacked]) Draw a stacked area plot.
- Series.plot.bar ([x, y]) Vertical bar plot.
- Series.plot.barh ([x, y]) Make a horizontal bar plot.
- Series.plot.box ([by]) Make a box plot of the DataFrame columns.
- Series.plot.density ([bw\_method, ind]) Generate Kernel Density Estimate plot using Gaussian kernels.
- Series.plot.hist ([by, bins]) Draw one histogram of the DataFrame's columns.
- Series.plot.kde ([bw\_method, ind]) Generate Kernel Density Estimate plot using Gaussian kernels.
- Series.plot.line ([x, y]) Plot Series or DataFrame as lines.
- Series.plot.pie (kwargs)\*\* Generate a pie plot.
- Series.hist ([by, ax, grid, xlabelsize, ...]) Draw histogram of the input series using matplotlib.

#### Serialization / IO / conversion

- Series.to\_pickle (path, \*[, compression, ...]) Pickle (serialize) object to file.
- Series.tocsv ([pathorbuf, sep, narep, ...]) Write object to a comma-separated values (csv) file.
- Series.to\_dict (\*[, into]) Convert Series to {label -> value} dict or dict-like object.
- Series.toexcel (excelwriter, \*[, ...]) Write object to an Excel sheet.
- Series.to\_frame ([name]) Convert Series to DataFrame.
- Series.to\_xarray () Return an xarray object from the pandas object.
- Series.tohdf (pathor\_buf, \*, key[, mode, ...]) Write the contained data to an HDF5 file using HDFStore.
- Series.to\_sql (name, con, \*[, schema, ...]) Write records stored in a DataFrame to a SQL database.
- Series.tojson ([pathor\_buf, orient, ...]) Convert the object to a JSON string.
- Series.tostring ([buf, narep, ...]) Render a string representation of the Series.
- Series.to\_clipboard (\*[, excel, sep]) Copy object to the system clipboard.

- Series.to\_latex ([buf, columns, header, ...]) Render object to a LaTeX tabular, longtable, or nested table.
- Series.to\_markdown ([buf, mode, index, ...]) Print Series in Markdown-friendly format.

### **DataFrame**

#### Constructor

• DataFrame ([data, index, columns, dtype, copy]) - Twodimensional, size-mutable, potentially heterogeneous tabular data.

### Attributes and underlying data

- DataFrame.index The index (row labels) of the DataFrame.
- DataFrame.columns The column labels of the DataFrame.
- DataFrame.dtypes Return the dtypes in the DataFrame.
- DataFrame.info ([verbose, buf, max\_cols, ...]) Print a concise summary of a DataFrame.
- DataFrame.select\_dtypes ([include, exclude]) Return a subset of the DataFrame's columns based on the column dtypes.
- DataFrame.values Return a Numpy representation of the DataFrame.
- DataFrame.axes Return a list representing the axes of the DataFrame.
- DataFrame.ndim Return an int representing the number of axes / array dimensions.
- DataFrame.size Return an int representing the number of elements in this object.
- DataFrame.shape Return a tuple representing the dimensionality of the DataFrame.
- DataFrame.memory\_usage ([index, deep]) Return the memory usage of each column in bytes.
- DataFrame.empty Indicator whether Series/DataFrame is empty.
- DataFrame.set\_flags (\*[, copy, ...]) Return a new object with updated flags.

#### Conversion

- DataFrame.astype (dtype[, copy, errors]) Cast a pandas object to a specified dtype dtype .
- DataFrame.convertdtypes ([inferobjects, ...]) Convert columns to the best possible dtypes using dtypes supporting pd.NA .

- DataFrame.infer\_objects ([copy]) Attempt to infer better dtypes for object columns.
- DataFrame.copy ([deep]) Make a copy of this object's indices and data.
- DataFrame.bool () (DEPRECATED) Return the bool of a single element Series or DataFrame.
- DataFrame.tonumpy ([dtype, copy, navalue]) Convert the DataFrame to a NumPy array.

### Indexing, iteration

- DataFrame.head ([n]) Return the first n rows.
- DataFrame.at Access a single value for a row/column label pair.
- DataFrame.iat Access a single value for a row/column pair by integer position.
- DataFrame.loc Access a group of rows and columns by label(s) or a boolean array.
- DataFrame.iloc (DEPRECATED) Purely integer-location based indexing for selection by position.
- DataFrame.insert (loc, column, value[, ...]) Insert column into DataFrame at specified location.
- DataFrame.\_iter\_ () Iterate over info axis.
- DataFrame.items () Iterate over (column name, Series) pairs.
- DataFrame.keys () Get the 'info axis' (see Indexing for more).
- DataFrame.iterrows () Iterate over DataFrame rows as (index, Series) pairs.
- DataFrame.itertuples ([index, name]) Iterate over DataFrame rows as namedtuples.
- DataFrame.pop (item) Return item and drop from frame.
- DataFrame.tail ([n]) Return the last n rows.
- DataFrame.xs (key[, axis, level, drop\_level]) Return cross-section from the Series/DataFrame.
- DataFrame.get (key[, default]) Get item from object for given key (ex: DataFrame column).
- DataFrame.isin (values) Whether each element in the DataFrame is contained in values.
- DataFrame.where (cond[, other, inplace, ...]) Replace values where the condition is False.
- DataFrame.mask (cond[, other, inplace, axis, ...]) Replace values where the condition is True.
- DataFrame.query (expr, \*[, inplace]) Query the columns of a DataFrame with a boolean expression.

## **Binary operator functions**

- DataFrame.\_add\_ (other) Get Addition of DataFrame and other, column-wise.
- DataFrame.add (other[, axis, level, fill\_value]) Get Addition of dataframe and other, element-wise (binary operator add ).
- DataFrame.sub (other[, axis, level, fill\_value]) Get Subtraction of dataframe and other, element-wise (binary operator sub ).
- DataFrame.mul (other[, axis, level, fill\_value]) Get Multiplication of dataframe and other, element-wise (binary operator mul ).
- DataFrame.div (other[, axis, level, fill\_value]) Get Floating division of dataframe and other, element-wise (binary operator truediv ).
- DataFrame.truediv (other[, axis, level, ...]) Get Floating division of dataframe and other, element-wise (binary operator truediv ).
- DataFrame.floordiv (other[, axis, level, ...]) Get Integer division of dataframe and other, element-wise (binary operator floordiv ).
- DataFrame.mod (other[, axis, level, fill\_value]) Get Modulo of dataframe and other, element-wise (binary operator mod ).
- DataFrame.pow (other[, axis, level, fill\_value]) Get Exponential power of dataframe and other, element-wise (binary operator pow ).
- DataFrame.dot (other) Compute the matrix multiplication between the DataFrame and other.
- DataFrame.radd (other[, axis, level, fill\_value]) Get Addition of dataframe and other, element-wise (binary operator radd ).
- DataFrame.rsub (other[, axis, level, fill\_value]) Get Subtraction of dataframe and other, element-wise (binary operator rsub ).
- DataFrame.rmul (other[, axis, level, fill\_value]) Get Multiplication of dataframe and other, element-wise (binary operator rmul).
- DataFrame.rdiv (other[, axis, level, fill\_value]) Get Floating division of dataframe and other, element-wise (binary operator rtruediv ).
- DataFrame.rtruediv (other[, axis, level, ...]) Get Floating division of dataframe and other, element-wise (binary operator rtruediv ).
- DataFrame.rfloordiv (other[, axis, level, ...]) Get Integer division of dataframe and other, element-wise (binary operator rfloordiv ).
- DataFrame.rmod (other[, axis, level, fill\_value]) Get Modulo of dataframe and other, element-wise (binary operator rmod ).

- DataFrame.rpow (other[, axis, level, fill\_value]) Get Exponential power of dataframe and other, element-wise (binary operator rpow ).
- DataFrame.lt (other[, axis, level]) Get Less than of dataframe and other, element-wise (binary operator lt ).
- DataFrame.gt (other[, axis, level]) Get Greater than of dataframe and other, element-wise (binary operator gt ).
- DataFrame.le (other[, axis, level]) Get Less than or equal to of dataframe and other, element-wise (binary operator le).
- DataFrame.ge (other[, axis, level]) Get Greater than or equal to of dataframe and other, element-wise (binary operator ge ).
- DataFrame.ne (other[, axis, level]) Get Not equal to of dataframe and other, element-wise (binary operator ne ).
- DataFrame.eq (other[, axis, level]) Get Equal to of dataframe and other, element-wise (binary operator eq ).
- DataFrame.combine (other, func[, fill\_value, ...]) Perform column-wise combine with another DataFrame.
- DataFrame.combine\_first (other) Update null elements with value in the same location in other .

### Function application, GroupBy & window

- DataFrame.apply (func[, axis, raw, ...]) Apply a function along an axis of the DataFrame.
- DataFrame.map (func[, na\_action]) Apply a function to a Dataframe elementwise.
- DataFrame.applymap (func[, na\_action]) (DEPRECATED) Apply a function to a Dataframe elementwise.
- DataFrame.pipe (func, args, \*kwargs) Apply chainable functions that expect Series or DataFrames.
- DataFrame.agg ([func, axis]) Aggregate using one or more operations over the specified axis.
- DataFrame.aggregate ([func, axis]) Aggregate using one or more operations over the specified axis.
- DataFrame.transform (func[, axis]) Call func on self producing a DataFrame with the same axis shape as self.
- DataFrame.groupby ([by, axis, level, ...]) Group DataFrame using a mapper or by a Series of columns.
- DataFrame.rolling (window[, min\_periods, ...]) Provide rolling window calculations.
- DataFrame.expanding ([min\_periods, axis, method]) Provide expanding window calculations.
- DataFrame.ewm ([com, span, halflife, alpha, ...]) Provide exponentially weighted (EW) calculations.

## **Computations / descriptive stats**

- DataFrame.abs () Return a Series/DataFrame with absolute numeric value of each element.
- DataFrame.all ([axis, bool\_only, skipna]) Return whether all elements are True, potentially over an axis.
- DataFrame.any (\*[, axis, bool\_only, skipna]) Return whether any element is True, potentially over an axis.
- DataFrame.clip ([lower, upper, axis, inplace]) Trim values at input threshold(s).
- DataFrame.corr ([method, min\_periods, ...]) Compute pairwise correlation of columns, excluding NA/null values.
- DataFrame.corrwith (other[, axis, drop, ...]) Compute pairwise correlation.
- DataFrame.count ([axis, numeric\_only]) Count non-NA cells for each column or row.
- DataFrame.cov ([minperiods, ddof, numericonly]) Compute pairwise covariance of columns, excluding NA/null values.
- DataFrame.cummax ([axis, skipna]) Return cumulative maximum over a DataFrame or Series axis.
- DataFrame.cummin ([axis, skipna]) Return cumulative minimum over a DataFrame or Series axis.
- DataFrame.cumprod ([axis, skipna]) Return cumulative product over a DataFrame or Series axis.
- DataFrame.cumsum ([axis, skipna]) Return cumulative sum over a DataFrame or Series axis.
- DataFrame.describe ([percentiles, include, ...]) Generate descriptive statistics.
- DataFrame.diff ([periods, axis]) First discrete difference of element.
- DataFrame.eval (expr, \*[, inplace]) Evaluate a string describing operations on DataFrame columns.
- DataFrame.kurt ([axis, skipna, numeric\_only]) Return unbiased kurtosis over requested axis.
- DataFrame.kurtosis ([axis, skipna, numeric\_only]) Return unbiased kurtosis over requested axis.
- DataFrame.max ([axis, skipna, numeric\_only]) Return the maximum of the values over the requested axis.
- DataFrame.mean ([axis, skipna, numeric\_only]) Return the mean of the values over the requested axis.
- DataFrame.median ([axis, skipna, numeric\_only]) Return the median of the values over the requested axis.
- DataFrame.min ([axis, skipna, numeric\_only]) Return the minimum of the values over the requested axis.
- DataFrame.mode ([axis, numeric\_only, dropna]) Get the mode(s) of each element along the selected axis.
- DataFrame.pctchange ([periods, fillmethod, ...]) Fractional change between the current and a prior element.
- DataFrame.prod ([axis, skipna, numeric\_only, ...]) Return the product of the values over the requested axis.
- DataFrame.product ([axis, skipna, ...]) Return the product of the values over the requested axis.

- DataFrame.quantile ([q, axis, numeric\_only, ...]) Return values at the given quantile over requested axis.
- DataFrame.rank ([axis, method, numeric\_only, ...]) Compute numerical data ranks (1 through n) along axis.
- DataFrame.round ([decimals]) Round a DataFrame to a variable number of decimal places.
- DataFrame.sem ([axis, skipna, ddof, numeric\_only]) Return unbiased standard error of the mean over requested axis.
- DataFrame.skew ([axis, skipna, numeric\_only]) Return unbiased skew over requested axis.
- DataFrame.sum ([axis, skipna, numeric\_only, ...]) Return the sum of the values over the requested axis.
- DataFrame.std ([axis, skipna, ddof, numeric\_only]) Return sample standard deviation over requested axis.
- DataFrame.var ([axis, skipna, ddof, numeric\_only]) Return unbiased variance over requested axis.
- DataFrame.nunique ([axis, dropna]) Count number of distinct elements in specified axis.
- DataFrame.value\_counts ([subset, normalize, ...]) Return a Series containing the frequency of each distinct row in the Dataframe.

