Package ‘tibble’
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provides stricter checking and better formatting than the traditional
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Author Kirill Müller [aut, cre],
Hadley Wickham [aut],
Romain Francois [ctb],
Jennifer Bryan [ctb],
RStudio [cph]
Maintainer Kirill Müller <krlmlr+r@mailbox.org>
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R topics documented:

- tibble-package ................................................................. 2
- add_column ................................................................. 4
- add_row ................................................................. 5
- as_tibble ............................................................... 6
- enframe ................................................................. 9
- formatting ............................................................ 10
- frame_matrix ........................................................... 12
- is_tibble ................................................................. 12
- lst ............................................................... 13
- new_tibble ............................................................ 14
- rownames ............................................................ 15
- subsetting ............................................................ 16
- tbl_df-class ............................................................. 18
- tibble ................................................................. 19
- tribble ............................................................... 22
- view ............................................................... 24

Index 25

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tibble-package  tibble: Simple Data Frames

Description

Provides a 'tbl_df' class (the 'tibble') that provides stricter checking and better formatting than the traditional data frame.

Details

[Stable]

The tibble package provides utilities for handling tibbles, where "tibble" is a colloquial term for the S3 tbl_df class. The tbl_df class is a special case of the base data.frame class, developed in response to lessons learned over many years of data analysis with data frames.

Tibble is the central data structure for the set of packages known as the tidyverse, including dplyr, ggplot2, tidyr, and readr.

General resources:

- Website for the tibble package: https://tibble.tidyverse.org
- Tibbles chapter in R for Data Science

Resources on specific topics:

- Create a tibble: tibble(), as_tibble(), tribble().enframe()
- Inspect a tibble: print.tbl(), glimpse()
- Details on the S3 tbl_df class: tbl_df
Package options

The following option is used for viewing tabular data with view():

- `tibble.view_max`: Maximum number of rows shown if the input is not a data frame. Default: 1000.

The following options control printing of tbl and tbl_df objects:

- `tibble.print_max`: Row number threshold: Maximum number of rows printed. Set to Inf to always print all rows. Default: 20.
- `tibble.print_min`: Number of rows printed if row number threshold is exceeded. Default: 10.
- `tibble.width`: Output width. Default: NULL (use width option).
- `tibble.max_extra_cols`: Number of extra columns printed in reduced form. Default: 100.

The output uses color and highlighting according to the "cli.num_colors" option. Set it to 1 to suppress colored and highlighted output.

- `pillar.bold`: Use bold font, e.g. for column headers? This currently defaults to FALSE, because many terminal fonts have poor support for bold fonts.
- `pillar.subtle`: Use subtle style, e.g. for row numbers and data types? Default: TRUE.
- `pillar.subtle_num`: Use subtle style for insignificant digits? Default: FALSE, is also affected by the `pillar.subtle` option.
- `pillar.neg`: Highlight negative numbers? Default: TRUE.
- `pillar.sigfig`: The number of significant digits that will be printed and highlighted, default: 3. Set the `pillar.subtle` option to FALSE to turn off highlighting of significant digits.
- `pillar.min_title_chars`: The minimum number of characters for the column title, default: 15. Column titles may be truncated up to that width to save horizontal space. Set to Inf to turn off truncation of column titles.
- `pillar.min_chars`: The minimum number of characters wide to display character columns, default: 0. Character columns may be truncated up to that width to save horizontal space. Set to Inf to turn off truncation of character columns.
- `pillar.max_dec_width`: The maximum allowed width for decimal notation, default 13.

Author(s)

Maintainer: Kirill Müller <krlmlr+r@mailbox.org>
Authors:
- Hadley Wickham <hadley@rstudio.com>

Other contributors:
- Romain Francois <romain@r-enthusiasts.com> [contributor]
- Jennifer Bryan <jenny@rstudio.com> [contributor]
- RStudio [copyright holder]
See Also

Useful links:

- [https://tibble.tidyverse.org/](https://tibble.tidyverse.org/)
- [https://github.com/tidyverse/tibble](https://github.com/tidyverse/tibble)

---

add_column  

Add columns to a data frame

Description

This is a convenient way to add one or more columns to an existing data frame.

