The Data Frame Reference Manual

Data frames for Common Lisp, version 2.0

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1 Systems

The main system appears first, followed by any subsystem dependency.

1.1 data-frame

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Source Control
(:git "https://github.com/lisp-stat/data-frame.git")

Bug Tracker
https://github.com/Lisp-Stat/data-frame/issues

License MS-PL

Description
Data frames for Common Lisp

Long Description
A data manipulation package, conceptually similar to R's data.frame, but with a lisp-oriented API.

Version 2.0

Dependencies
- alexandria
- alexandria+
- anaphora
- array-operations
- num-utils
- select
- let-plus

Source [data-frame.asd], page 3, (file)

Directory s:/src/data-frame/

Components
- [pkgdcl.lisp], page 3, (file)
- [utils.lisp], page 3, (file)
- [data-frame.lisp], page 3, (file)
- [pprint.lisp], page 5, (file)
- [formatted-output.lisp], page 5, (file)
- [summary.lisp], page 5, (file)
- [defdf.lisp], page 7, (file)
- [missing.lisp], page 7, (file)

2 Files

Files are sorted by type and then listed depth-first from the systems components trees.

2.1 Lisp

2.1.1 data-frame.asd

Location /src/data-frame/data-frame.asd

Systems [data-frame], page 1, (system)

2.1.2 data-frame/pkgdcl.lisp

Parent [data-frame], page 1, (system)

Location pkgdcl.lisp

Packages [data-frame], page 9,

2.1.3 data-frame/utils.lisp

Dependency
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Parent [data-frame], page 1, (system)

Location utils.lisp

Exported Definitions
[column-type], page 14, (function)

Internal Definitions

- [get-type], page 23, (function)
- [types-in-column], page 26, (function)

2.1.4 data-frame/data-frame.lisp

Dependency
[utils.lisp], page 3, (file)

Parent [data-frame], page 1, (system)

Location data-frame.lisp

Exported Definitions

- [add-column!], page 13, (function)
- [add-columns], page 13, (function)
- [add-columns!], page 13, (function)
- [alist-df], page 13, (function)
- [alist-dv], page 13, (function)
- [column], page 14, (function)
- [(setf column)], page 14, (function)
- [column-names], page 14, (function)
- [columns], page 14, (function)
- [copy], page 14, (function)
- [count-rows], page 14, (function)

Internal Definitions

- [ordered-keys], page 28, (structure)
- [ordered-keys-p], page 25, (function)
- [ordered-keys-table], page 25, (function)
- [plist-data], page 25, (function)

2.1.5 data-frame/pprint.lisp

Dependency
[data-frame.lisp], page 3, (file)

Parent [data-frame], page 1, (system)

Location pprint.lisp

Exported Definitions
- [head], page 18, (method)
- [pprint-array], page 16, (function)
- [pprint-data-frame], page 16, (function)
- [tail], page 19, (method)

Internal Definitions
- [*max-digits*], page 21, (special variable)
- [*row-numbers-p*], page 21, (special variable)
- [2d-array-to-list], page 21, (function)
- [column-type-format], page 22, (function)
- [default-column-formats], page 27, (method)
- [max-decimal], page 24, (function)
- [max-width], page 25, (function)
- [printer-status], page 25, (function)
- [reverse-df], page 26, (function)

2.1.6 data-frame/formatted-output.lisp

Dependency
[pprint.lisp], page 5, (file)

Parent [data-frame], page 1, (system)

Location formatted-output.lisp

Exported Definitions
- [df-print], page 15, (function)
- [pprint-markdown], page 17, (function)

Internal Definitions
- [aesthetic-string], page 21, (function)
- [print-table], page 25, (function)
- [weave], page 27, (function)

2.1.7 data-frame/summary.lisp

Dependency
[formatted-output.lisp], page 5, (file)

Parent [data-frame], page 1, (system)

Location `summary.lisp`

Exported Definitions

- [`*column-summary-minimum-length*`], page 13, (special variable)
- [`column-summary`], page 18, (generic function)
- [`column-summary`], page 18, (method)
- [`column-summary`], page 18, (method)
- [`summary`], page 19, (method)