## Reindexing / selection / label manipulation

- DataFrame.add\_prefix (prefix[, axis]) Prefix labels with string prefix .
- DataFrame.add\_suffix (suffix[, axis]) Suffix labels with string suffix .
- DataFrame.align (other[, join, axis, level, ...]) Align two objects on their axes with the specified join method.
- DataFrame.at\_time (time[, asof, axis]) Select values at particular time of day (e.g., 9:30AM).
- DataFrame.betweentime (starttime, end\_time) Select values between particular times of the day (e.g., 9:00-9:30 AM).
- DataFrame.drop ([labels, axis, index, ...]) Drop specified labels from rows or columns.
- DataFrame.drop\_duplicates ([subset, keep, ...]) Return DataFrame with duplicate rows removed.
- DataFrame.duplicated ([subset, keep]) Return boolean Series denoting duplicate rows.
- DataFrame.equals (other) Test whether two objects contain the same elements.
- DataFrame.filter ([items, like, regex, axis]) Subset the dataframe rows or columns according to the specified index labels.
- DataFrame.first (offset) (DEPRECATED) Select initial periods of time series data based on a date offset.
- DataFrame.head ([n]) Return the first n rows.

- DataFrame.idxmax ([axis, skipna, numeric\_only]) Return index of first occurrence of maximum over requested axis.
- DataFrame.idxmin ([axis, skipna, numeric\_only]) Return index of first occurrence of minimum over requested axis.
- DataFrame.last (offset) (DEPRECATED) Select final periods of time series data based on a date offset.
- DataFrame.reindex ([labels, index, columns, ...]) Conform DataFrame to new index with optional filling logic.
- DataFrame.reindex\_like (other[, method, ...]) Return an object with matching indices as other object.
- DataFrame.rename ([mapper, index, columns, ...]) Rename columns or index labels.
- DataFrame.rename\_axis ([mapper, index, ...]) Set the name of the axis for the index or columns.
- DataFrame.reset\_index ([level, drop, ...]) Reset the index, or a level of it.
- DataFrame.sample ([n, frac, replace, ...]) Return a random sample of items from an axis of object.
- DataFrame.set\_axis (labels, \*[, axis, copy]) Assign desired index to given axis.
- DataFrame.set\_index (keys, \*[, drop, append, ...]) Set the DataFrame index using existing columns.
- DataFrame.tail ([n]) Return the last n rows.
- DataFrame.take (indices[, axis]) Return the elements in the given positional indices along an axis.
- DataFrame.truncate ([before, after, axis, copy]) Truncate a Series or DataFrame before and after some index value.

## Missing data handling

- DataFrame.backfill (\*[, axis, inplace, ...]) (DEPRECATED) Fill NA/NaN values by using the next valid observation to fill the gap.
- DataFrame.bfill (\*[, axis, inplace, limit, ...]) Fill NA/ NaN values by using the next valid observation to fill the gap.
- DataFrame.dropna (\*[, axis, how, thresh, ...]) Remove missing values.
- DataFrame.ffill (\*[, axis, inplace, limit, ...]) Fill NA/ NaN values by propagating the last valid observation to next valid.
- DataFrame.fillna ([value, method, axis, ...]) Fill NA/NaN values using the specified method.
- DataFrame.interpolate ([method, axis, limit, ...]) Fill NaN values using an interpolation method.
- DataFrame.isna () Detect missing values.
- DataFrame.isnull () DataFrame.isnull is an alias for DataFrame.isna.
- DataFrame.notna () Detect existing (non-missing) values.
- DataFrame.notnull () DataFrame.notnull is an alias for DataFrame.notna.

- DataFrame.pad (\*[, axis, inplace, limit, ...]) (DEPRECATED) Fill NA/NaN values by propagating the last valid observation to next valid.
- DataFrame.replace ([toreplace, value, ...]) Replace values given in toreplace with value .

### Reshaping, sorting, transposing

- DataFrame.droplevel (level[, axis]) Return Series/DataFrame with requested index / column level(s) removed.
- DataFrame.pivot (\*, columns[, index, values]) Return reshaped DataFrame organized by given index / column values.
- DataFrame.pivot\_table ([values, index, ...]) Create a spreadsheet-style pivot table as a DataFrame.
- DataFrame.reorder\_levels (order[, axis]) Rearrange index levels using input order.
- DataFrame.sort\_values (by, \*[, axis, ...]) Sort by the values along either axis.
- DataFrame.sort\_index (\*[, axis, level, ...]) Sort object by labels (along an axis).
- DataFrame.nlargest (n, columns[, keep]) Return the first n rows ordered by columns in descending order.
- DataFrame.nsmallest (n, columns[, keep]) Return the first n rows ordered by columns in ascending order.
- DataFrame.swaplevel ([i, j, axis]) Swap levels i and j in a MultiIndex .
- DataFrame.stack ([level, dropna, sort, ...]) Stack the prescribed level(s) from columns to index.
- DataFrame.unstack ([level, fill\_value, sort]) Pivot a level of the (necessarily hierarchical) index labels.
- DataFrame.swapaxes (axis1, axis2[, copy]) (DEPRECATED) Interchange axes and swap values axes appropriately.
- DataFrame.melt ([idvars, valuevars, ...]) Unpivot a DataFrame from wide to long format, optionally leaving identifiers set.
- DataFrame.explode (column[, ignore\_index]) Transform each element of a list-like to a row, replicating index values.
- DataFrame.squeeze ([axis]) Squeeze 1 dimensional axis objects into scalars.
- DataFrame.to\_xarray () Return an xarray object from the pandas object.
- DataFrame.T The transpose of the DataFrame.
- DataFrame.transpose (\*args[, copy]) Transpose index and columns.

## Combining / comparing / joining / merging

- DataFrame.assign (kwargs)\*\* Assign new columns to a DataFrame.
- DataFrame.compare (other[, align\_axis, ...]) Compare to another DataFrame and show the differences.
- DataFrame.join (other[, on, how, lsuffix, ...]) Join columns of another DataFrame.
- DataFrame.merge (right[, how, on, left\_on, ...]) Merge DataFrame or named Series objects with a database-style join.
- DataFrame.update (other[, join, overwrite, ...]) Modify in place using non-NA values from another DataFrame.

#### Time Series-related

- DataFrame.asfreq (freq[, method, how, ...]) Convert time series to specified frequency.
- DataFrame.asof (where[, subset]) Return the last row(s) without any NaNs before where .
- DataFrame.shift ([periods, freq, axis, ...]) Shift index by desired number of periods with an optional time freq .
- DataFrame.firstvalidindex () Return index for first non-NA value or None, if no non-NA value is found.
- DataFrame.lastvalidindex () Return index for last non-NA value or None, if no non-NA value is found.
- DataFrame.resample (rule[, axis, closed, ...]) Resample time-series data.
- DataFrame.to\_period ([freq, axis, copy]) Convert DataFrame from DatetimeIndex to PeriodIndex.
- DataFrame.to\_timestamp ([freq, how, axis, copy]) Cast to DatetimeIndex of timestamps, at beginning of period.
- DataFrame.tz\_convert (tz[, axis, level, copy]) Convert tz-aware axis to target time zone.
- DataFrame.tz\_localize (tz[, axis, level, ...]) Localize tznaive index of a Series or DataFrame to target time zone.

#### **Flags**

• Flags (obj, \*, allowsduplicatelabels) - Flags that apply to pandas objects.

#### Metadata

• DataFrame.attrs - Dictionary of global attributes of this dataset.

## **Plotting**

- DataFrame.plot ([x, y, kind, ax, ....]) DataFrame plotting accessor and method
- DataFrame.plot.area ([x, y, stacked]) Draw a stacked area plot.
- DataFrame.plot.bar ([x, y]) Vertical bar plot.
- DataFrame.plot.barh ([x, y]) Make a horizontal bar plot.
- DataFrame.plot.box ([by]) Make a box plot of the DataFrame columns.
- DataFrame.plot.density ([bw\_method, ind]) Generate Kernel Density Estimate plot using Gaussian kernels.
- DataFrame.plot.hexbin (x, y[, C, ...]) Generate a hexagonal binning plot.
- DataFrame.plot.hist ([by, bins]) Draw one histogram of the DataFrame's columns.
- DataFrame.plot.kde ([bw\_method, ind]) Generate Kernel Density Estimate plot using Gaussian kernels.
- DataFrame.plot.line ([x, y]) Plot Series or DataFrame as lines.
- DataFrame.plot.pie (kwargs)\*\* Generate a pie plot.
- DataFrame.plot.scatter (x, y[, s, c]) Create a scatter plot with varying marker point size and color.
- DataFrame.boxplot ([column, by, ax, ...]) Make a box plot from DataFrame columns.
- DataFrame.hist ([column, by, grid, ...]) Make a histogram of the DataFrame's columns.

#### Sparse accessor

- DataFrame.sparse.density Ratio of non-sparse points to total (dense) data points.
- DataFrame.sparse.from\_spmatrix (data[, ...]) Create a new DataFrame from a scipy sparse matrix.
- DataFrame.sparse.to\_coo () Return the contents of the frame as a sparse SciPy COO matrix.
- DataFrame.sparse.to\_dense () Convert a DataFrame with sparse values to dense.

## Serialization / IO / conversion

- DataFrame.from\_dict (data[, orient, dtype, ...]) Construct DataFrame from dict of array-like or dicts.
- DataFrame.from\_records (data[, index, ...]) Convert structured or record ndarray to DataFrame.
- DataFrame.to\_orc ([path, engine, index, ...]) Write a DataFrame to the ORC format.

- DataFrame.to\_parquet ([path, engine, ...]) Write a DataFrame to the binary parquet format.
- DataFrame.to\_pickle (path, \*[, compression, ...]) Pickle (serialize) object to file.
- DataFrame.tocsv ([pathorbuf, sep, narep, ...]) Write object to a comma-separated values (csv) file.
- DataFrame.tohdf (pathor\_buf, \*, key[, ...]) Write the contained data to an HDF5 file using HDFStore.
- DataFrame.to\_sql (name, con, \*[, schema, ...]) Write records stored in a DataFrame to a SQL database.
- DataFrame.to\_dict ([orient, into, index]) Convert the DataFrame to a dictionary.
- DataFrame.toexcel (excelwriter, \*[, ...]) Write object to an Excel sheet.
- DataFrame.tojson ([pathor\_buf, orient, ...]) Convert the object to a JSON string.
- DataFrame.tohtml ([buf, columns, colspace, ...]) Render a DataFrame as an HTML table.
- DataFrame.to\_feather (path, \*\*kwargs) Write a DataFrame to the binary Feather format.
- DataFrame.to\_latex ([buf, columns, header, ...]) Render object to a LaTeX tabular, longtable, or nested table.
- DataFrame.tostata (path, \*[, convertdates, ...]) Export DataFrame object to Stata dta format.
- DataFrame.togbq (destinationtable, \*[, ...]) (DEPRECATED) Write a DataFrame to a Google BigQuery table.
- DataFrame.torecords ([index, columndtypes, ...]) Convert DataFrame to a NumPy record array.
- DataFrame.to\_string ([buf, columns, ...]) Render a DataFrame to a console-friendly tabular output.
- DataFrame.to\_clipboard (\*[, excel, sep]) Copy object to the system clipboard.
- DataFrame.to\_markdown ([buf, mode, index, ...]) Print DataFrame in Markdown-friendly format.
- DataFrame.style Returns a Styler object.
- DataFrame.\_dataframe\_ ([nanasnull, ...]) Return the dataframe interchange object implementing the interchange protocol.

# pandas arrays, scalars, and data types

### **Objects**

- array (data[, dtype, copy]) Create an array.
- arrays.ArrowExtensionArray (values) Pandas ExtensionArray backed by a PyArrow ChunkedArray.
- ArrowDtype (pyarrow\_dtype) An ExtensionDtype for PyArrow data types.

- Timestamp ([ts\_input, year, month, day, ...]) Pandas replacement for python datetime.datetime object.
- **Timestamp.asm8** Return numpy datetime64 format in nanoseconds.
- Timestamp.day -
- Timestamp.dayofweek Return day of the week.
- Timestamp.dayofweek Return day of the week.
- Timestamp.dayofyear Return the day of the year.
- Timestamp.dayofyear Return the day of the year.
- **Timestamp.days***in***month** Return the number of days in the month.
- **Timestamp.daysinmonth** Return the number of days in the month.
- Timestamp.fold -
- Timestamp.hour -
- Timestamp.isleapyear Return True if year is a leap year.
- **Timestamp.ismonthend** Check if the date is the last day of the month.
- **Timestamp.ismonthstart** Check if the date is the first day of the month.
- **Timestamp.is**quarterend Check if date is last day of the quarter.
- **Timestamp.is**quarterstart Check if the date is the first day of the quarter.
- **Timestamp.is**yearend Return True if date is last day of the year.
- **Timestamp.is**yearstart Return True if date is first day of the year.
- Timestamp.max -
- Timestamp.microsecond -
- Timestamp.min -
- Timestamp.minute -
- Timestamp.month -
- Timestamp.nanosecond -
- Timestamp.quarter Return the quarter of the year.
- Timestamp.resolution -
- Timestamp.second -
- Timestamp.tz Alias for tzinfo.
- Timestamp.tzinfo -
- Timestamp.unit The abbreviation associated with self.\_creso.
- Timestamp.value -
- Timestamp.week Return the week number of the year.
- Timestamp.weekofyear Return the week number of the year.
- Timestamp.year -
- **Timestamp.as***unit* (*unit*[, *roundok*]) Convert the underlying int64 representation to the given unit.
- **Timestamp.astimezone (tz)** Convert timezone-aware Timestamp to another time zone.
- Timestamp.ceil (freq[, ambiguous, nonexistent]) Return a new Timestamp ceiled to this resolution.
- Timestamp.combine (date, time) Combine date, time into datetime with same date and time fields.