Usage

```r
add_column(
  .data, 
  ..., 
  .before = NULL, 
  .after = NULL, 
  .name_repair = c("check_unique", "unique", "universal", "minimal")
)
```

Arguments

- `.data` Data frame to append to.
- `...` <dynamic-dots> Name-value pairs, passed on to `tibble()`. All values must have the same size of `.data` or size 1.
- `.before, .after` One-based column index or column name where to add the new columns, default: after last column.
- `.name_repair` Treatment of problematic column names:
  - "minimal": No name repair or checks, beyond basic existence,
  - "unique": Make sure names are unique and not empty,
  - "check_unique": (default value), no name repair, but check they are unique,
  - "universal": Make the names unique and syntactic
  - a function: apply custom name repair (e.g., `.name_repair = make.names` for names in the style of base R).
  - A purrr-style anonymous function, see `rlang::as_function()`

This argument is passed on as `repair` to `vctrs::vec_as_names()`. See there for more details on these terms and the strategies used to enforce them.
See Also

Other addition: `add_row()`

Examples

```r
# add_column ---------------------------------
df <- tibble(x = 1:3, y = 3:1)

df %>% add_column(z = -1:1, w = 0)
df %>% add_column(z = -1:1, .before = "y")

# You can't overwrite existing columns
try(df %>% add_column(x = 4:6))

# You can't create new observations
try(df %>% add_column(z = 1:5))
```

add_row

Add rows to a data frame

Description

This is a convenient way to add one or more rows of data to an existing data frame. See `tribble()` for an easy way to create an complete data frame row-by-row. Use `tibble_row()` to ensure that the new data has only one row.

`add_case()` is an alias of `add_row()`.

Usage

```r
add_row(.data, ..., .before = NULL, .after = NULL)
```

Arguments

- `.data` Data frame to append to.
- `...` <dynamic-dots> Name-value pairs, passed on to `tibble()`. Values can be defined only for columns that already exist in `.data` and unset columns will get an NA value.
- `.before, .after` One-based row index where to add the new rows, default: after last row.

See Also

Other addition: `add_column()`
Examples

```r
# add_row ---------------------------------
df <- tibble(x = 1:3, y = 3:1)

df %>% add_row(x = 4, y = 0)

# You can specify where to add the new rows
df %>% add_row(x = 4, y = 0, .before = 2)

# You can supply vectors, to add multiple rows (this isn’t recommended because it’s a bit hard to read)
df %>% add_row(x = 4:5, y = 0:-1)

# Use tibble_row() to add one row only
df %>% add_row(tibble_row(x = 4, y = 0))
try(df %>% add_row(tibble_row(x = 4:5, y = 0:-1)))

# Absent variables get missing values
df %>% add_row(x = 4)

# You can’t create new variables
try(df %>% add_row(z = 10))
```

as_tibble

Coerce lists, matrices, and more to data frames

Description

as_tibble() turns an existing object, such as a data frame or matrix, into a so-called tibble, a data frame with class tbl_df. This is in contrast with tibble(), which builds a tibble from individual columns. as_tibble() is to tibble() as base::as.data.frame() is to base::data.frame().

as_tibble() is an S3 generic, with methods for:

- `data.frame`: Thin wrapper around the list method that implements tibble’s treatment of rownames.
- `matrix`, `poly`, `ts`, `table`
- Default: Other inputs are first coerced with base::as.data.frame().

as_tibble_row() converts a vector to a tibble with one row. The input must be a bare vector, e.g. vectors of dates are not supported yet. If the input is a list, all elements must have length one.

as_tibble_col() converts a vector to a tibble with one column.

Usage

```r
as_tibble(
  x,
  ..., .rows = NULL,```
as_tibble

NAME REPAIR = c("check_unique", "unique", "universal", "minimal")
rownames = pkgconfig::get_config("tibble::rownames", NULL)
)

## S3 method for class 'data.frame'
as_tibble(
x,
validate = NULL,
..., .rows = NULL,
.name_repair = c("check_unique", "unique", "universal", "minimal"),
rownames = pkgconfig::get_config("tibble::rownames", NULL)
)

## S3 method for class 'list'
as_tibble(
x,
validate = NULL,
..., .rows = NULL,
.name_repair = c("check_unique", "unique", "universal", "minimal")
)

## S3 method for class 'matrix'
as_tibble(x, ..., validate = NULL, .name_repair = NULL)

## S3 method for class 'table'
as_tibble(x, `_n` = "n", ..., n = `_n`, .name_repair = "check_unique")

## S3 method for class `\`NULL\`

## Default S3 method:
as_tibble(x, ...)

as_tibble_row(
   x,
   .name_repair = c("check_unique", "unique", "universal", "minimal")
)

as_tibble_col(x, column_name = "value")

Arguments
x A data frame, list, matrix, or other object that could reasonably be coerced to a
tibble.
...
Unused, for extensibility.
.rows The number of rows, useful to create a 0-column tibble or just as an additional
check.

.name_repair Treatment of problematic column names:
  • "minimal": No name repair or checks, beyond basic existence,
  • "unique": Make sure names are unique and not empty,
  • "check_unique": (default value), no name repair, but check they are unique,
  • "universal": Make the names unique and syntactic
  • a function: apply custom name repair (e.g., .name_repair = make.names
    for names in the style of base R).
  • A purrr-style anonymous function, see `vctrs::vec_as_names()`

This argument is passed on as repair to `vctrs::vec_as_names()`. See there
for more details on these terms and the strategies used to enforce them.

rownames How to treat existing row names of a data frame or matrix:
  • NULL: remove row names. This is the default.
  • NA: keep row names.
  • A string: the name of a new column. Existing rownames are transferred
    into this column and the `rownames` attribute is deleted. Read more in
    `rownames`.

._n, validate [Soft-deprecated]
  For compatibility only, do not use for new code.

n Name for count column, default: "n".

column_name Name of the column.

Row names
The default behavior is to silently remove row names.

New code should explicitly convert row names to a new column using the rownames argument.

For existing code that relies on the retention of row names, call
`pkgconfig::set_config("tibble::rownames" = NA)` in your script or in your package’s `onLoad()` function.

Life cycle
Using `as_tibble()` for vectors is superseded as of version 3.0.0, prefer the more expressive `as_tibble_row()` and
`as_tibble_col()` variants for new code.

See Also
  `tibble()` constructs a tibble from individual columns. `enframe()` converts a named vector to a tibble
  with a column of names and column of values. Name repair is implemented using `vctrs::vec_as_names()`.

Examples