Internal Definitions

- [`*column-summary-quantiles-threshold*`], page 21, (special variable)
- [`bit-vector-summary`], page 27, (structure)
- [`bit-vector-summary-count`], page 22, (function)
- [`bit-vector-summary-length`], page 22, (function)
- [`bit-vector-summary-p`], page 22, (function)
- [`column-length`], page 27, (generic function)
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- [`copy-bit-vector-summary`], page 22, (function)
- [`copy-generic-vector-summary`], page 22, (function)
- [`copy-quantiles-summary`], page 22, (function)
- [`copy-vector-summary%`], page 22, (function)
- [`ensure-not-ratio`], page 23, (function)
- [`generic-vector-summary`], page 28, (structure)
- [`generic-vector-summary-element-count-alist`], page 23, (function)
- [`generic-vector-summary-length`], page 23, (function)
- [`generic-vector-summary-p`], page 23, (function)
- [`generic-vector-summary-quantiles`], page 23, (function)
- [`make-bit-vector-summary`], page 24, (function)
- [`make-generic-vector-summary`], page 24, (function)
- [`make-quantiles-summary`], page 24, (function)
- [`make-vector-summary%`], page 24, (function)
- [`print-count-and-percentage`], page 25, (function)
- [`quantiles-summary`], page 29, (structure)
- [`quantiles-summary-count`], page 26, (function)
- [`quantiles-summary-max`], page 26, (function)
- [`quantiles-summary-min`], page 26, (function)
- [`quantiles-summary-p`], page 26, (function)
- [`quantiles-summary-q25`], page 26, (function)
- [`quantiles-summary-q50`], page 26, (function)
- [`quantiles-summary-q75`], page 26, (function)
- [`vector-summary%`], page 30, (structure)
- [`vector-summary%-length`], page 26, (function)
- [`vector-summary%-p`], page 27, (function)

2.1.8 data-frame/defdf.lisp

Dependency
[summary.lisp], page 5, (file)

Parent [data-frame], page 1, (system)

Location defdf.lisp

Exported Definitions
- [define-column-names], page 14, (function)
- [define-data-frame], page 13, (macro)

Internal Definitions
- [replace-key!], page 21, (macro)
- [show-symbols], page 26, (function)

2.1.9 data-frame/missing.lisp

Dependency
[defdf.lisp], page 7, (file)

Parent [data-frame], page 1, (system)

Location missing.lisp

Exported Definitions
- [drop-missing], page 18, (method)
- [missingp], page 18, (generic function)
- [missingp], page 19, (method)
- [missingp], page 19, (method)
- [missingp], page 19, (method)
- [missingp], page 19, (method)
- [missingp], page 19, (method)
- [missingp], page 19, (method)
- [replace-missing], page 19, (method)

Internal Definitions
[drop-na], page 22, (function)

3 Packages

Packages are listed by definition order.

3.1 data-frame

Source [pkgdcl.lisp], page 3, (file)

Nickname df

Use List

- select-dev
- select
- let-plus
- anaphora
- alexandria
- common-lisp

Exported Definitions

- [*column-summary-minimum-length*], page 13, (special variable)
- [add-column!], page 13, (function)
- [add-columns], page 13, (function)
- [add-columns!], page 13, (function)
- [alist-df], page 13, (function)
- [alist-dv], page 13, (function)
- [column], page 14, (function)
- [(setf column)], page 14, (function)
- [column-names], page 14, (function)
- [column-summary], page 18, (generic function)
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- [column-type], page 14, (function)
- [columns], page 14, (function)
- [copy], page 14, (function)
- [count-rows], page 14, (function)
- [data-frame], page 20, (class)
- [data-vector], page 20, (class)
- [define-column-names], page 14, (function)
- [define-data-frame], page 13, (macro)
- [df], page 15, (function)
- [df-print], page 15, (function)
- [df-remove-duplicates], page 15, (function)
- [do-rows], page 15, (function)
- [doc-string], page 18, (generic function)
- [doc-string], page 18, (method)
- [(setf doc-string)], page 18, (method)

Internal Definitions

4 Definitions

Definitions are sorted by export status, category, package, and then by lexicographic order.