- Timestamp.ctime () Return ctime() style string.
- **Timestamp.date ()** Return date object with same year, month and day.
- Timestamp.day\_name ([locale]) Return the day name of the Timestamp with specified locale.
- **Timestamp.dst ()** Return the daylight saving time (DST) adjustment.
- Timestamp.floor (freq[, ambiguous, nonexistent]) Return a new Timestamp floored to this resolution.
- Timestamp.fromordinal (ordinal[, tz]) Construct a timestamp from a a proleptic Gregorian ordinal.
- **Timestamp.fromtimestamp (ts)** Transform timestamp[, tz] to tz's local time from POSIX timestamp.
- Timestamp.isocalendar () Return a named tuple containing ISO year, week number, and weekday.
- Timestamp.isoformat ([sep, timespec]) Return the time formatted according to ISO 8601.
- Timestamp.isoweekday () Return the day of the week represented by the date.
- Timestamp.month\_name ([locale]) Return the month name of the Timestamp with specified locale.
- Timestamp.normalize () Normalize Timestamp to midnight, preserving tz information.
- Timestamp.now ([tz]) Return new Timestamp object representing current time local to tz.
- Timestamp.replace ([year, month, day, hour, ...]) Implements datetime.replace, handles nanoseconds.
- Timestamp.round (freq[, ambiguous, nonexistent]) Round the Timestamp to the specified resolution.
- Timestamp.strftime (format) Return a formatted string of the Timestamp.
- Timestamp.strptime (string, format) Function is not implemented.
- **Timestamp.time ()** Return time object with same time but with tzinfo=None.
- Timestamp.timestamp () Return POSIX timestamp as float.
- **Timestamp.timetuple ()** Return time tuple, compatible with time.localtime().
- **Timestamp.timetz ()** Return time object with same time and tzinfo.
- **Timestamp.to\_datetime64 ()** Return a numpy.datetime64 object with same precision.
- Timestamp.to\_numpy ([dtype, copy]) Convert the Timestamp to a NumPy datetime64.
- Timestamp.tojuliandate () Convert TimeStamp to a Julian Date.
- **Timestamp.to\_period ([freq])** Return an period of which this timestamp is an observation.
- **Timestamp.to\_pydatetime ([warn])** Convert a Timestamp object to a native Python datetime object.
- Timestamp.today ([tz]) Return the current time in the local timezone.
- Timestamp.toordinal () Return proleptic Gregorian ordinal.

- Timestamp.tz\_convert (tz) Convert timezone-aware Timestamp to another time zone.
- Timestamp.tz\_localize (tz[, ambiguous, ...]) Localize the Timestamp to a timezone.
- Timestamp.tzname () Return time zone name.
- Timestamp.utcfromtimestamp (ts) Construct a timezone-aware UTC datetime from a POSIX timestamp.
- Timestamp.utcnow () Return a new Timestamp representing UTC day and time.
- Timestamp.utcoffset () Return utc offset.
- **Timestamp.utctimetuple ()** Return UTC time tuple, compatible with time.localtime().
- Timestamp.weekday () Return the day of the week represented by the date.
- arrays.DatetimeArray (values[, dtype, freq, copy]) Pandas ExtensionArray for tz-naive or tz-aware datetime data.
- DatetimeTZDtype ([unit, tz]) An ExtensionDtype for timezone-aware datetime data.
- Timedelta ([value, unit]) Represents a duration, the difference between two dates or times.
- Timedelta.asm8 Return a numpy timedelta64 array scalar view.
- Timedelta.components Return a components namedtuple-like.
- Timedelta.days Returns the days of the timedelta.
- Timedelta.max -
- Timedelta.microseconds -
- Timedelta.min -
- Timedelta.nanoseconds Return the number of nanoseconds (n), where 0 <= n < 1 microsecond.</li>
- Timedelta.resolution -
- **Timedelta.seconds** Return the total hours, minutes, and seconds of the timedelta as seconds.
- Timedelta.unit -
- Timedelta.value -
- Timedelta.view (dtype) Array view compatibility.
- Timedelta.asunit (unit[, roundok]) Convert the underlying int64 representation to the given unit.
- Timedelta.ceil (freq) Return a new Timedelta ceiled to this resolution.
- Timedelta.floor (freq) Return a new Timedelta floored to this resolution.
- Timedelta.isoformat () Format the Timedelta as ISO 8601 Duration.
- Timedelta.round (freq) Round the Timedelta to the specified resolution.
- Timedelta.to\_pytimedelta () Convert a pandas Timedelta object into a python datetime.timedelta object.
- Timedelta.to\_timedelta64 () Return a numpy.timedelta64 object with 'ns' precision.
- Timedelta.to\_numpy ([dtype, copy]) Convert the Timedelta to a NumPy timedelta64.
- Timedelta.total\_seconds () Total seconds in the duration.

- arrays.TimedeltaArray (values[, dtype, freq, ...]) Pandas ExtensionArray for timedelta data.
- Period ([value, freq, ordinal, year, month, ...]) Represents a period of time.
- Period.day Get day of the month that a Period falls on.
- **Period.dayofweek** Day of the week the period lies in, with Monday=0 and Sunday=6.
- **Period.day** of the week the period lies in, with Monday=0 and Sunday=6.
- Period.dayofyear Return the day of the year.
- Period.dayofyear Return the day of the year.
- **Period.days***in***month** Get the total number of days in the month that this period falls on.
- **Period.daysinmonth** Get the total number of days of the month that this period falls on.
- Period.end\_time Get the Timestamp for the end of the period.
- Period.freq -
- **Period.freqstr** Return a string representation of the frequency.
- **Period.hour** Get the hour of the day component of the Period.
- **Period.is**leapyear Return True if the period's year is in a leap year.
- **Period.minute** Get minute of the hour component of the Period.
- Period.month Return the month this Period falls on.
- Period.ordinal -
- Period.quarter Return the quarter this Period falls on.
- **Period.qyear** Fiscal year the Period lies in according to its starting-quarter.
- Period.second Get the second component of the Period.
- **Period.start\_time** Get the Timestamp for the start of the period.
- Period.week Get the week of the year on the given Period.
- **Period.weekday** Day of the week the period lies in, with Monday=0 and Sunday=6.
- **Period.weekofyear** Get the week of the year on the given Period.
- Period.year Return the year this Period falls on.
- Period.asfreq (freq[, how]) Convert Period to desired frequency, at the start or end of the interval.
- Period.now (freq) Return the period of now's date.
- **Period.strftime (fmt)** Returns a formatted string representation of the Period .
- Period.to\_timestamp ([freq, how]) Return the Timestamp representation of the Period.
- arrays.PeriodArray (values[, dtype, freq, copy]) Pandas ExtensionArray for storing Period data.
- PeriodDtype (freq) An ExtensionDtype for Period data.
- Interval Immutable object implementing an Interval, a bounded slice-like interval.

- Interval.closed String describing the inclusive side the intervals.
- Interval.closed\_left Check if the interval is closed on the left side.
- Interval.closed\_right Check if the interval is closed on the right side.
- Interval.is\_empty Indicates if an interval is empty, meaning it contains no points.
- Interval.left Left bound for the interval.
- Interval.length Return the length of the Interval.
- Interval.mid Return the midpoint of the Interval.
- Interval.open\_left Check if the interval is open on the left side.
- Interval.open\_right Check if the interval is open on the right side.
- Interval.overlaps (other) Check whether two Interval objects overlap.
- Interval.right Right bound for the interval.
- arrays.IntervalArray (data[, closed, dtype, ...]) Pandas array for interval data that are closed on the same side.
- IntervalDtype ([subtype, closed]) An ExtensionDtype for Interval data.
- arrays.IntegerArray (values, mask[, copy]) Array of integer (optional missing) values.
- Int8Dtype () An ExtensionDtype for int8 integer data.
- Int16Dtype () An ExtensionDtype for int16 integer data.
- Int32Dtype () An ExtensionDtype for int32 integer data.
- Int64Dtype () An ExtensionDtype for int64 integer data.
- UInt8Dtype () An ExtensionDtype for uint8 integer data.
- UInt16Dtype () An ExtensionDtype for uint16 integer data.
- UInt32Dtype () An ExtensionDtype for uint32 integer data.
- UInt64Dtype () An ExtensionDtype for uint64 integer data.
- arrays.FloatingArray (values, mask[, copy]) Array of floating (optional missing) values.
- Float32Dtype () An ExtensionDtype for float32 data.
- Float64Dtype () An ExtensionDtype for float64 data.
- CategoricalDtype ([categories, ordered]) Type for categorical data with the categories and orderedness.
- CategoricalDtype.categories An Index containing the unique categories allowed.
- CategoricalDtype.ordered Whether the categories have an ordered relationship.
- Categorical (values[, categories, ordered, ...]) Represent a categorical variable in classic R / S-plus fashion.
- Categorical.from\_codes (codes[, categories, ...]) Make a Categorical type from codes and categories or dtype.
- Categorical.dtype The CategoricalDtype for this instance.
- Categorical.categories The categories of this categorical.
- Categorical.ordered Whether the categories have an ordered relationship.
- Categorical.codes The category codes of this categorical index.

- Categorical.\_array\_ ([dtype, copy]) The numpy array interface.
- arrays.SparseArray (data[, sparse\_index, ...]) An ExtensionArray for storing sparse data.
- SparseDtype ([dtype, fill\_value]) Dtype for data stored in SparseArray .
- arrays.StringArray (values[, copy]) Extension array for string data.
- arrays.ArrowStringArray (values) Extension array for string data in a pyarrow.ChunkedArray .
- StringDtype ([storage]) Extension dtype for string data.
- arrays.BooleanArray (values, mask[, copy]) Array of boolean (True/False) data with missing values.
- BooleanDtype () Extension dtype for boolean data.

#### **Utilities**

- api.types.unioncategoricals (tounion[, ...]) Combine list-like of Categorical-like, unioning categories.
- api.types.infer\_dtype (value[, skipna]) Return a string label of the type of a scalar or list-like of values.
- api.types.pandas\_dtype (dtype) Convert input into a pandas only dtype object or a numpy dtype object.
- api.types.isanyrealnumericdtype (arrordtype) Check whether the provided array or dtype is of a real number dtype.
- api.types.isbooldtype (arrordtype) Check whether the provided array or dtype is of a boolean dtype.
- api.types.iscategoricaldtype (arrordtype) (DEPRECATED) Check whether an array-like or dtype is of the Categorical dtype.
- api.types.iscomplexdtype (arrordtype) Check whether the provided array or dtype is of a complex dtype.
- api.types.isdatetime64anydtype (arror\_dtype) Check whether the provided array or dtype is of the datetime64 dtype.
- api.types.isdatetime64dtype (arrordtype) Check whether an array-like or dtype is of the datetime64 dtype.
- api.types.isdatetime64nsdtype (arror\_dtype) Check whether the provided array or dtype is of the datetime64[ns] dtype.
- api.types.isdatetime64tzdtype (arrordtype) (DEPRECATED) Check whether an array-like or dtype is of a DatetimeTZDtype dtype.
- api.types.isextensionarraydtype (arror\_dtype) Check if an object is a pandas extension array type.
- api.types.isfloatdtype (arrordtype) Check whether the provided array or dtype is of a float dtype.
- api.types.isint64dtype (arrordtype) (DEPRECATED) Check whether the provided array or dtype is of the int64 dtype.
- api.types.isintegerdtype (arrordtype) Check whether the provided array or dtype is of an integer dtype.
- api.types.isintervaldtype (arrordtype) (DEPRECATED) Check whether an array-like or dtype is of the Interval dtype.

- api.types.isnumericdtype (arrordtype) Check whether the provided array or dtype is of a numeric dtype.
- api.types.isobjectdtype (arrordtype) Check whether an array-like or dtype is of the object dtype.
- api.types.isperioddtype (arrordtype) (DEPRECATED) Check whether an array-like or dtype is of the Period dtype.
- api.types.issignedintegerdtype (arror\_dtype) Check whether the provided array or dtype is of a signed integer dtype.
- api.types.isstringdtype (arrordtype) Check whether the provided array or dtype is of the string dtype.
- api.types.istimedelta64dtype (arrordtype) Check whether an array-like or dtype is of the timedelta64 dtype.
- api.types.istimedelta64nsdtype (arror\_dtype) Check whether the provided array or dtype is of the timedelta64[ns] dtype.
- api.types.isunsignedintegerdtype (arror\_dtype) Check whether the provided array or dtype is of an unsigned integer dtype.
- api.types.is\_sparse (arr) (DEPRECATED) Check whether an array-like is a 1-D pandas sparse array.
- api.types.isdictlike (obj) Check if the object is dictlike.
- api.types.isfilelike (obj) Check if the object is a file-like object.
- api.types.islistlike (obj[, allow\_sets]) Check if the object is list-like.
- api.types.isnamedtuple (obj) Check if the object is a named tuple.
- api.types.is\_iterator (obj) Check if the object is an iterator.
- api.types.is\_bool (obj) Return True if given object is boolean.
- api.types.is\_complex (obj) Return True if given object is complex.
- api.types.is\_float (obj) Return True if given object is float.
- api.types.is\_hashable (obj) Return True if hash(obj) will succeed, False otherwise.
- api.types.is\_integer (obj) Return True if given object is integer.
- api.types.is\_interval (obj) -
- api.types.is\_number (obj) Check if the object is a number.
- api.types.is\_re (obj) Check if the object is a regex pattern instance.
- api.types.isrecompilable (obj) Check if the object can be compiled into a regex pattern instance.
- api.types.is\_scalar (val) Return True if given object is scalar.