```r
m <- matrix(rnorm(50), ncol = 5)
colnames(m) <- c("a", "b", "c", "d", "e")
df <- as_tibble(m)
```
as_tibble_row(c(a = 1, b = 2))
as_tibble_row(list(c = "three", d = list(4:5)))
as_tibble_row(1:3, .name_repair = "unique")

as_tibble_col(1:3)
as_tibble_col(
  list(c = "three", d = list(4:5)),
  column_name = "data"
)

---

enframe

Converting vectors to data frames, and vice versa

Description

enframe() converts named atomic vectors or lists to one- or two-column data frames. For a list, the result will be a nested tibble with a column of type list. For unnamed vectors, the natural sequence is used as name column.
deframe() converts two-column data frames to a named vector or list, using the first column as name and the second column as value. If the input has only one column, an unnamed vector is returned.

Usage

enframe(x, name = "name", value = "value")
deframe(x)

Arguments

x An atomic vector (for enframe()) or a data frame with one or two columns (for deframe()).
name, value Names of the columns that store the names and values. If name is NULL, a one-column tibble is returned; value cannot be NULL.

Value

A tibble with two columns (if name is not NULL, the default) or one column (otherwise).

Examples

enframe(1:3)
enframe(c(a = 5, b = 7))
enframe(list(one = 1, two = 2:3, three = 4:6))
deframe(enframe(3:1))
deframe(tibble(a = 1:3))
deframe(tibble(a = as.list(1:3)))
Description

One of the main features of the tbl_df class is the printing:

- Tibbles only print as many rows and columns as fit on one screen, supplemented by a summary of the remaining rows and columns.
- Tibble reveals the type of each column, which keeps the user informed about whether a variable is, e.g., <chr> or <fct> (character versus factor).

Printing can be tweaked for a one-off call by calling print() explicitly and setting arguments like n and width. More persistent control is available by setting the options described below. See also vignette("digits",package = "pillar") for a comparison to base options, and num() and char() for creating columns with custom formatting options.

As of tibble 3.1.0, printing is handled entirely by the pillar package. If you implement a package that extend tibble, the printed output can be customized in various ways. See vignette("extending",package = "pillar") for details.

Usage