4.1 Exported definitions

4.1.1 Special variables

`*column-summary-minimum-length*` [Special Variable]
Columns are only summarised when longer than this, otherwise they are returned as is.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

4.1.2 Macros

`define-data-frame` *DF BODY* **&optional** *DOC* [Macro]

Package [`data-frame`], page 9,

Source [`defdf.lisp`], page 7, (file)

4.1.3 Functions

`add-column!` *DATA KEY COLUMN* [Function]
Modify DATA (a data-frame or data-vector) by adding COLUMN with KEY. Return DATA.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`add-columns` *DATA* **&rest** *KEYS-AND-COLUMNS* [Function]
Return a new data-frame or data-vector with keys and columns added. Does not modify DATA (see README about accepted argument formats).

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`add-columns!` *DATA* **&rest** *KEYS-AND-COLUMNS* [Function]
Modify DATA (a data-frame or data-vector) by adding columns with keys (see README about accepted argument formats).

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`alist-df` *ALIST* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`alist-dv` *ALIST* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`column` *DATA KEY* [Function]
Return column corresponding to key.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Writer [`(setf column)`], page 14, (function)

`(setf column)` *COLUMN DATA KEY* [Function]
Set column corresponding to key.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Reader [`column`], page 14, (function)

`column-names` *DF* [Function]
Return a list of column names in DF, as strings

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`column-type` *COL* [Function]
Return the most specific type found in COL

Package [`data-frame`], page 9,

Source [`utils.lisp`], page 3, (file)

`columns` *DATA* **&optional** *SLICE* [Function]
Return the columns of DATA as a vector, or a selection if given (keys are resolved).

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`copy` *DATA* **&key** *KEY* [Function]
Copy data frame or vector. Keys are copied (and thus can be modified), columns or elements are copyied using KEY, making the default give a shallow copy.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`count-rows` *DATA-FRAME KEYS PREDICATE* [Function]
Count the number of rows for which PREDICATE called on the columns corresponding to KEYS returns non-NIL.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`define-column-names` *DF PACKAGE* [Function]
Create a symbol macro for each column name in DF
After running this function, you can refer to a column by its name. This is useful if the column names of a data frame have changed. Example: (define-column-names mtcars)

Package [`data-frame`], page 9,

Source [`defdf.lisp`], page 7, (file)

`df` **&rest** *PLIST-OR-ALIST* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`df-print` *DF* [Function]

Print DF to *standard-output* in table format

Package [`data-frame`], page 9,

Source [`formatted-output.lisp`], page 5, (file)

`df-remove-duplicates` *DATA* [Function]

Return a modified copy of DATA from which any element (row, if a DATA-FRAME) that matches another element has been removed

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`do-rows` *DATA-FRAME KEYS FUNCTION* [Function]

Traverse rows from first to last, calling FUNCTION on the columns corresponding to KEYS. Return no values.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`dv` **&rest** *PLIST-OR-ALIST* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`keys` *DATA* [Function]

Vector of keys.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`make-df` *KEYS COLUMNS* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`make-dv` *KEYS COLUMNS* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`map-columns` *DATA FUNCTION* **&optional** *RESULT-CLASS* [Function]

Map columns of DATA-FRAME or DATA-VECTOR using FUNCTION. The result is a new DATA-FRAME with the same keys.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`map-df` *DATA-FRAME KEYS FUNCTION RESULT-KEYS* [Function]
Map DATA-FRAME to another one by rows. Function is called on the columns corresponding to KEYS, and should return a sequence with the same length as RESULT-KEYS, which give the keys of the resulting data frame. RESULT-KETS should be either symbols, or of the format (symbol &optional (element-type t)).

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`map-rows` *DATA-FRAME KEYS FUNCTION* **&key** *ELEMENT-TYPE* [Function]
Map rows using FUNCTION, on the columns corresponding to KEYS. Return the result with the given ELEMENT-TYPE.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`mask-rows` *DATA-FRAME KEYS PREDICATE* [Function]
Return a bit-vector containing the result of calling PREDICATE on rows of the columns corresponding to KEYS (0 for NIL, 1 otherwise).

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`matrix-df` *KEYS MATRIX* [Function]
Convert a matrix to a data-frame with the given keys.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`plist-df` *PLIST* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`plist-dv` *PLIST* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`pprint-array` *ARR* **&optional** *STREAM ROW-NUMBERS-P* [Function]
Print an array to STREAM, defaulting to *standard-output*, in a tabular format. If ROW-NUMBERS-P, print row numbers.