# Index objects

#### Index

- Index ([data, dtype, copy, name, tupleize\_cols]) Immutable sequence used for indexing and alignment.
- Index.values Return an array representing the data in the Index.
- Index.ismonotonicincreasing Return a boolean if the values are equal or increasing.
- Index.ismonotonicdecreasing Return a boolean if the values are equal or decreasing.
- Index.is\_unique Return if the index has unique values.
- Index.has\_duplicates Check if the Index has duplicate values.
- Index.hasnans Return True if there are any NaNs.
- Index.dtype Return the dtype object of the underlying data.
- Index.inferred\_type Return a string of the type inferred from the values.
- Index.shape Return a tuple of the shape of the underlying data.
- Index.name Return Index or MultiIndex name.
- Index.names -
- Index.nbytes Return the number of bytes in the underlying data.
- Index.ndim Number of dimensions of the underlying data, by definition 1.
- Index.size Return the number of elements in the underlying data.
- Index.empty -
- Index.T Return the transpose, which is by definition self.
- Index.memory\_usage ([deep]) Memory usage of the values.
- Index.all (args, \*kwargs) Return whether all elements are Truthy.
- Index.any (args, \*kwargs) Return whether any element is Truthy.
- Index.argmin ([axis, skipna]) Return int position of the smallest value in the Series.
- Index.argmax ([axis, skipna]) Return int position of the largest value in the Series.
- Index.copy ([name, deep]) Make a copy of this object.
- Index.delete (loc) Make new Index with passed location(-s) deleted.
- Index.drop (labels[, errors]) Make new Index with passed list of labels deleted.
- Index.drop\_duplicates (\*[, keep]) Return Index with duplicate values removed.
- Index.duplicated ([keep]) Indicate duplicate index values.
- Index.equals (other) Determine if two Index object are equal.

- Index.factorize ([sort, usenasentinel]) Encode the object as an enumerated type or categorical variable.
- Index.identical (other) Similar to equals, but checks that object attributes and types are also equal.
- Index.insert (loc, item) Make new Index inserting new item at location.
- Index.is\_ (other) More flexible, faster check like is but that works through views.
- Index.is\_boolean () (DEPRECATED) Check if the Index only consists of booleans.
- Index.is\_categorical () (DEPRECATED) Check if the Index holds categorical data.
- Index.is\_floating () (DEPRECATED) Check if the Index is a floating type.
- Index.is\_integer () (DEPRECATED) Check if the Index only consists of integers.
- Index.is\_interval () (DEPRECATED) Check if the Index holds Interval objects.
- Index.is\_numeric () (DEPRECATED) Check if the Index only consists of numeric data.
- Index.is\_object () (DEPRECATED) Check if the Index is of the object dtype.
- Index.min ([axis, skipna]) Return the minimum value of the Index.
- Index.max ([axis, skipna]) Return the maximum value of the Index.
- Index.reindex (target[, method, level, ...]) Create index with target's values.
- Index.rename (name, \*[, inplace]) Alter Index or MultiIndex name.
- Index.repeat (repeats[, axis]) Repeat elements of a Index.
- Index.where (cond[, other]) Replace values where the condition is False.
- Index.take (indices[, axis, allow\_fill, ...]) Return a new Index of the values selected by the indices.
- Index.putmask (mask, value) Return a new Index of the values set with the mask.
- Index.unique ([level]) Return unique values in the index.
- Index.nunique ([dropna]) Return number of unique elements in the object.
- Index.value\_counts ([normalize, sort, ...]) Return a Series containing counts of unique values.
- Index.set\_names (names, \*[, level, inplace]) Set Index or MultiIndex name.
- Index.droplevel ([level]) Return index with requested level(s) removed.
- Index.fillna ([value, downcast]) Fill NA/NaN values with the specified value.
- Index.dropna ([how]) Return Index without NA/NaN values.
- Index.isna () Detect missing values.
- Index.notna () Detect existing (non-missing) values.
- Index.astype (dtype[, copy]) Create an Index with values cast to dtypes.

- Index.item () Return the first element of the underlying data as a Python scalar.
- Index.map (mapper[, na\_action]) Map values using an input mapping or function.
- Index.ravel ([order]) Return a view on self.
- Index.to\_list () Return a list of the values.
- Index.to\_series ([index, name]) Create a Series with both index and values equal to the index keys.
- Index.to\_frame ([index, name]) Create a DataFrame with a column containing the Index.
- Index.view ([cls]) -
- Index.argsort (args, \*kwargs) Return the integer indices that would sort the index.
- Index.searchsorted (value[, side, sorter]) Find indices where elements should be inserted to maintain order.
- Index.sortvalues (\*[, returnindexer, ...]) Return a sorted copy of the index.
- Index.shift ([periods, freq]) Shift index by desired number of time frequency increments.
- Index.append (other) Append a collection of Index options together.
- Index.join (other, \*[, how, level, ...]) Compute join\_index and indexers to conform data structures to the new index.
- Index.intersection (other[, sort]) Form the intersection of two Index objects.
- Index.union (other[, sort]) Form the union of two Index objects.
- Index.difference (other[, sort]) Return a new Index with elements of index not in other .
- Index.symmetric\_difference (other[, ...]) Compute the symmetric difference of two Index objects.
- Index.asof (label) Return the label from the index, or, if not present, the previous one.
- Index.asof\_locs (where, mask) Return the locations (indices) of labels in the index.
- Index.get\_indexer (target[, method, limit, ...]) Compute indexer and mask for new index given the current index.
- Index.getindexerfor (target) Guaranteed return of an indexer even when non-unique.
- Index.getindexernon\_unique (target) Compute indexer and mask for new index given the current index.
- Index.getlevelvalues (level) Return an Index of values for requested level.
- Index.get\_loc (key) Get integer location, slice or boolean mask for requested label.
- Index.getslicebound (label, side) Calculate slice bound that corresponds to given label.
- Index.isin (values[, level]) Return a boolean array where the index values are in values .
- Index.slice\_indexer ([start, end, step]) Compute the slice indexer for input labels and step.

• Index.slice\_locs ([start, end, step]) - Compute slice locations for input labels.

#### **Numeric Index**

- RangeIndex ([start, stop, step, dtype, copy, ...]) Immutable Index implementing a monotonic integer range.
- RangeIndex.start The value of the start parameter ( 0 if this was not supplied).
- RangeIndex.stop The value of the stop parameter.
- RangeIndex.step The value of the step parameter ( 1 if this was not supplied).
- RangeIndex.from\_range (data[, name, dtype]) Create pandas.RangeIndex from a range object.

## CategoricalIndex

- CategoricalIndex ([data, categories, ...]) Index based on an underlying Categorical .
- CategoricalIndex.codes The category codes of this categorical index.
- CategoricalIndex.categories The categories of this categorical.
- CategoricalIndex.ordered Whether the categories have an ordered relationship.
- CategoricalIndex.rename\_categories (\*args, ...) Rename categories.
- CategoricalIndex.reordercategories (\*args, ...) Reorder categories as specified in newcategories.
- CategoricalIndex.add\_categories (args, \*kwargs) Add new categories.
- CategoricalIndex.remove\_categories (\*args, ...) Remove the specified categories.
- CategoricalIndex.removeunusedcategories (...) Remove categories which are not used.
- CategoricalIndex.set\_categories (args, \*kwargs) Set the categories to the specified new categories.
- CategoricalIndex.as\_ordered (args, \*kwargs) Set the Categorical to be ordered.
- CategoricalIndex.as\_unordered (args, \*kwargs) Set the Categorical to be unordered.
- CategoricalIndex.map (mapper[, na\_action]) Map values using input an input mapping or function.
- CategoricalIndex.equals (other) Determine if two CategoricalIndex objects contain the same elements.

#### **IntervalIndex**

- IntervalIndex (data[, closed, dtype, copy, ...]) Immutable index of intervals that are closed on the same side.
- IntervalIndex.from\_arrays (left, right[, ...]) Construct from two arrays defining the left and right bounds.
- IntervalIndex.from\_tuples (data[, closed, ...]) Construct an IntervalIndex from an array-like of tuples.
- IntervalIndex.from\_breaks (breaks[, closed, ...]) Construct an IntervalIndex from an array of splits.
- IntervalIndex.left -
- IntervalIndex.right -
- IntervalIndex.mid -
- IntervalIndex.closed String describing the inclusive side the intervals.
- IntervalIndex.length -
- IntervalIndex.values Return an array representing the data in the Index.
- IntervalIndex.is\_empty Indicates if an interval is empty, meaning it contains no points.
- IntervalIndex.isnonoverlapping\_monotonic Return a boolean whether the IntervalArray is non-overlapping and monotonic.
- IntervalIndex.is\_overlapping Return True if the IntervalIndex has overlapping intervals, else False.
- IntervalIndex.get\_loc (key) Get integer location, slice or boolean mask for requested label.
- IntervalIndex.get\_indexer (target[, method, ...]) Compute indexer and mask for new index given the current index.
- IntervalIndex.set\_closed (args, \*kwargs) Return an identical IntervalArray closed on the specified side.
- IntervalIndex.contains (args, \*kwargs) Check elementwise if the Intervals contain the value.
- IntervalIndex.overlaps (args, \*kwargs) Check elementwise if an Interval overlaps the values in the IntervalArray.
- IntervalIndex.to\_tuples (args, \*kwargs) Return an ndarray (if self is IntervalArray) or Index (if self is IntervalIndex) of tuples of the form (left, right).

## **MultiIndex**

- MultiIndex ([levels, codes, sortorder, ...]) A multi-level, or hierarchical, index object for pandas objects.
- MultiIndex.from\_arrays (arrays[, sortorder, ...]) Convert arrays to MultiIndex.
- MultiIndex.from\_tuples (tuples[, sortorder, ...]) Convert list of tuples to MultiIndex.
- MultiIndex.from\_product (iterables[, ...]) Make a MultiIndex from the cartesian product of multiple iterables.

- MultiIndex.from\_frame (df[, sortorder, names]) Make a MultiIndex from a DataFrame.
- MultiIndex.names Names of levels in MultiIndex.
- MultiIndex.levels Levels of the MultiIndex.
- MultiIndex.codes -
- MultiIndex.nlevels Integer number of levels in this MultiIndex.
- MultiIndex.levshape A tuple with the length of each level.
- MultiIndex.dtypes Return the dtypes as a Series for the underlying MultiIndex.
- MultiIndex.set\_levels (levels, \*[, level, ...]) Set new levels on MultiIndex.
- MultiIndex.set\_codes (codes, \*[, level, ...]) Set new codes on MultiIndex.
- MultiIndex.toflatindex () Convert a MultiIndex to an Index of Tuples containing the level values.
- MultiIndex.to\_frame ([index, name, ...]) Create a DataFrame with the levels of the MultiIndex as columns.
- MultiIndex.sortlevel ([level, ascending, ...]) Sort MultiIndex at the requested level.
- MultiIndex.droplevel ([level]) Return index with requested level(s) removed.
- MultiIndex.swaplevel ([i, j]) Swap level i with level j.
- MultiIndex.reorder\_levels (order) Rearrange levels using input order.
- MultiIndex.removeunusedlevels () Create new MultiIndex from current that removes unused levels.
- MultiIndex.drop (codes[, level, errors]) Make a new pandas.MultiIndex with the passed list of codes deleted.
- MultiIndex.copy ([names, deep, name]) Make a copy of this object.
- MultiIndex.append (other) Append a collection of Index options together.
- MultiIndex.truncate ([before, after]) Slice index between two labels / tuples, return new MultiIndex.
- MultiIndex.get\_loc (key) Get location for a label or a tuple of labels.
- MultiIndex.get\_locs (seq) Get location for a sequence of labels.
- MultiIndex.getloclevel (key[, level, ...]) Get location and sliced index for requested label(s)/level(s).
- MultiIndex.get\_indexer (target[, method, ...]) Compute indexer and mask for new index given the current index.
- MultiIndex.getlevelvalues (level) Return vector of label values for requested level.
- IndexSlice Create an object to more easily perform multiindex slicing.

## **DatetimeIndex**

• DatetimeIndex ([data, freq, tz, normalize, ...]) - Immutable ndarray-like of datetime64 data.