```r
## S3 method for class 'tbl_df'
print(x, ..., n = NULL, width = NULL, n_extra = NULL)
## S3 method for class 'tbl_df'
format(x, ..., n = NULL, width = NULL, n_extra = NULL)
```

Arguments

- `x` Object to format or print.
- `...` Other arguments passed on to individual methods.
- `n` Number of rows to show. If NULL, the default, will print all rows if less than option tibble.print_max. Otherwise, will print tibble.print_min rows.
- `width` Width of text output to generate. This defaults to NULL, which means use getOption("tibble.width") or (if also NULL) getOption("width"); the latter displays only the columns that fit on one screen. You can also set options(tibble.width = Inf) to override this default and always print all columns, this may be slow for very wide tibbles.
- `n_extra` Number of extra columns to print abbreviated information for, if the width is too small for the entire tibble. If NULL, the default, will print information about at most tibble.max_extra_cols extra columns.
Package options

The following options control printing of tbl and tbl_df objects:

- \texttt{tibble.print_max}: Row number threshold: Maximum number of rows printed. Set to \texttt{Inf} to always print all rows. Default: 20.
- \texttt{tibble.print_min}: Number of rows printed if row number threshold is exceeded. Default: 10.
- \texttt{tibble.width}: Output width. Default: NULL (use \texttt{width} option).
- \texttt{tibble.max_extra_cols}: Number of extra columns printed in reduced form. Default: 100.

The output uses color and highlighting according to the ”cli.num_colors” option. Set it to 1 to suppress colored and highlighted output.

- \texttt{pillar.bold}: Use bold font, e.g. for column headers? This currently defaults to \texttt{FALSE}, because many terminal fonts have poor support for bold fonts.
- \texttt{pillar.subtle}: Use subtle style, e.g. for row numbers and data types? Default: \texttt{TRUE}.
- \texttt{pillar.subtle_num}: Use subtle style for insignificant digits? Default: \texttt{FALSE}, is also affected by the \texttt{pillar.subtle} option.
- \texttt{pillar.neg}: Highlight negative numbers? Default: \texttt{TRUE}.
- \texttt{pillar.sigfig}: The number of significant digits that will be printed and highlighted, default: 3. Set the \texttt{pillar.subtle} option to \texttt{FALSE} to turn off highlighting of significant digits.
- \texttt{pillar.min_title_chars}: The minimum number of characters for the column title, default: 15. Column titles may be truncated up to that width to save horizontal space. Set to \texttt{Inf} to turn off truncation of column titles.
- \texttt{pillar.min_chars}: The minimum number of characters wide to display character columns, default: 0. Character columns may be truncated up to that width to save horizontal space. Set to \texttt{Inf} to turn off truncation of character columns.
- \texttt{pillar.max_dec_width}: The maximum allowed width for decimal notation, default 13.

Examples

\begin{verbatim}
print(as_tibble(mtcars))
print(as_tibble(mtcars), n = 1)
print(as_tibble(mtcars), n = 3)
print(as_tibble(iris), n = 100)
print(mtcars, width = 10)
mtcars2 <- as_tibble(cbind(mtcars, mtcars), .name_repair = "unique")
print(mtcars2, n = 25, n_extra = 3)
print(nycflights13::flights, n_extra = 2)
print(nycflights13::flights, width = Inf)
\end{verbatim}
frame_matrix  
Row-wise matrix creation

Description
Create matrices laying out the data in rows, similar to `matrix(…, byrow = TRUE)`, with a nicer-to-read syntax. This is useful for small matrices, e.g. covariance matrices, where readability is important. The syntax is inspired by `tribble()`.

Usage
```r
frame_matrix(…)
```

Arguments
```
...  
```
Arguments specifying the structure of a `frame_matrix`. Column names should be formulas, and may only appear before the data. These arguments are processed with `rlang::list2()` and support unquote via `!!` and unquote-splice via `!!!`.

Value
A `matrix`.

See Also
See `quasiquotation` for more details on tidy dots semantics, i.e. exactly how the `…` argument is processed.

Examples
```r
frame_matrix(
  ~col1, ~col2,
  1, 3,
  5, 2
)
```

is_tibble  
Test if the object is a tibble

Description
This function returns TRUE for tibbles or subclasses thereof, and FALSE for all other objects, including regular data frames.
Usage

```r
is_tibble(x)
```

Arguments

- `x`: An object

Value

TRUE if the object inherits from the `tbl_df` class.

---

### lst

Build a list

---

Description

`lst()` constructs a list, similar to `base::list()`, but with some of the same features as `tibble()`. `lst()` builds components sequentially. When defining a component, you can refer to components created earlier in the call. `lst()` also generates missing names automatically.

See `rlang::list2()` for a simpler and faster alternative without tibble’s evaluation and auto-name semantics.

Usage

```r
lst(...)```

Arguments

- `...`: A set of name-value pairs. These arguments are processed with `rlang::quos()` and support unquote via `!!` and unquote-splice via `!!!`. Use `:=` to create columns that start with a dot.

Arguments are evaluated sequentially. You can refer to previously created elements directly or using the `.data` pronoun. An existing `.data` pronoun, provided e.g. inside `dplyr::mutate()`, is not available.

Value

A named list.