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`pprint-data-frame` *DATA-FRAME* **&optional** *STREAM ROW-NUMBERS-P MAX-DIGITS* [Function]
Print DATA-FRAME to STREAM using the pretty printer

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`pprint-markdown` *DF* **&key** *STREAM ROW-NUMBERS* [Function]
Print data frame DF, in markdown format, to STREAM
If ROW-NUMBERS is true, also print row numbers as the first column

Package [`data-frame`], page 9,

Source [`formatted-output.lisp`], page 5, (file)

`remove-columns` *DATA KEYS* [Function]
ARGS: DATA data frame
KEYS list of keys (variables) to be removed
Return a new data-frame or data-vector with keys and columns removed. Does not modify DATA.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`replace-column` *DATA KEY FUNCTION-OR-COLUMN* **&key** *ELEMENT-TYPE* [Function]
Create a new data frame with new column KEY from data-frame DATA by replacing it either with the given column, or applying the function to the current values (ELEMENT-TYPE is used.)

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`replace-column!` *DATA KEY FUNCTION-OR-COLUMN* **&key** *ELEMENT-TYPE* [Function]
Modify column KEY of data-frame DATA by replacing it either with the given column, or applying the function to the current values (ELEMENT-TYPE is used.)

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`rows` *DATA* [Function]
Return the rows of DATA as a vector

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`substitute-key!` *DF NEW OLD* [Function]
Substitute NEW key, a SYMBOL, for OLD in a data-frame.

Useful when reading data files that have an empty or generated column name.

Example: (substitute-key *cars* :name :||) to replace an empty symbol with :name

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

4.1.4 Generic functions

`column-summary` *COLUMN* [Generic Function]
Return an object that summarizes COLUMN of a DATA-FRAME. Primarily intended for printing, not analysis, returned values should print nicely.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

Methods

`column-summary` (*COLUMN* `bit-vector`) [Method]

`column-summary` (*COLUMN* `vector`) [Method]

`doc-string` *OBJECT* [Generic Function]
`(setf doc-string)` *NEW-VALUE OBJECT* [Generic Function]

Package [`data-frame`], page 9,

Methods

`doc-string` (*DATA* `data`) [Method]
automatically generated reader method

Source [`data-frame.lisp`], page 3, (file)

`(setf doc-string)` *NEW-VALUE* (*DATA* `data`) [Method]
automatically generated writer method

Source [`data-frame.lisp`], page 3, (file)

`drop-missing` *DF* **&optional** *PREDICATE* [Generic Function]

Package [`data-frame`], page 9,

Methods

`drop-missing` (*DF* `data-frame`) **&optional** *PREDICATE* [Method]
Remove all rows from DF that are missing values according to PREDICATE

Source [`missing.lisp`], page 7, (file)

`head` *DF* **&optional** *N* [Generic Function]

Package [`data-frame`], page 9,

Methods

`head` (*DF* `data-frame`) **&optional** *N* [Method]
Return the first N rows of DF; N defaults to 6

Source [`pprint.lisp`], page 5, (file)

`missingp` *DATA* [Generic Function]

Package [`data-frame`], page 9,

Source [`missing.lisp`], page 7, (file)

Methods

`missingp` *DATA* [Method]

`missingp` (*DATA* `eql na`) [Method]

`missingp` (*DATA* `string`) [Method]

`missingp` (*DATA* `sequence`) [Method]

`missingp` (*DATA* `array`) [Method]

`missingp` (*DATA* `data-frame`) [Method]

`replace-missing` *DF MAP-ALIST* [Generic Function]

Package [`data-frame`], page 9,

Methods

`replace-missing` (*DF* `data-frame`) *MAP-ALIST* [Method]
Replace missing values with the values specified
The alist consists of a column name in the CAR and the replacement value in the CDR Example: (replace-missing mtcarsm '((mtcarsm:mpg . foo)))

Source [`missing.lisp`], page 7, (file)

`summary` *DF* **&optional** *STREAM* [Generic Function]

Package [`data-frame`], page 9,

Methods

`summary` (*DF* `data-frame`) **&optional** *STREAM* [Method]
Deprecated. Print simple stastical summary of data frame

Source [`summary.lisp`], page 5, (file)

`tail` *DF* **&optional** *N* [Generic Function]