- DatetimeIndex.year The year of the datetime.
- DatetimeIndex.month The month as January=1, December=12.
- DatetimeIndex.day The day of the datetime.
- DatetimeIndex.hour The hours of the datetime.
- DatetimeIndex.minute The minutes of the datetime.
- DatetimeIndex.second The seconds of the datetime.
- DatetimeIndex.microsecond The microseconds of the datetime.
- DatetimeIndex.nanosecond The nanoseconds of the datetime.
- **DatetimeIndex.date** Returns numpy array of python datetime.date objects.
- **DatetimeIndex.time** Returns numpy array of datetime.time objects.
- **DatetimeIndex.timetz** Returns numpy array of datetime.time objects with timezones.
- DatetimeIndex.dayofyear The ordinal day of the year.
- DatetimeIndex.dayofyear The ordinal day of the year.
- DatetimeIndex.dayofweek The day of the week with Monday=0, Sunday=6.
- DatetimeIndex.dayofweek The day of the week with Monday=0, Sunday=6.
- **DatetimeIndex.weekday** The day of the week with Monday=0, Sunday=6.
- DatetimeIndex.quarter The quarter of the date.
- DatetimeIndex.tz Return the timezone.
- DatetimeIndex.freq -
- DatetimeIndex.freqstr Return the frequency object as a string if it's set, otherwise None.
- DatetimeIndex.ismonthstart Indicates whether the date is the first day of the month.
- **DatetimeIndex.is**monthend Indicates whether the date is the last day of the month.
- **DatetimeIndex.isquarterstart** Indicator for whether the date is the first day of a quarter.
- DatetimeIndex.isquarterend Indicator for whether the date is the last day of a quarter.
- **DatetimeIndex.is***year***start** Indicate whether the date is the first day of a year.
- DatetimeIndex.isyearend Indicate whether the date is the last day of the year.
- DatetimeIndex.isleapyear Boolean indicator if the date belongs to a leap year.
- DatetimeIndex.inferredfreq Tries to return a string representing a frequency generated by inferfreq.
- DatetimeIndex.indexerattime (time[, asof]) Return index locations of values at particular time of day.
- DatetimeIndex.indexerbetweentime (...[, ...]) Return index locations of values between particular times of day.
- DatetimeIndex.normalize (args, \*kwargs) Convert times to midnight.
- DatetimeIndex.strftime (dateformat) Convert to Index using specified dateformat.
- DatetimeIndex.snap ([freq]) Snap time stamps to nearest occurring frequency.

- DatetimeIndex.tz\_convert (tz) Convert tz-aware Datetime Array/Index from one time zone to another.
- DatetimeIndex.tz\_localize (tz[, ambiguous, ...]) Localize tz-naive Datetime Array/Index to tz-aware Datetime Array/Index.
- DatetimeIndex.round (args, \*kwargs) Perform round operation on the data to the specified freq .
- DatetimeIndex.floor (args, \*kwargs) Perform floor operation on the data to the specified freq .
- DatetimeIndex.ceil (args, \*kwargs) Perform ceil operation on the data to the specified freq .
- DatetimeIndex.month\_name (args, \*kwargs) Return the month names with specified locale.
- DatetimeIndex.day\_name (args, \*kwargs) Return the day names with specified locale.
- DatetimeIndex.as\_unit (args, \*kwargs) Convert to a dtype with the given unit resolution.
- DatetimeIndex.to\_period (args, \*kwargs) Cast to PeriodArray/PeriodIndex at a particular frequency.
- DatetimeIndex.to\_pydatetime (args, \*kwargs) Return an ndarray of datetime.datetime objects.
- DatetimeIndex.to\_series ([index, name]) Create a Series with both index and values equal to the index keys.
- DatetimeIndex.to\_frame ([index, name]) Create a DataFrame with a column containing the Index.
- DatetimeIndex.mean (\*[, skipna, axis]) Return the mean value of the Array.
- DatetimeIndex.std (args, \*kwargs) Return sample standard deviation over requested axis.

## **TimedeltaIndex**

- TimedeltaIndex ([data, unit, freq, closed, ...]) Immutable Index of timedelta64 data.
- TimedeltaIndex.days Number of days for each element.
- TimedeltaIndex.seconds Number of seconds (>= 0 and less than 1 day) for each element.
- TimedeltaIndex.microseconds Number of microseconds (>= 0 and less than 1 second) for each element.
- TimedeltaIndex.nanoseconds Number of nanoseconds (>= 0 and less than 1 microsecond) for each element.
- TimedeltaIndex.components Return a DataFrame of the individual resolution components of the Timedeltas.
- **TimedeltaIndex.inferred** Tries to return a string representing a frequency generated by inferfreq.
- **TimedeltaIndex.as\_unit (unit)** Convert to a dtype with the given unit resolution.
- TimedeltaIndex.to\_pytimedelta (args, \*kwargs) Return an ndarray of datetime.timedelta objects.
- TimedeltaIndex.to\_series ([index, name]) Create a Series with both index and values equal to the index keys.

- **TimedeltaIndex.round** (args, \*kwargs) Perform round operation on the data to the specified freq .
- TimedeltaIndex.floor (args, \*kwargs) Perform floor operation on the data to the specified freq .
- TimedeltaIndex.ceil (args, \*kwargs) Perform ceil operation on the data to the specified freq .
- TimedeltaIndex.to\_frame ([index, name]) Create a DataFrame with a column containing the Index.
- TimedeltaIndex.mean (\*[, skipna, axis]) Return the mean value of the Array.

#### **PeriodIndex**

- PeriodIndex ([data, ordinal, freq, dtype, ...]) Immutable ndarray holding ordinal values indicating regular periods in time.
- PeriodIndex.day The days of the period.
- PeriodIndex.dayofweek The day of the week with Monday=0, Sunday=6.
- **PeriodIndex.day** of the week with Monday=0, Sunday=6.
- PeriodIndex.dayofyear The ordinal day of the year.
- PeriodIndex.dayofyear The ordinal day of the year.
- PeriodIndex.daysinmonth The number of days in the month.
- PeriodIndex.daysinmonth The number of days in the month.
- **PeriodIndex.end\_time** Get the Timestamp for the end of the period.
- PeriodIndex.freq -
- **PeriodIndex.freqstr** Return the frequency object as a string if it's set, otherwise None.
- PeriodIndex.hour The hour of the period.
- **PeriodIndex.is**leapyear Logical indicating if the date belongs to a leap year.
- PeriodIndex.minute The minute of the period.
- PeriodIndex.month The month as January=1, December=12.
- PeriodIndex.quarter The quarter of the date.
- PeriodIndex.gyear -
- PeriodIndex.second The second of the period.
- **PeriodIndex.start\_time** Get the Timestamp for the start of the period.
- PeriodIndex.week The week ordinal of the year.
- PeriodIndex.weekday The day of the week with Monday=0, Sunday=6.
- PeriodIndex.weekofyear The week ordinal of the year.
- PeriodIndex.year The year of the period.
- **PeriodIndex.asfreq ([freq, how])** Convert the PeriodArray to the specified frequency freq .
- PeriodIndex.strftime (args, \*kwargs) Convert to Index using specified date\_format.
- PeriodIndex.to\_timestamp ([freq, how]) Cast to DatetimeArray/Index.

- PeriodIndex.from\_fields (\*[, year, quarter, ...]) -
- PeriodIndex.from\_ordinals (ordinals, \*, freq) -

## Date offsets

#### DateOffset

- DateOffset Standard kind of date increment used for a date range.
- DateOffset.freqstr Return a string representing the frequency.
- DateOffset.kwds Return a dict of extra parameters for the offset.
- DateOffset.name Return a string representing the base frequency.
- DateOffset.nanos -
- DateOffset.normalize -
- DateOffset.rule\_code -
- DateOffset.n -
- DateOffset.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- DateOffset.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- DateOffset.copy () Return a copy of the frequency.
- DateOffset.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- DateOffset.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- DateOffset.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- DateOffset.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- DateOffset.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- DateOffset.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- DateOffset.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- DateOffset.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## **BusinessDay**

- BusinessDay DateOffset subclass representing possibly n business days.
- BDay alias of BusinessDay
- BusinessDay.freqstr Return a string representing the frequency.

- BusinessDay.kwds Return a dict of extra parameters for the offset.
- BusinessDay.name Return a string representing the base frequency.
- BusinessDay.nanos -
- BusinessDay.normalize -
- BusinessDay.rule\_code -
- BusinessDay.n -
- BusinessDay.weekmask -
- BusinessDay.holidays -
- BusinessDay.calendar -
- BusinessDay.copy () Return a copy of the frequency.
- BusinessDay.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- BusinessDay.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BusinessDay.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BusinessDay.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- BusinessDay.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BusinessDay.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BusinessDay.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- BusinessDay.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## BusinessHour

- BusinessHour DateOffset subclass representing possibly n business hours.
- BusinessHour.freqstr Return a string representing the frequency.
- BusinessHour.kwds Return a dict of extra parameters for the offset.
- BusinessHour.name Return a string representing the base frequency.
- BusinessHour.nanos -
- BusinessHour.normalize -
- BusinessHour.rule\_code -
- BusinessHour.n -
- BusinessHour.start -
- BusinessHour.end -
- BusinessHour.weekmask -
- BusinessHour.holidays -
- BusinessHour.calendar -
- BusinessHour.copy () Return a copy of the frequency.
- BusinessHour.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).

- BusinessHour.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BusinessHour.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BusinessHour.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- BusinessHour.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BusinessHour.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BusinessHour.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- BusinessHour.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## **CustomBusinessDay**

- **CustomBusinessDay** DateOffset subclass representing possibly n custom business days.
- CDay alias of CustomBusinessDay
- **CustomBusinessDay.freqstr** Return a string representing the frequency.
- CustomBusinessDay.kwds Return a dict of extra parameters for the offset.
- **CustomBusinessDay.name** Return a string representing the base frequency.
- CustomBusinessDay.nanos -
- CustomBusinessDay.normalize -
- CustomBusinessDay.rule\_code -
- CustomBusinessDay.n -
- CustomBusinessDay.weekmask -
- CustomBusinessDay.calendar -
- CustomBusinessDay.holidays -
- CustomBusinessDay.copy () Return a copy of the frequency.
- CustomBusinessDay.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- CustomBusinessDay.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- CustomBusinessDay.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- CustomBusinessDay.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- CustomBusinessDay.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- CustomBusinessDay.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- CustomBusinessDay.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- CustomBusinessDay.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### CustomBusinessHour

- **CustomBusinessHour** DateOffset subclass representing possibly n custom business days.
- **CustomBusinessHour.freqstr** Return a string representing the frequency.
- CustomBusinessHour.kwds Return a dict of extra parameters for the offset.
- **CustomBusinessHour.name** Return a string representing the base frequency.
- CustomBusinessHour.nanos -
- CustomBusinessHour.normalize -
- CustomBusinessHour.rule code -
- CustomBusinessHour.n -
- CustomBusinessHour.weekmask -
- CustomBusinessHour.calendar -
- CustomBusinessHour.holidays -
- CustomBusinessHour.start -
- CustomBusinessHour.end -
- CustomBusinessHour.copy () Return a copy of the frequency.
- CustomBusinessHour.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- CustomBusinessHour.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- CustomBusinessHour.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- CustomBusinessHour.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- CustomBusinessHour.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- CustomBusinessHour.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- CustomBusinessHour.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- CustomBusinessHour.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## MonthEnd

- MonthEnd DateOffset of one month end.
- MonthEnd.freqstr Return a string representing the frequency.
- MonthEnd.kwds Return a dict of extra parameters for the offset.
- MonthEnd.name Return a string representing the base frequency.
- MonthEnd.nanos -
- MonthEnd.normalize -
- MonthEnd.rule\_code -

- MonthEnd.n -
- MonthEnd.copy () Return a copy of the frequency.
- MonthEnd.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- MonthEnd.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- MonthEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- MonthEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- MonthEnd.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- MonthEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- MonthEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- MonthEnd.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## MonthBegin

- MonthBegin DateOffset of one month at beginning.
- MonthBegin.freqstr Return a string representing the frequency.
- MonthBegin.kwds Return a dict of extra parameters for the offset.
- MonthBegin.name Return a string representing the base frequency.
- MonthBegin.nanos -
- MonthBegin.normalize -
- MonthBegin.rule code -
- MonthBegin.n -
- MonthBegin.copy () Return a copy of the frequency.
- MonthBegin.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- MonthBegin.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- MonthBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- MonthBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- MonthBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- MonthBegin.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- MonthBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- MonthBegin.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### **BusinessMonthEnd**

- BusinessMonthEnd DateOffset increments between the last business day of the month.
- BMonthEnd alias of BusinessMonthEnd
- BusinessMonthEnd.freqstr Return a string representing the frequency.
- BusinessMonthEnd.kwds Return a dict of extra parameters for the offset.
- BusinessMonthEnd.name Return a string representing the base frequency.
- BusinessMonthEnd.nanos -
- BusinessMonthEnd.normalize -
- BusinessMonthEnd.rule code -
- BusinessMonthEnd.n -
- BusinessMonthEnd.copy () Return a copy of the frequency.
- BusinessMonthEnd.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- BusinessMonthEnd.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BusinessMonthEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BusinessMonthEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- BusinessMonthEnd.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BusinessMonthEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BusinessMonthEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- BusinessMonthEnd.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## **BusinessMonthBegin**

- BusinessMonthBegin DateOffset of one month at the first business day.
- BMonthBegin alias of BusinessMonthBegin
- BusinessMonthBegin.freqstr Return a string representing the frequency.
- BusinessMonthBegin.kwds Return a dict of extra parameters for the offset.
- BusinessMonthBegin.name Return a string representing the base frequency.
- BusinessMonthBegin.nanos -
- BusinessMonthBegin.normalize -
- BusinessMonthBegin.rule code -
- BusinessMonthBegin.n -
- BusinessMonthBegin.copy () Return a copy of the frequency.