Examples

```r
# the value of n can be used immediately in the definition of x
lst(n = 5, x = runif(n))

# missing names are constructed from user's input
lst(1:3, z = letters[4:6], runif(3))
```

```r
a <- 1:3
```
b <- letters[4:6]
lst(a, b)

# pre-formed quoted expressions can be used with lst() and then
# unquoted (with !!) or unquoted and spliced (with !!!)
n1 <- 2
n2 <- 3
n_stuff <- quote(n1 + n2)
x_stuff <- quote(seq_len(n))
lst(!!!list(n = n_stuff, x = x_stuff))
lst(n = !!n_stuff, x = !!x_stuff)
lst(n = 4, x = !!x_stuff)
lst(!!!list(n = 2, x = x_stuff))

---

new_tibble Tibble constructor and validator

Description

Creates or validates a subclass of a tibble. These function is mostly useful for package authors that implement subclasses of a tibble, like sf or tsibble.

new_tibble() creates a new object as a subclass of tbl_df, tbl and data.frame. This function is optimized for performance, checks are reduced to a minimum.

validate_tibble() checks a tibble for internal consistency. Correct behavior can be guaranteed only if this function runs without raising an error.

Usage

new_tibble(x, ..., nrow, class = NULL, subclass = NULL)

validate_tibble(x)

Arguments

- x A tibble-like object.
- ... Name-value pairs of additional attributes.
- nrow The number of rows, required.
- class Subclasses to assign to the new object, default: none.
- subclass Deprecated, retained for compatibility. Please use the class argument.

Construction

For new_tibble(). x must be a list. The ... argument allows adding more attributes to the subclass. An nrow argument is required. This should be an integer of length 1, and every element of the list x should have `vctrs::vec_size()` equal to this value. (But this is not checked by the constructor). This takes the place of the "row.names" attribute in a data frame. x must have names (or be empty), but the names are not checked for correctness.
 Validation

`validate_tibble()` checks for "minimal" names and that all columns are vectors, data frames or matrices. It also makes sure that all columns have the same length, and that `vctrs::vec_size()` is consistent with the data.

See Also

tibble() and as_tibble() for ways to construct a tibble with recycling of scalars and automatic name repair.

Examples

```r
# The nrow argument is always required:
new_tibble(list(a = 1:3, b = 4:6), nrow = 3)

# Existing row.names attributes are ignored:
try(validate_tibble(new_tibble(iris, nrow = 3)))

# The length of all columns must be compatible with the nrow argument:
try(validate_tibble(new_tibble(list(a = 1:3, b = 4:6), nrow = 2)))
```

Description

While a tibble can have row names (e.g., when converting from a regular data frame), they are removed when subsetting with the `[` operator. A warning will be raised when attempting to assign non-NULL row names to a tibble. Generally, it is best to avoid row names, because they are basically a character column with different semantics than every other column.

These functions allow you to detect if a data frame has row names (has_rownames()), remove them (remove_rownames()), or convert them back-and-forth between an explicit column (rownames_to_column() and column_to_rownames()). Also included is rowid_to_column(), which adds a column at the start of the dataframe of ascending sequential row ids starting at 1. Note that this will remove any existing row names.

Usage

```r
has_rownames(.data)
remove_rownames(.data)
rownames_to_column(.data, var = "rowname")
rowid_to_column(.data, var = "rowid")
column_to_rownames(.data, var = "rowname")
```
Arguments

.data A data frame.

var Name of column to use for rownames.

Value

column_to_rownames() always returns a data frame. has_rownames() returns a scalar logical. All other functions return an object of the same class as the input.

Examples

# Detect row names ---------------------------------------------
has_rownames(mtcars)
has_rownames(iris)

# Remove row names ---------------------------------------------
remove_rownames(mtcars) %>% has_rownames()

# Convert between row names and column -------------------------
mtcars_tbl <- rownames_to_column(mtcars, var = "car") %>% as_tibble()
mtcars_tbl
column_to_rownames(mtcars_tbl, var = "car") %>% head()

# Adding rowid as a column -------------------------------------
rowid_to_column(iris) %>% head()

subsetting Subsetting tibbles

Description

Accessing columns, rows, or cells via $, [ [, or [ is mostly similar to regular data frames. However, the behavior is different for tibbles and data frames in some cases:

- [ always returns a tibble by default, even if only one column is accessed.
- Partial matching of column names with $ and [ [ is not supported, and NULL is returned. For $, a warning is given.
- Only scalars (vectors of length one) or vectors with the same length as the number of rows can be used for assignment.
- Rows outside of the tibble’s boundaries cannot be accessed.
- When updating with [<- and <-, type changes of entire columns are supported, but updating a part of a column requires that the new value is coercible to the existing type. See vec_slice() for the underlying implementation.

Unstable return type and implicit partial matching can lead to surprises and bugs that are hard to catch. If you rely on code that requires the original data frame behavior, coerce to a data frame via as.data.frame().
Usage

## S3 method for class 'tbl_df'

x$name

## S3 replacement method for class 'tbl_df'

x$name <- value

## S3 method for class 'tbl_df'

x[[i, j, ..., exact = TRUE]]

## S3 replacement method for class 'tbl_df'

x[[i, j, ...]] <- value

## S3 method for class 'tbl_df'

x[i, j, drop = FALSE, ...]