Package [`data-frame`], page 9,

Methods

`tail` (*DF* `data-frame`) **&optional** *N* [Method]
Return the last N rows of DF; N defaults to 6

Source [`pprint.lisp`], page 5, (file)

4.1.5 Conditions

`duplicate-key` () [Condition]
Duplicate key.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Direct superclasses
`error` (condition)

Direct slots

`key` [Slot]

Initargs `:key`

`key-not-found` () [Condition]

Key not found.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Direct superclasses

`error` (condition)

Direct slots

`key` [Slot]

Initargs `:key`

`keys` [Slot]

Initargs `:keys`

4.1.6 Classes

`data-frame` () [Class]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Direct superclasses

[`data`], page 30, (class)

Direct methods

- [`replace-missing`], page 19, (method)
- [`drop-missing`], page 18, (method)
- [`missingp`], page 19, (method)
- [`summary`], page 19, (method)
- [`tail`], page 19, (method)
- [`head`], page 18, (method)
- `print-object` (method)
- `select` (method)
- [`check-column-compatibility`], page 27, (method)
- `as-array` (method)
- `dims` (method)
- `ncol` (method)
- `nrow` (method)
- `initialize-instance` (method)

`data-vector` () [Class]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Direct superclasses

[`data`], page 30, (class)

Direct methods

- `print-object` (method)
- `select` (method)
- `as-array` (method)
- `dims` (method)

4.2 Internal definitions

4.2.1 Special variables

`*column-summary-quantiles-threshold*` [Special Variable]
If the number of reals exceeds this threshold, they will be summarized with quantiles.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`*max-digits*` [Special Variable]

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`*row-numbers-p*` [Special Variable]

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

4.2.2 Macros

`define-data-subclass` *CLASS ABBREVIATION* [Macro]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`replace-key!` *DF NEW OLD* [Macro]
Replace a key in DF, updating data package symbols Example: (replace-key! mtcars row-name x1)

Package [`data-frame`], page 9,

Source [`defdf.lisp`], page 7, (file)

4.2.3 Functions

`2d-array-to-list` *ARRAY* [Function]
Convert an array to a list of lists

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`add-key!` *ORDERED-KEYS KEY* [Function]
Modify ORDERED-KEYS by adding KEY.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`add-keys` *ORDERED-KEYS* **&rest** *KEYS* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`aesthetic-string` *THING* [Function]
Return the string used to represent ‘thing‘ when printing aesthetically.

Package [`data-frame`], page 9,

Source [`formatted-output.lisp`], page 5, (file)

`alist-data` *CLASS ALIST* [Function]
Create an object of CLASS (subclass of DATA) from ALIST which contains key-column pairs.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`bit-vector-summary-count` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`bit-vector-summary-length` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`bit-vector-summary-p` *OBJECT* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`column-type-format` *SEQUENCE* [Function]
Return a format string for the most specific type found in sequence Use this for sequences of type T to determine how to format the column.

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`copy-bit-vector-summary` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`copy-generic-vector-summary` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`copy-ordered-keys` *ORDERED-KEYS* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`copy-quantiles-summary` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`copy-vector-summary%` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`drop-na` *DF* [Function]
Remove all rows from DF that are missing values. Convenience R-like function.

Package [`data-frame`], page 9,

Source [`missing.lisp`], page 7, (file)

`ensure-arguments-alist` *REST* [Function]

Recognizes the following and converts them to an alist:

plist
alist
(plist)
(alist)
(data-frame)

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`ensure-not-ratio` *REAL* [Function]

When REAL is a RATIO, convert it to a float, otherwise return as is. Used for printing.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`generic-vector-summary-element-count-alist` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`generic-vector-summary-length` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`generic-vector-summary-p` *OBJECT* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`generic-vector-summary-quantiles` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`get-type` *X* [Function]

Return the most specific type symbol for x

Package [`data-frame`], page 9,

Source [`utils.lisp`], page 3, (file)

`guess-alist?` *PLIST-OR-ALIST* [Function]

Test if the argument is an ALIST by checking its first element. Used for deciding which creation function to call.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`key-index` *ORDERED-KEYS KEY* [Function]