- BusinessMonthBegin.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- BusinessMonthBegin.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BusinessMonthBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BusinessMonthBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- BusinessMonthBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BusinessMonthBegin.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BusinessMonthBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- BusinessMonthBegin.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### CustomBusinessMonthEnd

- **CustomBusinessMonthEnd** DateOffset subclass representing custom business month(s).
- CBMonthEnd alias of CustomBusinessMonthEnd
- **CustomBusinessMonthEnd.freqstr** Return a string representing the frequency.
- **CustomBusinessMonthEnd.kwds** Return a dict of extra parameters for the offset.
- CustomBusinessMonthEnd.m\_offset -
- **CustomBusinessMonthEnd.name** Return a string representing the base frequency.
- CustomBusinessMonthEnd.nanos -
- CustomBusinessMonthEnd.normalize -
- CustomBusinessMonthEnd.rule code -
- CustomBusinessMonthEnd.n -
- CustomBusinessMonthEnd.weekmask -
- CustomBusinessMonthEnd.calendar -
- CustomBusinessMonthEnd.holidays -
- CustomBusinessMonthEnd.copy () Return a copy of the frequency.
- CustomBusinessMonthEnd.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- CustomBusinessMonthEnd.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- CustomBusinessMonthEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- CustomBusinessMonthEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- CustomBusinessMonthEnd.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- CustomBusinessMonthEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.

- CustomBusinessMonthEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- CustomBusinessMonthEnd.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## **CustomBusinessMonthBegin**

- **CustomBusinessMonthBegin** DateOffset subclass representing custom business month(s).
- CBMonthBegin alias of CustomBusinessMonthBegin
- **CustomBusinessMonthBegin.freqstr** Return a string representing the frequency.
- CustomBusinessMonthBegin.kwds Return a dict of extra parameters for the offset.
- CustomBusinessMonthBegin.m\_offset -
- **CustomBusinessMonthBegin.name** Return a string representing the base frequency.
- CustomBusinessMonthBegin.nanos -
- CustomBusinessMonthBegin.normalize -
- CustomBusinessMonthBegin.rule\_code -
- CustomBusinessMonthBegin.n -
- CustomBusinessMonthBegin.weekmask -
- CustomBusinessMonthBegin.calendar -
- CustomBusinessMonthBegin.holidays -
- CustomBusinessMonthBegin.copy () Return a copy of the frequency.
- CustomBusinessMonthBegin.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- CustomBusinessMonthBegin.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- CustomBusinessMonthBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- CustomBusinessMonthBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- CustomBusinessMonthBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- CustomBusinessMonthBegin.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- CustomBusinessMonthBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- CustomBusinessMonthBegin.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### SemiMonthEnd

• **SemiMonthEnd** - Two DateOffset's per month repeating on the last day of the month & dayofmonth.

- **SemiMonthEnd.freqstr** Return a string representing the frequency.
- **SemiMonthEnd.kwds** Return a dict of extra parameters for the offset.
- **SemiMonthEnd.name** Return a string representing the base frequency.
- SemiMonthEnd.nanos -
- SemiMonthEnd.normalize -
- SemiMonthEnd.rule\_code -
- SemiMonthEnd.n -
- SemiMonthEnd.dayofmonth -
- SemiMonthEnd.copy () Return a copy of the frequency.
- SemiMonthEnd.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- **SemiMonthEnd.is***on***offset** (dt) Return boolean whether a timestamp intersects with this frequency.
- SemiMonthEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- SemiMonthEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- **SemiMonthEnd.is**quarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- SemiMonthEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- SemiMonthEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- SemiMonthEnd.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## SemiMonthBegin

- **SemiMonthBegin** Two DateOffset's per month repeating on the first day of the month & dayofmonth.
- **SemiMonthBegin.freqstr** Return a string representing the frequency.
- **SemiMonthBegin.kwds** Return a dict of extra parameters for the offset.
- **SemiMonthBegin.name** Return a string representing the base frequency.
- SemiMonthBegin.nanos -
- SemiMonthBegin.normalize -
- SemiMonthBegin.rule\_code -
- SemiMonthBegin.n -
- SemiMonthBegin.dayofmonth -
- SemiMonthBegin.copy () Return a copy of the frequency.
- **SemiMonthBegin.is\_anchored ()** (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- **SemiMonthBegin.is***on***offset** (dt) Return boolean whether a timestamp intersects with this frequency.
- SemiMonthBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.

- SemiMonthBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- SemiMonthBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- **SemiMonthBegin.is**quarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- SemiMonthBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- **SemiMonthBegin.is** year end (ts) Return boolean whether a timestamp occurs on the year end.

#### Week

- Week Weekly offset.
- Week.freqstr Return a string representing the frequency.
- Week.kwds Return a dict of extra parameters for the offset.
- Week.name Return a string representing the base frequency.
- Week.nanos -
- Week.normalize -
- Week.rule code -
- Week.n -
- Week.weekday -
- Week.copy () Return a copy of the frequency.
- Week.is\_anchored () Return boolean whether the frequency is a unit frequency (n=1).
- Week.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Week.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Week.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Week.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Week.isquarterend (ts) Return boolean whether a timestamp occurs on the guarter end.
- Week.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Week.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## WeekOfMonth

- WeekOfMonth Describes monthly dates like "the Tuesday of the 2nd week of each month".
- WeekOfMonth.freqstr Return a string representing the frequency.
- WeekOfMonth.kwds Return a dict of extra parameters for the offset.

- WeekOfMonth.name Return a string representing the base frequency.
- WeekOfMonth.nanos -
- WeekOfMonth.normalize -
- WeekOfMonth.rule\_code -
- WeekOfMonth.n -
- WeekOfMonth.week -
- WeekOfMonth.copy () Return a copy of the frequency.
- WeekOfMonth.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- WeekOfMonth.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- WeekOfMonth.weekday -
- WeekOfMonth.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- WeekOfMonth.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- WeekOfMonth.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- WeekOfMonth.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- WeekOfMonth.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- WeekOfMonth.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### LastWeekOfMonth

- LastWeekOfMonth Describes monthly dates in last week of month.
- LastWeekOfMonth.freqstr Return a string representing the frequency.
- LastWeekOfMonth.kwds Return a dict of extra parameters for the offset.
- LastWeekOfMonth.name Return a string representing the base frequency.
- LastWeekOfMonth.nanos -
- LastWeekOfMonth.normalize -
- LastWeekOfMonth.rule code -
- LastWeekOfMonth.n -
- LastWeekOfMonth.weekday -
- LastWeekOfMonth.week -
- LastWeekOfMonth.copy () Return a copy of the frequency.
- LastWeekOfMonth.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- LastWeekOfMonth.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- LastWeekOfMonth.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- LastWeekOfMonth.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.

- LastWeekOfMonth.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- LastWeekOfMonth.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- LastWeekOfMonth.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- LastWeekOfMonth.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## **BQuarterEnd**

- **BQuarterEnd** DateOffset increments between the last business day of each Quarter.
- **BQuarterEnd.freqstr** Return a string representing the frequency.
- BQuarterEnd.kwds Return a dict of extra parameters for the offset.
- **BQuarterEnd.name** Return a string representing the base frequency.
- BQuarterEnd.nanos -
- BOuarterEnd.normalize -
- BQuarterEnd.rule code -
- BQuarterEnd.n -
- BQuarterEnd.startingMonth -
- BQuarterEnd.copy () Return a copy of the frequency.
- BQuarterEnd.is\_anchored () Return boolean whether the frequency is a unit frequency (n=1).
- BQuarterEnd.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BQuarterEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BQuarterEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- BQuarterEnd.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BQuarterEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BQuarterEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- **BQuarterEnd.is***year***end** (ts) Return boolean whether a timestamp occurs on the year end.

## **BQuarterBegin**

- BQuarterBegin DateOffset increments between the first business day of each Quarter.
- BQuarterBegin.freqstr Return a string representing the frequency.

- BQuarterBegin.kwds Return a dict of extra parameters for the offset.
- **BQuarterBegin.name** Return a string representing the base frequency.
- BQuarterBegin.nanos -
- BQuarterBegin.normalize -
- BQuarterBegin.rule\_code -
- BQuarterBegin.n -
- BQuarterBegin.startingMonth -
- BQuarterBegin.copy () Return a copy of the frequency.
- BQuarterBegin.is\_anchored () Return boolean whether the frequency is a unit frequency (n=1).
- BQuarterBegin.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BQuarterBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BQuarterBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- BQuarterBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BQuarterBegin.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BQuarterBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- BQuarterBegin.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## QuarterEnd

- QuarterEnd DateOffset increments between Quarter end dates.
- QuarterEnd.freqstr Return a string representing the frequency.
- QuarterEnd.kwds Return a dict of extra parameters for the offset.
- QuarterEnd.name Return a string representing the base frequency.
- QuarterEnd.nanos -
- QuarterEnd.normalize -
- QuarterEnd.rule code -
- QuarterEnd.n -
- QuarterEnd.startingMonth -
- QuarterEnd.copy () Return a copy of the frequency.
- QuarterEnd.is\_anchored () Return boolean whether the frequency is a unit frequency (n=1).
- QuarterEnd.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- QuarterEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- QuarterEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.

- QuarterEnd.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- QuarterEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- QuarterEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- QuarterEnd.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## **QuarterBegin**

- QuarterBegin DateOffset increments between Quarter start dates.
- QuarterBegin.freqstr Return a string representing the frequency.
- QuarterBegin.kwds Return a dict of extra parameters for the offset.
- QuarterBegin.name Return a string representing the base frequency.
- QuarterBegin.nanos -
- QuarterBegin.normalize -
- QuarterBegin.rule\_code -
- QuarterBegin.n -
- QuarterBegin.startingMonth -
- QuarterBegin.copy () Return a copy of the frequency.
- QuarterBegin.is\_anchored () Return boolean whether the frequency is a unit frequency (n=1).
- QuarterBegin.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- QuarterBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- QuarterBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- QuarterBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- QuarterBegin.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- QuarterBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- QuarterBegin.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### **BYearEnd**

- **BYearEnd** DateOffset increments between the last business day of the year.
- **BYearEnd.freqstr** Return a string representing the frequency.

- **BYearEnd.kwds** Return a dict of extra parameters for the offset.
- **BYearEnd.name** Return a string representing the base frequency.
- BYearEnd.nanos -
- BYearEnd.normalize -
- BYearEnd.rule\_code -
- BYearEnd.n -
- BYearEnd.month -
- BYearEnd.copy () Return a copy of the frequency.
- BYearEnd.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- BYearEnd.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BYearEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BYearEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- BYearEnd.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BYearEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BYearEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- BYearEnd.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## **BYearBegin**

- BYearBegin DateOffset increments between the first business day of the year.
- BYearBegin.freqstr Return a string representing the frequency.
- BYearBegin.kwds Return a dict of extra parameters for the offset.
- **BYearBegin.name** Return a string representing the base frequency.
- BYearBegin.nanos -
- BYearBegin.normalize -
- BYearBegin.rule code -
- BYearBegin.n -
- BYearBegin.month -
- BYearBegin.copy () Return a copy of the frequency.
- BYearBegin.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- BYearBegin.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- BYearBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- BYearBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.

- BYearBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- BYearBegin.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- BYearBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- BYearBegin.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### YearEnd

- YearEnd DateOffset increments between calendar year end dates.
- YearEnd.freqstr Return a string representing the frequency.
- YearEnd.kwds Return a dict of extra parameters for the offset.
- **YearEnd.name** Return a string representing the base frequency.
- YearEnd.nanos -
- YearEnd.normalize -
- YearEnd.rule code -
- YearEnd.n -
- YearEnd.month -
- YearEnd.copy () Return a copy of the frequency.
- YearEnd.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- YearEnd.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- YearEnd.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- YearEnd.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- YearEnd.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- YearEnd.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- YearEnd.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- YearEnd.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## YearBegin

- YearBegin DateOffset increments between calendar year begin dates.
- YearBegin.freqstr Return a string representing the frequency.

- YearBegin.kwds Return a dict of extra parameters for the offset.
- YearBegin.name Return a string representing the base frequency.
- YearBegin.nanos -
- YearBegin.normalize -
- YearBegin.rule\_code -
- YearBegin.n -
- YearBegin.month -
- YearBegin.copy () Return a copy of the frequency.
- YearBegin.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- YearBegin.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- YearBegin.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- YearBegin.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- YearBegin.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- YearBegin.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- YearBegin.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- YearBegin.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### FY5253

- FY5253 Describes 52-53 week fiscal year.
- FY5253.freqstr Return a string representing the frequency.
- FY5253.kwds Return a dict of extra parameters for the offset.
- FY5253.name Return a string representing the base frequency.
- FY5253.nanos -
- FY5253.normalize -
- FY5253.rule code -
- FY5253.n -
- FY5253.startingMonth -
- FY5253.variation -
- FY5253.weekday -
- FY5253.copy () Return a copy of the frequency.
- FY5253.getrulecode\_suffix () -
- FY5253.get*year*end (dt) -
- FY5253.is\_anchored () Return boolean whether the frequency is a unit frequency (n=1).
- FY5253.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- FY5253.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.