## S3 replacement method for class 'tbl_df'

x[i, j, ...] <- value

Arguments

x A tibble.

name A name or a string.

value A value to store in a row, column, range or cell. Tibbles are stricter than data frames in what is accepted here.

i, j Row and column indices. If j is omitted, i is used as column index.

... Ignored.

exact Ignored, with a warning.

drop Coerce to a vector if fetching one column via tbl[, j]. Default FALSE, ignored when accessing a column via tbl[j].

Details

For better compatibility with older code written for regular data frames, [] supports a drop argument which defaults to FALSE. New code should use [[ to turn a column into a vector.

Examples

df <- data.frame(a = 1:3, bc = 4:6)
tbl <- tibble(a = 1:3, bc = 4:6)

# Subsetting single columns:

df[, "a"]
tbl[, "a"]
tbl[, "a", drop = TRUE]
as.data.frame(tbl)[, "a"]

# Subsetting single rows with the drop argument:
df[1, , drop = TRUE]
tbl[1, , drop = TRUE]
as.list(tbl[1, ])

# Accessing non-existent columns:
df$b
tbl$b
df["b", exact = FALSE]
tbl["b", exact = FALSE]
df$bd <- c("n", "e", "w")
tbl$bd <- c("n", "e", "w")
df$b
tbl$b
df$b <- 7:9
tbl$b <- 7:9
df$b
tbl$b

# Identical behavior:
tbl[1, ]
tbl[1, c("bc", "a")]
tbl[, c("bc", "a")]
tbl[c("bc", "a")]
tbl["a"]
tbl$a
tbl["a"]

---

tbl_df-class
tbl_df class

Description
The tbl_df class is a subclass of data.frame, created in order to have different default behaviour. The colloquial term “tibble” refers to a data frame that has the tbl_df class. Tibble is the central data structure for the set of packages known as the tidyverse, including dplyr, ggplot2, tidyr, and readr.

The general ethos is that tibbles are lazy and surly: they do less and complain more than base data.frames. This forces problems to be tackled earlier and more explicitly, typically leading to code that is more expressive and robust.

Properties of tbl_df
Objects of class tbl_df have:

• A class attribute of c("tbl_df","tbl","data.frame").
A base type of "list", where each element of the list has the same `vctrs::vec_size()`.

- A names attribute that is a character vector the same length as the underlying list.
- A `row.names` attribute, included for compatibility with `data.frame`. This attribute is only consulted to query the number of rows, any row names that might be stored there are ignored by most tibble methods.

**Behavior of tbl_df**

How default behaviour of tibbles differs from that of `data.frames`, during creation and access:

- Column data is not coerced. A character vector is not turned into a factor. List-columns are expressly anticipated and do not require special tricks. Read more in `tibble()`.
- Recycling only happens for a length 1 input. Read more in `vctrs::vec_recycle()`.
- Column names are not munged, although missing names are auto-populated. Empty and duplicated column names are strongly discouraged, but the user must indicate how to resolve. Read more in `vctrs::vec_as_names()`.
- Row names are not added and are strongly discouraged, in favor of storing that info as a column. Read about in `rownames`.
- `df[,j]` returns a tibble; it does not automatically extract the column inside. `df[,j,drop = FALSE]` is the default. Read more in `subsetting`.
- There is no partial matching when `$` is used to index by name. `df$name` for a nonexistent name generates a warning. Read more in `subsetting`.
- Printing and inspection are a very high priority. The goal is to convey as much information as possible, in a concise way, even for large and complex tibbles. Read more in `formatting`.

**See Also**

`tibble()`, `as_tibble()`, `tribble()`, `print.tbl()`, `glimpse()`

---

**tibble**

Build a data frame

**Description**

`tibble()` constructs a data frame. It is used like `base::data.frame()`, but with a couple notable differences:

- The returned data frame has the class `tbl_df`, in addition to `data.frame`. This allows so-called "tibbles" to exhibit some special behaviour, such as enhanced printing. Tibbles are fully described in `tbl_df`.
- `tibble()` is much lazier than `base::data.frame()` in terms of transforming the user's input.
  - Character vectors are not coerced to factor.
  - List-columns are expressly anticipated and do not require special tricks.
  - Column names are not modified.
- Inner names in columns are left unchanged.

- `tibble()` builds columns sequentially. When defining a column, you can refer to columns created earlier in the call. Only columns of length one are recycled.