Return the index for KEY.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`keys-count` *ORDERED-KEYS* [Function]
Number of keys.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`keys-vector` *ORDERED-KEYS* [Function]
Vector of all keys.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`make-bit-vector-summary` **&key** (*LENGTH* **LENGTH**) (*COUNT* **COUNT**) [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`make-data` *CLASS KEYS COLUMNS* [Function]
Create a DATA object from KEYS and COLUMNS. FOR INTERNAL USE. Always creates a copy of COLUMNS in order to ensure that it is an adjustable array with a fill pointer. KEYS are converted to ORDERED-KEYS if necessary.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`make-generic-vector-summary` **&key** (*LENGTH* **LENGTH**) (*QUANTILES* **QUANTILES**) (*ELEMENT-COUNT-ALIST* **ELEMENT-COUNT-ALIST**) [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`make-ordered-keys` **&key** (*TABLE* **TABLE**) [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`make-quantiles-summary` **&key** (*COUNT* **COUNT**) (*MIN* **MIN**) (*Q25* **Q25**) (*Q50* **Q50**) (*Q75* **Q75**) (*MAX* **MAX**) [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`make-vector-summary%` **&key** (*LENGTH* **LENGTH**) [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`max-decimal` *SEQUENCE* **&optional** *MAX-DIGITS* [Function]
Return the maximum number of digits to the right of the decimal point in the numbers of SEQUENCE, equal to or less than MAX-DIGITS

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`max-width` *SEQUENCE* **&optional** *MAX-WIDTH* [Function]
Return the largest printed string size of the elements of SEQUENCE, equal to or less than MAX-WIDTH

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`ordered-keys` *KEYS* [Function]
Create an ORDERED-KEYS object from KEYS (a sequence).

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`ordered-keys-p` *OBJECT* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`ordered-keys-table` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`plist-data` *CLASS PLIST* [Function]
Create an object of CLASS (subclass of DATA) from PLIST which contains keys and columns, interleaved.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

`print-count-and-percentage` *STREAM COUNT LENGTH* [Function]
Print COUNT as is and also as a rounded percentage of

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`print-table` *ROWS* **&optional** *STREAM* [Function]
Print ‘rows‘ as a nicely-formatted table.
Each row should have the same number of colums.
Columns will be justified properly to fit the longest item in each one. Example:
(print-table '((1 :red something)
(2 :green more)))
=>
1 | RED | SOMETHING
2 | GREEN | MORE

Package [`data-frame`], page 9,

Source [`formatted-output.lisp`], page 5, (file)

`printer-status` () [Function]
Print values of all the printer variables

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`quantiles-summary-count` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`quantiles-summary-max` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`quantiles-summary-min` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`quantiles-summary-p` *OBJECT* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`quantiles-summary-q25` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`quantiles-summary-q50` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`quantiles-summary-q75` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`reverse-df` *DF* [Function]

Return DF with columns in reverse order

Package [`data-frame`], page 9,

Source [`pprint.lisp`], page 5, (file)

`show-symbols` *PKG* [Function]

Print all symbols in PKG Example: (show-symbols 'mtcars)

Package [`data-frame`], page 9,

Source [`defdf.lisp`], page 7, (file)

`types-in-column` *SEQ* [Function]

Return a list of the types found in SEQ

Package [`data-frame`], page 9,

Source [`utils.lisp`], page 3, (file)

`vector-summary%-length` *INSTANCE* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`vector-summary%-p` *OBJECT* [Function]

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

`weave` **&rest** *LISTS* [Function]

Return a list whose elements alternate between each of the lists 'lists'. Weaving stops when any of the lists has been exhausted.

Package [`data-frame`], page 9,

Source [`formatted-output.lisp`], page 5, (file)

4.2.4 Generic functions

`check-column-compatibility` *DATA COLUMN* [Generic Function]

Check if COLUMN is compatible with DATA.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Methods

`check-column-compatibility` (*DATA* `data-frame`) *COLUMN* [Method]

`check-column-compatibility` (*DATA* `data`) *COLUMN* [Method]

`column-length` *COLUMN* [Generic Function]

Return the length of column.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

Methods

`column-length` (*COLUMN* `vector`) [Method]

`default-column-formats` *ARRAY* [Generic Function]

Package [`data-frame`], page 9,

Methods

`default-column-formats` (*ARRAY* (`eql simple-array`)) [Method]

Return a list of formatting strings for ARRAY
The method returns a set of default formatting strings using heuristics.