- FY5253.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- FY5253.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- FY5253.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- FY5253.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- FY5253.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## FY5253Quarter

- FY5253Quarter DateOffset increments between business quarter dates for 52-53 week fiscal year.
- FY5253Quarter.freqstr Return a string representing the frequency.
- FY5253Quarter.kwds Return a dict of extra parameters for the offset.
- FY5253Quarter.name Return a string representing the base frequency.
- FY5253Quarter.nanos -
- FY5253Quarter.normalize -
- FY5253Quarter.rule\_code -
- FY5253Quarter.n -
- FY5253Quarter.qtrwithextra\_week -
- FY5253Quarter.startingMonth -
- FY5253Quarter.variation -
- FY5253Quarter.weekday -
- FY5253Quarter.copy () Return a copy of the frequency.
- FY5253Quarter.getrulecode\_suffix () -
- FY5253Quarter.get\_weeks (dt) -
- FY5253Quarter.is\_anchored () Return boolean whether the frequency is a unit frequency (n=1).
- FY5253Quarter.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- FY5253Quarter.yearhasextra week (dt) -
- FY5253Quarter.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- FY5253Quarter.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- FY5253Quarter.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- FY5253Quarter.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- FY5253Quarter.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- FY5253Quarter.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### **Easter**

- Easter DateOffset for the Easter holiday using logic defined in dateutil.
- Easter.freqstr Return a string representing the frequency.
- Easter.kwds Return a dict of extra parameters for the offset.
- **Easter.name** Return a string representing the base frequency.
- Easter.nanos -
- Easter.normalize -
- Easter.rule\_code -
- Easter.n -
- Easter.copy () Return a copy of the frequency.
- Easter.is\_anchored () (DEPRECATED) Return boolean whether the frequency is a unit frequency (n=1).
- Easter.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Easter.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Easter.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Easter.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Easter.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Easter.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Easter.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### **Tick**

- Tick -
- Tick.delta -
- Tick.fregstr Return a string representing the frequency.
- Tick.kwds Return a dict of extra parameters for the offset.
- Tick.name Return a string representing the base frequency.
- **Tick.nanos** Return an integer of the total number of nanoseconds.
- Tick.normalize -
- Tick.rule code -
- Tick.n -
- Tick.copy () Return a copy of the frequency.
- Tick.is\_anchored () (DEPRECATED) Return False.
- Tick.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Tick.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.

- Tick.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Tick.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Tick.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Tick.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Tick.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## Day

- Day Offset n days.
- Day.delta -
- Day.fregstr Return a string representing the frequency.
- Day.kwds Return a dict of extra parameters for the offset.
- Day.name Return a string representing the base frequency.
- Day.nanos Return an integer of the total number of nanoseconds.
- Day.normalize -
- Day.rule\_code -
- Day.n -
- Day.copy () Return a copy of the frequency.
- Day.is\_anchored () (DEPRECATED) Return False.
- Day.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Day.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Day.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Day.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Day.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Day.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Day.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### Hour

- Hour Offset n hours.
- Hour.delta -
- Hour.fregstr Return a string representing the frequency.
- Hour.kwds Return a dict of extra parameters for the offset.
- Hour.name Return a string representing the base frequency.

- **Hour.nanos** Return an integer of the total number of nanoseconds.
- Hour.normalize -
- Hour.rule code -
- Hour.n -
- Hour.copy () Return a copy of the frequency.
- Hour.is\_anchored () (DEPRECATED) Return False.
- Hour.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Hour.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Hour.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Hour.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Hour.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Hour.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Hour.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### **Minute**

- Minute Offset n minutes.
- Minute.delta -
- Minute.freqstr Return a string representing the frequency.
- Minute.kwds Return a dict of extra parameters for the offset.
- Minute.name Return a string representing the base frequency.
- Minute.nanos Return an integer of the total number of nanoseconds.
- Minute.normalize -
- Minute.rule code -
- Minute.n -
- Minute.copy () Return a copy of the frequency.
- Minute.is\_anchored () (DEPRECATED) Return False.
- Minute.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Minute.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Minute.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Minute.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Minute.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Minute.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.

• Minute.isyearend (ts) - Return boolean whether a timestamp occurs on the year end.

#### Second

- Second Offset n seconds.
- Second.delta -
- Second.freqstr Return a string representing the frequency.
- **Second.kwds** Return a dict of extra parameters for the offset.
- **Second.name** Return a string representing the base frequency.
- **Second.nanos** Return an integer of the total number of nanoseconds.
- Second.normalize -
- Second.rule\_code -
- · Second.n -
- Second.copy () Return a copy of the frequency.
- Second.is\_anchored () (DEPRECATED) Return False.
- **Second.isonoffset (dt)** Return boolean whether a timestamp intersects with this frequency.
- **Second.ismonthstart (ts)** Return boolean whether a timestamp occurs on the month start.
- **Second.is***month***end (ts)** Return boolean whether a timestamp occurs on the month end.
- **Second.is**quarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- **Second.is**quarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- **Second.is***year***start** (ts) Return boolean whether a timestamp occurs on the year start.
- **Second.is***year***end (ts)** Return boolean whether a timestamp occurs on the year end.

#### Milli

- Milli Offset n milliseconds.
- Milli.delta -
- Milli.fregstr Return a string representing the frequency.
- Milli.kwds Return a dict of extra parameters for the offset.
- Milli.name Return a string representing the base frequency.
- Milli.nanos Return an integer of the total number of nanoseconds.
- Milli.normalize -
- Milli.rule\_code -
- Milli.n -
- Milli.copy () Return a copy of the frequency.
- Milli.is\_anchored () (DEPRECATED) Return False.

- Milli.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Milli.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Milli.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Milli.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Milli.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Milli.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Milli.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### Micro

- Micro Offset n microseconds.
- Micro.delta -
- Micro.freqstr Return a string representing the frequency.
- Micro.kwds Return a dict of extra parameters for the offset.
- Micro.name Return a string representing the base frequency.
- Micro.nanos Return an integer of the total number of nanoseconds.
- Micro.normalize -
- Micro.rule\_code -
- Micro.n -
- Micro.copy () Return a copy of the frequency.
- Micro.is\_anchored () (DEPRECATED) Return False.
- Micro.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Micro.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Micro.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Micro.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Micro.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Micro.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Micro.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

#### Nano

• Nano - Offset n nanoseconds.

- Nano.delta -
- Nano.freqstr Return a string representing the frequency.
- Nano.kwds Return a dict of extra parameters for the offset.
- Nano.name Return a string representing the base frequency.
- Nano.nanos Return an integer of the total number of nanoseconds.
- Nano.normalize -
- Nano.rule\_code -
- Nano.n -
- Nano.copy () Return a copy of the frequency.
- Nano.is\_anchored () (DEPRECATED) Return False.
- Nano.isonoffset (dt) Return boolean whether a timestamp intersects with this frequency.
- Nano.ismonthstart (ts) Return boolean whether a timestamp occurs on the month start.
- Nano.ismonthend (ts) Return boolean whether a timestamp occurs on the month end.
- Nano.isquarterstart (ts) Return boolean whether a timestamp occurs on the quarter start.
- Nano.isquarterend (ts) Return boolean whether a timestamp occurs on the quarter end.
- Nano.isyearstart (ts) Return boolean whether a timestamp occurs on the year start.
- Nano.isyearend (ts) Return boolean whether a timestamp occurs on the year end.

## Window

## **Rolling window functions**

- Rolling.count ([numeric\_only]) Calculate the rolling count of non NaN observations.
- Rolling.sum ([numeric\_only, engine, ...]) Calculate the rolling sum.
- Rolling.mean ([numeric\_only, engine, ...]) Calculate the rolling mean.
- Rolling.median ([numeric\_only, engine, ...]) Calculate the rolling median.
- Rolling.var ([ddof, numeric\_only, engine, ...]) Calculate the rolling variance.
- Rolling.std ([ddof, numeric\_only, engine, ...]) Calculate the rolling standard deviation.
- Rolling.min ([numeric\_only, engine, ...]) Calculate the rolling minimum.
- Rolling.max ([numeric\_only, engine, ...]) Calculate the rolling maximum.
- Rolling.corr ([other, pairwise, ddof, ...]) Calculate the rolling correlation.
- Rolling.cov ([other, pairwise, ddof, ...]) Calculate the rolling sample covariance.

- Rolling.skew ([numeric\_only]) Calculate the rolling unbiased skewness.
- Rolling.kurt ([numeric\_only]) Calculate the rolling Fisher's definition of kurtosis without bias.
- Rolling.apply (func[, raw, engine, ...]) Calculate the rolling custom aggregation function.
- Rolling.aggregate (func, args, \*kwargs) Aggregate using one or more operations over the specified axis.
- Rolling.quantile (q[, interpolation, ...]) Calculate the rolling quantile.
- Rolling.sem ([ddof, numeric\_only]) Calculate the rolling standard error of mean.
- Rolling.rank ([method, ascending, pct, ...]) Calculate the rolling rank.

## Weighted window functions

- Window.mean ([numeric\_only]) Calculate the rolling weighted window mean.
- Window.sum ([numeric\_only]) Calculate the rolling weighted window sum.
- Window.var ([ddof, numeric\_only]) Calculate the rolling weighted window variance.
- Window.std ([ddof, numeric\_only]) Calculate the rolling weighted window standard deviation.

## **Expanding window functions**

- Expanding.count ([numeric\_only]) Calculate the expanding count of non NaN observations.
- Expanding.sum ([numeric\_only, engine, ...]) Calculate the expanding sum.
- Expanding.mean ([numeric\_only, engine, ...]) Calculate the expanding mean.
- Expanding.median ([numeric\_only, engine, ...]) Calculate the expanding median.
- Expanding.var ([ddof, numeric\_only, engine, ...]) Calculate the expanding variance.
- Expanding.std ([ddof, numeric\_only, engine, ...]) Calculate the expanding standard deviation.
- Expanding.min ([numeric\_only, engine, ...]) Calculate the expanding minimum.
- Expanding.max ([numeric\_only, engine, ...]) Calculate the expanding maximum.
- Expanding.corr ([other, pairwise, ddof, ...]) Calculate the expanding correlation.
- Expanding.cov ([other, pairwise, ddof, ...]) Calculate the expanding sample covariance.

- Expanding.skew ([numeric\_only]) Calculate the expanding unbiased skewness.
- Expanding.kurt ([numeric\_only]) Calculate the expanding Fisher's definition of kurtosis without bias.
- Expanding.apply (func[, raw, engine, ...]) Calculate the expanding custom aggregation function.
- Expanding.aggregate (func, args, \*kwargs) Aggregate using one or more operations over the specified axis.
- Expanding.quantile (q[, interpolation, ...]) Calculate the expanding quantile.
- Expanding.sem ([ddof, numeric\_only]) Calculate the expanding standard error of mean.
- Expanding.rank ([method, ascending, pct, ...]) Calculate the expanding rank.

## **Exponentially-weighted window functions**

- ExponentialMovingWindow.mean ([numeric\_only, ...]) Calculate the ewm (exponential weighted moment) mean.
- ExponentialMovingWindow.sum ([numeric\_only, ...]) Calculate the ewm (exponential weighted moment) sum.
- ExponentialMovingWindow.std ([bias, numeric\_only]) Calculate the ewm (exponential weighted moment) standard deviation.
- ExponentialMovingWindow.var ([bias, numeric\_only]) Calculate the ewm (exponential weighted moment) variance.
- ExponentialMovingWindow.corr ([other, ...]) Calculate the ewm (exponential weighted moment) sample correlation.
- ExponentialMovingWindow.cov ([other, ...]) Calculate the ewm (exponential weighted moment) sample covariance.

## Window indexer

- api.indexers.BaseIndexer ([index\_array, ...]) Base class for window bounds calculations.
- api.indexers.FixedForwardWindowIndexer ([...]) Creates window boundaries for fixed-length windows that include the current row.
- api.indexers.VariableOffsetWindowIndexer ([...]) Calculate window boundaries based on a non-fixed offset such as a BusinessDay.

## **GroupBy**

## Indexing, iteration

- DataFrameGroupBy.\_iter\_ () Groupby iterator.
- SeriesGroupBy.\_iter\_ () Groupby iterator.
   DataFrameGroupBy.groups Dict {group name -> group labels}.
- SeriesGroupBy.groups Dict {group name -> group labels}.
- DataFrameGroupBy.indices Dict {group name -> group indices \}.
- SeriesGroupBy.indices Dict {group name -> group indices}.
- DataFrameGroupBy.get\_group (name[, obj]) Construct DataFrame from group with provided name.
- SeriesGroupBy.get\_group (name[, obj]) Construct DataFrame from group with provided name.
- Grouper (args, \*kwargs) A Grouper allows the user to specify a groupby instruction for an object.

## **Function application helper**

NamedAgg (column, aggfunc) - Helper for column specific aggregation with control over output column names.

## **Function application**

- SeriesGroupBy.apply (func, args, \*kwargs) Apply function func group-wise and combine the results together.
- DataFrameGroupBy.apply (func, \*args[, ...]) Apply function func group-wise and combine the results together.
- SeriesGroupBy.agg ([func, engine, engine\_kwargs]) Aggregate using one or more operations over the specified axis.
- DataFrameGroupBy.agg ([func, engine, ...]) Aggregate using one or more operations over the specified axis.
- SeriesGroupBy.aggregate ([func, engine, ...]) Aggregate using one or more operations over the specified axis.
- DataFrameGroupBy.aggregate ([func, engine, ...]) Aggregate using one or more operations over the specified axis.
- SeriesGroupBy.transform (func, \*args[, ...]) Call function producing a same-indexed Series on each group.
- DataFrameGroupBy.transform (func, \*args[, ...]) Call function producing a same-indexed DataFrame on each group.
- SeriesGroupBy.pipe (func, args, \*kwargs) Apply a func with arguments to this GroupBy object and return its result.
- DataFrameGroupBy.pipe (func, args, \*kwargs) Apply a func with arguments to this GroupBy object and return its result.
- DataFrameGroupBy.filter (func[, dropna]) Filter elements from groups that don't satisfy a criterion.

• SeriesGroupBy.filter (func[, dropna]) - Filter elements from groups that don't satisfy a criterion.