- If a column evaluates to a data frame or `tibble`, it is nested or spliced. See examples.

`tibble_row()` constructs a data frame that is guaranteed to occupy one row. Vector columns are required to have size one, non-vector columns are wrapped in a list.

Usage

```r
# tibble without .rows
tibble(
  ...,
  .rows = NULL,
  .name_repair = c("check_unique", "unique", "universal", "minimal")
)
```

```r
# tibble_row without .rows
tibble_row(
  ...,
  .name_repair = c("check_unique", "unique", "universal", "minimal")
)
```

Arguments

...<dynamic-dots> A set of name-value pairs. These arguments are processed with `rlang::quos()` and support unquote via `!!` and unquote-splice via `!!!`. Use `:=` to create columns that start with a dot.

Arguments are evaluated sequentially. You can refer to previously created elements directly or using the `.data` pronoun. An existing `.data` pronoun, provided e.g. inside `dplyr::mutate()`, is not available.

`.rows` The number of rows, useful to create a 0-column `tibble` or just as an additional check.

`.name_repair` Treatment of problematic column names:

- "minimal": No name repair or checks, beyond basic existence,
- "unique": Make sure names are unique and not empty,
- "check_unique": (default value), no name repair, but check they are unique,
- "universal": Make the names unique and syntactic
- a function: apply custom name repair (e.g., `.name_repair = make.names` for names in the style of base R).
- A purrr-style anonymous function, see `rlang::as_function()`

This argument is passed on as `repair` to `vctrs::vec_as_names()`. See there for more details on these terms and the strategies used to enforce them.

Value

A `tibble`, which is a colloquial term for an object of class `tbl_df`. A `tbl_df` object is also a data frame, i.e. it has class `data.frame`. 
See Also

Use `as_tibble()` to turn an existing object into a tibble. Use `enframe()` to convert a named vector into a tibble. Name repair is detailed in `vctrs::vec_as_names()`. See `quasiquotation` for more details on tidy dots semantics, i.e. exactly how the `...` argument is processed.

Examples

# Unnamed arguments are named with their expression:
```r
da <- 1:5
tibble(a, a * 2)
```

# Scalars (vectors of length one) are recycled:
```r
tibble(a, b = a * 2, c = 1)
```

# Columns are available in subsequent expressions:
```r
tibble(x = runif(10), y = x * 2)
```

# `tibble()` never coerces its inputs,
```r
str(tibble(letters))
str(tibble(x = list(diag(1), diag(2))))
```

# or munges column names (unless requested),
```r
tibble(`a + b` = 1:5)
```

# but it forces you to take charge of names, if they need repair:
```r
try(tibble(x = 1, x = 2))
tibble(x = 1, x = 2, .name_repair = "unique")
tibble(x = 1, x = 2, .name_repair = "minimal")
```

## By default, non-syntactic names are allowed,
```r
df <- tibble(`a 1` = 1, `a 2` = 2)
```

## because you can still index by name:
```r
df["a 1"]
df$`a 1`
with(df, `a 1`)
```

## Syntactic names are easier to work with, though, and you can request them:
```r
df <- tibble(`a 1` = 1, `a 2` = 2, .name_repair = "universal")
df$a.1
```

## You can specify your own name repair function:
```r
tibble(x = 1, x = 2, .name_repair = make.unique)

fix_names <- function(x) gsub("\s+", ",", x)
tibble(\'year 1\' = 1, \'year 2\' = 2, .name_repair = fix_names)
```

## purrr-style anonymous functions and constants
## are also supported
```r
tibble(x = 1, x = 2, .name_repair = ~ make.names(., unique = TRUE))
tibble(x = 1, x = 2, .name_repair = ~ c("a", "b"))
```
# Tibbles can contain columns that are tibbles or matrices
# if the number of rows is compatible. Unnamed tibbled are
# spliced, i.e. the inner columns are inserted into the
# tibble under construction.
```r
tibble(
  a = 1:3,
  tibble(
    b = 4:6,
    c = 7:9
  ),
  d = tibble(
    e = tibble(
      f = b
    )
  )
)
tibble(
  a = 1:4,
  b = diag(4),
  c = cov(iris[1:4])
)
```

# data can not contain POSIXlt columns, or tibbles or matrices
# with incompatible number of rows:
```r
try(tibble(y = strptime("2000/01/01", "%x")))
try(tibble(a = 1:3, b = tibble(c = 4:7)))
```

# Use := to create columns with names that start with a dot:
tibble(.dotted = 3)
tibble(.dotted := 3)

# You can unquote an expression:
x <- 3
tibble(x = 1, y = x)
tibble(x = 1, y = !!x)

# You can splice-unquote a list of quosures and expressions:
tibble(!!! list(x = rlang::quo(1:10), y = quote(x * 2)))

# Use tibble_row() to construct a one-row tibble:
tibble_row(a = 1, lm = lm(Petal.Width ~ Petal.Length + Species, data = iris))

---

**tribble**

**Row-wise tibble creation**

**Description**

Create **tibbles** using an easier to read row-by-row layout. This is useful for small tables of data where readability is important. Please see **tibble-package** for a general introduction.
tribble

Usage

tribble(...)