Source [`pprint.lisp`], page 5, (file)

4.2.5 Structures

`bit-vector-summary` () [Structure]

Summary of a bit vector.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

Direct superclasses

[`vector-summary%`], page 30, (structure)

Direct slots

`count` [Slot]

Type `alexandria:array-index`

Initform `0`

Readers [`bit-vector-summary-count`], page 22, (function)

Writers `(setf bit-vector-summary-count)` (function)

`generic-vector-summary` () [Structure]

Summary for generic vectors.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

Direct superclasses

[`vector-summary%`], page 30, (structure)

Direct slots

`quantiles` [Slot]

Type `(or null data-frame::quantiles-summary)`

Readers [`generic-vector-summary-quantiles`], page 23, (function)

Writers `(setf generic-vector-summary-quantiles)` (function)

`element-count-alist` [Slot]

Type `list`

Readers [`generic-vector-summary-element-count-alist`], page 23, (function)

Writers `(setf generic-vector-summary-element-count-alist)` (function)

`ordered-keys` () [Structure]

Representation of ordered keys.

TABLE maps keys to indexes, starting from zero.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Direct superclasses

`structure-object` (structure)

Direct methods

- `print-object` (method)
- `select` (method)
- `canonical-representation` (method)
- `axis-dimension` (method)

Direct slots

`table` [Slot]

Type `hash-table`

Initform `(make-hash-table :test (function eq))`

Readers [`ordered-keys-table`], page 25, (function)

Writers `(setf ordered-keys-table)` (function)

`quantiles-summary` () [Structure]

Summary of a real elements (using quantiles).

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

Direct superclasses

`structure-object` (structure)

Direct slots

`count` [Slot]

Type `alexandria:array-index`

Initform `0`

Readers [`quantiles-summary-count`], page 26, (function)

Writers `(setf quantiles-summary-count)` (function)

`min` [Slot]

Type `real`

Initform `0`

Readers [`quantiles-summary-min`], page 26, (function)

Writers `(setf quantiles-summary-min)` (function)

`q25` [Slot]

Type `real`

Initform `0`

Readers [`quantiles-summary-q25`], page 26, (function)

Writers `(setf quantiles-summary-q25)` (function)

`q50` [Slot]

Type `real`

Initform `0`

Readers [`quantiles-summary-q50`], page 26, (function)

Writers `(setf quantiles-summary-q50)` (function)

`q75` [Slot]

Type `real`

Initform `0`

Readers [`quantiles-summary-q75`], page 26, (function)

Writers `(setf quantiles-summary-q75)` (function)

`max` [Slot]

Type `real`

Initform `0`

Readers [`quantiles-summary-max`], page 26, (function)

Writers `(setf quantiles-summary-max)` (function)

`vector-summary% ()` [Structure]

Base class for summarizing vectors. Not exported.

Package [`data-frame`], page 9,

Source [`summary.lisp`], page 5, (file)

Direct superclasses

`structure-object` (structure)

Direct subclasses

- [`bit-vector-summary`], page 27, (structure)
- [`generic-vector-summary`], page 28, (structure)

Direct slots

`length` [Slot]

Type `alexandria:array-index`

Initform `0`

Readers [`vector-summary%-length`], page 26, (function)

Writers `(setf vector-summary%-length)` (function)

4.2.6 Classes

`data ()` [Class]

This class is used for implementing both data-vector and data-matrix, and represents an ordered collection of key-column pairs. Columns are not assumed to have any specific attributes. This class is not exported.

Package [`data-frame`], page 9,

Source [`data-frame.lisp`], page 3, (file)

Direct superclasses

`standard-object` (class)

Direct subclasses

- [`data-vector`], page 20, (class)
- [`data-frame`], page 20, (class)

Direct methods

- `as-alist` (method)
- [`check-column-compatibility`], page 27, (method)
- `element-type` (method)
- `doc-string` (method)
- [`doc-string`], page 18, (method)

Direct slots

`ordered-keys` [Slot]

Type `data-frame::ordered-keys`

Initargs `:ordered-keys`

`columns` [Slot]

Type `vector`

Initargs `:columns`

`doc-string` [Slot]

Type `string`

Initargs `:nil`

Readers [`doc-string`], page 18, (generic function)

Writers [`(setf doc-string)`], page 18, (generic function)

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A.4 Data types