# DataFrameGroupBy computations / descriptive stats

- DataFrameGroupBy.all ([skipna]) Return True if all values in the group are truthful, else False.
- DataFrameGroupBy.any ([skipna]) Return True if any value in the group is truthful, else False.
- DataFrameGroupBy.bfill ([limit]) Backward fill the values.
- DataFrameGroupBy.corr ([method, min\_periods, ...]) Compute pairwise correlation of columns, excluding NA/null values.
- DataFrameGroupBy.corrwith (other[, axis, ...]) Compute pairwise correlation.
- DataFrameGroupBy.count () Compute count of group, excluding missing values.
- DataFrameGroupBy.cov ([min\_periods, ddof, ...]) Compute pairwise covariance of columns, excluding NA/null values.
- DataFrameGroupBy.cumcount ([ascending]) Number each item in each group from 0 to the length of that group 1.
- DataFrameGroupBy.cummax ([axis, numeric\_only]) Cumulative max for each group.
- DataFrameGroupBy.cummin ([axis, numeric\_only]) Cumulative min for each group.
- DataFrameGroupBy.cumprod ([axis]) Cumulative product for each group.
- DataFrameGroupBy.cumsum ([axis]) Cumulative sum for each group.
- DataFrameGroupBy.describe ([percentiles, ...]) Generate descriptive statistics.
- DataFrameGroupBy.diff ([periods, axis]) First discrete difference of element.
- DataFrameGroupBy.ffill ([limit]) Forward fill the values.
- DataFrameGroupBy.fillna ([value, method, ...]) (DEPRECATED) Fill NA/NaN values using the specified method within groups.
- DataFrameGroupBy.first ([numeric\_only, ...]) Compute the first entry of each column within each group.
- DataFrameGroupBy.head ([n]) Return first n rows of each group.
- DataFrameGroupBy.idxmax ([axis, skipna, ...]) Return index of first occurrence of maximum over requested axis.
- DataFrameGroupBy.idxmin ([axis, skipna, ...]) Return index of first occurrence of minimum over requested axis.
- DataFrameGroupBy.last ([numeric\_only, ...]) Compute the last entry of each column within each group.
- DataFrameGroupBy.max ([numeric\_only, ...]) Compute max of group values.
- DataFrameGroupBy.mean ([numeric\_only, ...]) Compute mean of groups, excluding missing values.

- DataFrameGroupBy.median ([numeric\_only]) Compute median of groups, excluding missing values.
- DataFrameGroupBy.min ([numeric\_only, ...]) Compute min of group values.
- DataFrameGroupBy.ngroup ([ascending]) Number each group from 0 to the number of groups 1.
- DataFrameGroupBy.nth Take the nth row from each group if n is an int, otherwise a subset of rows.
- DataFrameGroupBy.nunique ([dropna]) Return DataFrame with counts of unique elements in each position.
- DataFrameGroupBy.ohlc () Compute open, high, low and close values of a group, excluding missing values.
- DataFrameGroupBy.pctchange ([periods, ...]) Calculate pctchange of each value to previous entry in group.
- DataFrameGroupBy.prod ([numericonly, mincount]) Compute prod of group values.
- DataFrameGroupBy.quantile ([q, ...]) Return group values at the given quantile, a la numpy.percentile.
- DataFrameGroupBy.rank ([method, ascending, ...]) Provide the rank of values within each group.
- DataFrameGroupBy.resample (rule, \*args[, ...]) Provide resampling when using a TimeGrouper.
- DataFrameGroupBy.rolling (args, \*kwargs) Return a rolling grouper, providing rolling functionality per group.
- DataFrameGroupBy.sample ([n, frac, replace, ...]) Return a random sample of items from each group.
- DataFrameGroupBy.sem ([ddof, numeric\_only]) Compute standard error of the mean of groups, excluding missing values.
- DataFrameGroupBy.shift ([periods, freq, ...]) Shift each group by periods observations.
- DataFrameGroupBy.size () Compute group sizes.
- DataFrameGroupBy.skew ([axis, skipna, ...]) Return unbiased skew within groups.
- DataFrameGroupBy.std ([ddof, engine, ...]) Compute standard deviation of groups, excluding missing values.
- DataFrameGroupBy.sum ([numeric\_only, ...]) Compute sum of group values.
- DataFrameGroupBy.var ([ddof, engine, ...]) Compute variance of groups, excluding missing values.
- DataFrameGroupBy.tail ([n]) Return last n rows of each group.
- DataFrameGroupBy.take (indices[, axis]) Return the elements in the given positional indices in each group.
- DataFrameGroupBy.value\_counts ([subset, ...]) Return a Series or DataFrame containing counts of unique rows.

# SeriesGroupBy computations / descriptive stats

- SeriesGroupBy.all ([skipna]) Return True if all values in the group are truthful, else False.
- SeriesGroupBy.any ([skipna]) Return True if any value in the group is truthful, else False.
- SeriesGroupBy.bfill ([limit]) Backward fill the values.
- SeriesGroupBy.corr (other[, method, min\_periods]) Compute correlation with other Series, excluding missing values.
- SeriesGroupBy.count () Compute count of group, excluding missing values.
- SeriesGroupBy.cov (other[, min\_periods, ddof]) Compute covariance with Series, excluding missing values.
- SeriesGroupBy.cumcount ([ascending]) Number each item in each group from 0 to the length of that group 1.
- SeriesGroupBy.cummax ([axis, numeric\_only]) Cumulative max for each group.
- SeriesGroupBy.cummin ([axis, numeric\_only]) Cumulative min for each group.
- SeriesGroupBy.cumprod ([axis]) Cumulative product for each group.
- SeriesGroupBy.cumsum ([axis]) Cumulative sum for each group.
- SeriesGroupBy.describe ([percentiles, ...]) Generate descriptive statistics.
- SeriesGroupBy.diff ([periods, axis]) First discrete difference of element.
- SeriesGroupBy.ffill ([limit]) Forward fill the values.
- SeriesGroupBy.fillna ([value, method, axis, ...]) (DEPRECATED) Fill NA/NaN values using the specified method within groups.
- SeriesGroupBy.first ([numeric\_only, ...]) Compute the first entry of each column within each group.
- SeriesGroupBy.head ([n]) Return first n rows of each group.
- SeriesGroupBy.last ([numeric\_only, ...]) Compute the last entry of each column within each group.
- SeriesGroupBy.idxmax ([axis, skipna]) Return the row label of the maximum value.
- SeriesGroupBy.idxmin ([axis, skipna]) Return the row label of the minimum value.
- **SeriesGroupBy.is***monotonic***increasing** Return whether each group's values are monotonically increasing.
- **SeriesGroupBy.is***monotonic***decreasing** Return whether each group's values are monotonically decreasing.
- SeriesGroupBy.max ([numericonly, mincount, ...]) Compute max of group values.
- SeriesGroupBy.mean ([numeric\_only, engine, ...]) Compute mean of groups, excluding missing values.
- SeriesGroupBy.median ([numeric\_only]) Compute median of groups, excluding missing values.

- SeriesGroupBy.min ([numericonly, mincount, ...]) Compute min of group values.
- SeriesGroupBy.ngroup ([ascending]) Number each group from 0 to the number of groups 1.
- SeriesGroupBy.nlargest ([n, keep]) Return the largest n elements.
- SeriesGroupBy.nsmallest ([n, keep]) Return the smallest n elements.
- SeriesGroupBy.nth Take the nth row from each group if n is an int, otherwise a subset of rows.
- SeriesGroupBy.nunique ([dropna]) Return number of unique elements in the group.
- SeriesGroupBy.unique () Return unique values for each group.
- SeriesGroupBy.ohlc () Compute open, high, low and close values of a group, excluding missing values.
- SeriesGroupBy.pctchange ([periods, ...]) Calculate pctchange of each value to previous entry in group.
- SeriesGroupBy.prod ([numericonly, mincount]) Compute prod of group values.
- SeriesGroupBy.quantile ([q, interpolation, ...]) Return group values at the given quantile, a la numpy.percentile.
- SeriesGroupBy.rank ([method, ascending, ...]) Provide the rank of values within each group.
- SeriesGroupBy.resample (rule, \*args[, ...]) Provide resampling when using a TimeGrouper.
- SeriesGroupBy.rolling (args, \*kwargs) Return a rolling grouper, providing rolling functionality per group.
- SeriesGroupBy.sample ([n, frac, replace, ...]) Return a random sample of items from each group.
- SeriesGroupBy.sem ([ddof, numeric\_only]) Compute standard error of the mean of groups, excluding missing values.
- SeriesGroupBy.shift ([periods, freq, axis, ...]) Shift each group by periods observations.
- SeriesGroupBy.size () Compute group sizes.
- SeriesGroupBy.skew ([axis, skipna, numeric\_only]) Return unbiased skew within groups.
- SeriesGroupBy.std ([ddof, engine, ...]) Compute standard deviation of groups, excluding missing values.
- SeriesGroupBy.sum ([numericonly, mincount, ...]) Compute sum of group values.
- SeriesGroupBy.var ([ddof, engine, ...]) Compute variance of groups, excluding missing values.
- SeriesGroupBy.tail ([n]) Return last n rows of each group.
- SeriesGroupBy.take (indices[, axis]) Return the elements in the given positional indices in each group.
- SeriesGroupBy.value\_counts ([normalize, ...]) -

## **Plotting and visualization**

• DataFrameGroupBy.boxplot ([subplots, column, ...]) - Make box plots from DataFrameGroupBy data.

- DataFrameGroupBy.hist ([column, by, grid, ...]) Make a histogram of the DataFrame's columns.
- SeriesGroupBy.hist ([by, ax, grid, ...]) Draw histogram of the input series using matplotlib.
- DataFrameGroupBy.plot Make plots of Series or DataFrame.
- SeriesGroupBy.plot Make plots of Series or DataFrame.

# Resampling

## Indexing, iteration

- Resampler.\_iter\_ () Groupby iterator.
- Resampler.groups Dict {group name -> group labels}.
- Resampler.indices Dict {group name -> group indices}.
- Resampler.get\_group (name[, obj]) Construct DataFrame from group with provided name.

## **Function application**

- Resampler.apply ([func]) Aggregate using one or more operations over the specified axis.
- Resampler.aggregate ([func]) Aggregate using one or more operations over the specified axis.
- Resampler.transform (arg, args, \*kwargs) Call function producing a like-indexed Series on each group.
- Resampler.pipe (func, args, \*kwargs) Apply a func with arguments to this Resampler object and return its result.

## **Upsampling**

- Resampler.ffill ([limit]) Forward fill the values.
- Resampler.bfill ([limit]) Backward fill the new missing values in the resampled data.
- **Resampler.nearest ([limit])** Resample by using the nearest value.
- Resampler.fillna (method[, limit]) Fill missing values introduced by upsampling.
- Resampler.asfreq ([fill\_value]) Return the values at the new freq, essentially a reindex.
- Resampler.interpolate ([method, axis, limit, ...]) Interpolate values between target timestamps according to different methods.

## **Computations / descriptive stats**

- **Resampler.count ()** Compute count of group, excluding missing values.
- Resampler.nunique (args, \*kwargs) Return number of unique elements in the group.
- Resampler.first ([numericonly, mincount, ...]) Compute the first entry of each column within each group.
- Resampler.last ([numericonly, mincount, skipna]) Compute the last entry of each column within each group.
- Resampler.max ([numericonly, mincount]) Compute max value of group.
- **Resampler.mean ([numeric\_only])** Compute mean of groups, excluding missing values.
- Resampler.median ([numeric\_only]) Compute median of groups, excluding missing values.
- Resampler.min ([numericonly, mincount]) Compute min value of group.
- Resampler.ohlc (args, \*kwargs) Compute open, high, low and close values of a group, excluding missing values.
- Resampler.prod ([numericonly, mincount]) Compute prod of group values.
- Resampler.size () Compute group sizes.
- Resampler.sem ([ddof, numeric\_only]) Compute standard error of the mean of groups, excluding missing values.
- Resampler.std ([ddof, numeric\_only]) Compute standard deviation of groups, excluding missing values.
- Resampler.sum ([numericonly, mincount]) Compute sum of group values.
- Resampler.var ([ddof, numeric\_only]) Compute variance of groups, excluding missing values.
- Resampler.quantile ([q]) Return value at the given quantile.

# Style

## Styler constructor

- Styler (data[, precision, table\_styles, ...]) Helps style a DataFrame or Series according to the data with HTML and CSS.
- Styler.fromcustomtemplate (searchpath[, ...]) Factory function for creating a subclass of Styler .

## Styler properties

- Styler.env -
- Styler.template\_html -

- Styler.templatehtmlstyle -
- Styler.templatehtmltable -
- Styler.template\_latex -
- Styler.template\_string -
- Styler.loader -

## Style application

- Styler.apply (func[, axis, subset]) Apply a CSS-styling function column-wise, row-wise, or table-wise.
- Styler.map (func[, subset]) Apply a CSS-styling function elementwise.
- Styler.apply\_index (func[, axis, level]) Apply a CSS-styling function to the index or column headers, level-wise.
- Styler.map\_index (func[, axis, level]) Apply a CSS-styling function to the index or column headers, elementwise.
- Styler.format ([formatter, subset, na\_rep, ...]) Format the text display value of cells.
- Styler.format\_index ([formatter, axis, ...]) Format the text display value of index labels or column headers.
- Styler.relabel\_index (labels[, axis, level]) Relabel the index, or column header, keys to display a set of specified values.
- Styler.hide ([subset, axis, level, names]) Hide the entire index / column headers, or specific rows / columns from display.
- Styler.concat (other) Append another Styler to combine the output into a single table.
- Styler.settdclasses (classes) Set the class attribute of HTML elements.
- Styler.settablestyles ([table\_styles, ...]) Set the table styles included within the