Arguments

... 
<dynamic-dots> Arguments specifying the structure of a tibble. Variable names should be formulas, and may only appear before the data. These arguments are processed with `rlang::list2()` and support unquote via `!!` and unquote-splice via `!!!`.

Value

A tibble.

See Also

See `quasiquotation` for more details on tidy dots semantics, i.e. exactly how the ... argument is processed.

Examples

```r
tribble(
  ~colA, ~colB,
  "a", 1,
  "b", 2,
  "c", 3
)
# tribble will create a list column if the value in any cell is 
# not a scalar
tribble(
  ~x, ~y,
  "a", 1:3,
  "b", 4:6
)

# Use dplyr::mutate(dplyr::across(...)) to assign an explicit type
tibble( 
  ~ a, ~ b, ~ c,
  1, "2000-01-01", "1.5"
) %>%
dplyr::mutate( 
  dplyr::across(a, as.integer),
  dplyr::across(b, as.Date)
)
```
Description

[Experimental]
Calls `utils::View()` on the input and returns it, invisibly. If the input is not a data frame, it is processed using a variant of `as.data.frame(head(x,n))`. A message is printed if the number of rows exceeds n. This function has no effect in noninteractive sessions.

Usage

```
view(x, title = NULL, ..., n = NULL)
```

Arguments

- **x**: The object to display.
- **title**: The title to use for the display, by default the deparsed expression is used.
- **...**: Unused, must be empty.
- **n**: Maximum number of rows to display. Only used if x is not a data frame.

Details

The RStudio IDE overrides `utils::View()`, this is picked up correctly.
Index

* addition
  add_column, 4
  add_row, 5
  .data, 13, 20
  .onLoad(), 8
  [.tbl_df(subsetting), 16
  <<-.tbl_df(subsetting), 16
  [[.tbl_df(subsetting), 16
  [[-.tbl_df(subsetting), 16
  $.tbl_df(subsetting), 16
  $<-.tbl_df(subsetting), 16

  add_case(add_row), 5
  add_column, 4, 5
  add_row, 5
  as.data.frame(), 16
  as_tibble, 6
  as_tibble(), 2, 15, 19, 21
  as_tibble_col(as_tibble), 6
  as_tibble_row(as_tibble), 6

  base::as.data.frame(), 6
  base::data.frame(), 6, 19
  base::list(), 13

  char(), 10
  column_to_rownames(rownames), 15

  data.frame, 2, 6, 18, 19
  deframe (enframe), 9
  dplyr::mutate(), 13, 20

  enframe, 9
  enframe(), 2, 8
  enhanced printing, 19

  format.tbl(formatting), 10
  format.tbl_df(formatting), 10
  formatting, 10, 19
  frame_matrix, 12

  glimpse(), 2, 19

  has_rownames(rownames), 15

  interactive, 24
  is_tibble, 12
  lst, 13
  matrix, 6, 12
  name, 17
  new_tibble, 14
  num(), 10

  poly, 6
  print.tbl(formatting), 10
  print.tbl(), 2, 19
  print.tbl_df(formatting), 10
  quasiquotation, 12, 21, 23

  regular data frames, 16
  remove_rownames(rownames), 15
  rlang::as_function(), 4, 8, 20
  rlang::list2(), 12, 13, 23
  rlang::quos(), 13, 20
  rowid_to_column(rownames), 15
  rownames, 6, 8, 15, 19
  rownames_to_column(rownames), 15

  subsetting, 16, 19

  table, 6
  tbl_df, 2, 6, 19, 20
  tbl_df(tbl_df-class), 18
  tbl_df-class, 18
  tibble, 9, 19, 22, 23
  tibble(), 2, 4–6, 8, 13, 15, 19
  tibble-package, 2, 22
  tibble_row(tibble), 19
tibble_row(), 5
tribble, 22
tribble(), 2, 5, 12, 19
ts, 6
utils::View(), 24

validate_tibble (new_tibble), 14
vctrs::vec_as_names(), 4, 8, 19–21
vctrs::vec_recycle(), 19
vctrs::vec_size(), 14, 15, 19
vec_slice(), 16
view, 24