

Package ‘shinyfilters’

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Title Create 'shiny' Inputs from Vectors, 'data.frames', or any R Object

Version 0.3.0

Description Provides an interface to 'shiny' inputs used for filtering vectors, data.frames, and other objects. 'S7'-based implementation allows for seamless extensibility.

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URL <https://joshwlivingston.github.io/shinyfilters/>,
<https://github.com/joshwlivingston/shinyfilters>

BugReports <https://github.com/joshwlivingston/shinyfilters/issues>

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apply_filters	<i>Apply Filters to an object</i>
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Description

Applies a list of filters to an object, returning the filtered object.

Usage

```
apply_filters(
  x,
  filter_list,
  filter_combine_method = "and",
  expanded = FALSE,
  cols = NULL,
  ...
)
```

Arguments

x	An object to filter; typically a data.frame.
filter_list	A named list of filter values, used to filter the values in x. If filter_list is NULL, x is returned unmodified.
filter_combine_method	A string or function indicating how to combine multiple filters. If a string, it can be "and" (or "&") for logical AND, or "or" (or " ") for logical OR. If a function, it should take two logical vectors and return a combined logical vector.
expanded	Logical; if TRUE, returns a named list of data.frames, each containing one column, its own, filtered according to the values of all <i>other</i> filters.
cols	Optional character vector of column names to retain in the output when x is a data.frame. If NULL (the default), all columns are retained.
...	Additional arguments passed to get_filter_logical() .

Value

A filtered object, or a named list of filtered objects if expanded = TRUE.

Examples

```
library(S7)
df <- data.frame(
  category = rep(letters[1:3], each = 4),
  value = 1:12,
  date = as.Date('2024-01-01') + 0:11
)
filters <- list(
  category = c("a", "b"),
  value = c(3, 11)
)

# Apply filters with logical AND
apply_filters(df, filters, filter_combine_method = "and")

# Apply filters with logical OR
apply_filters(df, filters, filter_combine_method = "or")

# Get expanded filters
apply_filters(df, filters, expanded = TRUE)
```

args_filter_input

Derive Arguments for shiny Inputs

Description

Provides the appropriate function arguments for the input function selected by `filterInput()` or `updateFilterInput()`.

Usage

```
args_filter_input(x, ...)
```

```
args_update_filter_input(x, ...)
```

Arguments

x	The object being passed to <code>filterInput()</code> or <code>updateFilterInput()</code> .
...	Additional arguments passed to the method. See details.

Details

The following arguments are supported in ...:

range (*Date, POSIXt*). Logical. If TRUE, `args_filter_input()` will provide the arguments for range date inputs. Only applies when x is of class Date or POSIXt.

textbox (*character*). Logical. If FALSE (the default), `args_filter_input()` will provide the arguments for select inputs.

choices_asis (*character, factor, logical*). Logical. If TRUE, the choices provided to select inputs will not be modified. If FALSE (the default), duplicate values will be removed and the choices will be sorted. Only applies when x is of class character, factor, or logical.

server If TRUE, indicates that the choices will be provided server-side. In this case, arguments are not computed for args_filter_input(). Ignored in args_update_filter_input().

args_unique An optional named list of arguments passed to [unique\(\)](#), called when x is a *character, factor, or logical*, `textbox = FALSE`, and `choices_asis = FALSE`.

args_sort An optional named list of arguments passed to [sort\(\)](#), which is called after [unique\(\)](#).

Value

A named list of arguments for a **shiny** input function

Examples

```
args_filter_input(iris$Petal.Length)
```

call_input_function *Prepare and Evaluate Input Function and Arguments*

Description

Internal function used to prepare input arguments using [args_filter_input\(\)](#), and gracefully pass them to provided input function.

Usage

```
call_filter_input(x, .f, ...)
```

```
call_update_filter_input(x, .f, ...)
```

Arguments

x	The object being passed to filterInput() .
.f	The input function to be called.
...	Arguments passed to either args_filter_input() or provided input function.

Details

[call_filter_input\(\)](#) and [call_update_filter_input\(\)](#) are used when customizing **shinyfilters**. For more, see [vignette\("customizing-shinyfilters"\)](#).

Value

The result of calling the provided input function.

Examples

```

library(S7)
library(shiny)
# call_filter_input() is used inside filterInput() methods
method(filterInput, class_numeric) <- function(x, ...) {
  call_filter_input(x, sliderInput, ...)
}

# call_update_filter_input() is used inside updateFilterInput() methods
method(updateFilterInput, class_numeric) <- function(x, ...) {
  call_update_filter_input(x, updateSliderInput, ...)
}

```

filterInput

Create a shiny Input

Description

Selects and creates a **shiny** input based the type of object `x` and other arguments.

Usage

```
filterInput(x, ...)
```

Arguments

<code>x</code>	The object used to create the input.
<code>...</code>	Arguments used for input selection or passed to the selected input. See details.

Details

The following arguments passed to `...` are supported:

area (*character*). Logical. Controls whether to use [shiny::textAreaInput](#) (TRUE) or [shiny::textInput](#) (FALSE, default). Only applies when `textbox` is TRUE.

radio (*character, factor, list, logical*). Logical. Controls whether to use [shiny::radioButtons](#) (TRUE) or a dropdown input (FALSE, default). For character vectors, `radio` only applies if `textbox` is FALSE, the default.

range (*Date, POSIXt*). Logical. Controls whether to use [shiny::dateRangeInput](#) (TRUE) or [shiny::dateInput](#) (FALSE, default).

selectize (*character, factor, list, logical*). Logical. Controls whether to use [shiny::selectizeInput](#) (TRUE) or [shiny::selectInput](#) (FALSE, default). For character vectors, `selectize` only applies if `textbox` is FALSE, the default.

slider (*numeric*). Logical. Controls whether to use [shiny::sliderInput](#) (TRUE) or [shiny::numericInput](#) (FALSE, default).

textbox (*character*). Logical. Controls whether to use a text input (TRUE) or a dropdown input (FALSE, default).

ns An optional namespace created by `shiny::NS()`. Useful when using `filterInput()` on a `data.frame` inside a **shiny** module.

Remaining arguments passed to `...` are passed to the `args_filter_input()` or the selected input function.

Value

One of the following **shiny** inputs is returned, based on the type of object passed to `x`, and other specified arguments. See `vignette("filter-input-catalog")` for the full list of examples.

Value	x	Arguments
<code>shiny::dateInput</code>	Date, POSIXt	<i>default</i>
<code>shiny::dateRangeInput</code>	Date, POSIXt	<code>range = TRUE</code>
<code>shiny::numericInput</code>	numeric	<i>default</i>
<code>shiny::radioButtons</code>	character, factor, list, logical	<code>radio = TRUE</code>
<code>shiny::selectInput</code>	character, factor, list, logical	<i>default</i>
<code>shiny::selectizeInput</code>	character, factor, list, logical	<code>selectize = TRUE</code>
<code>shiny::sliderInput</code>	numeric	<code>slider = TRUE</code>
<code>shiny::textAreaInput</code>	character	<code>textbox = TRUE, area = TRUE</code>
<code>shiny::textInput</code>	character	<code>textbox = TRUE</code>

Examples

```
library(shiny)

ui <- fluidPage(
  sidebarLayout(
    sidebarPanel(
      # Create a filterInput() inside a shiny app:
      filterInput(
        x = letters,
        inputId = "letter",
        label = "Pick a letter:"
      )
    ),
    mainPanel(
      textOutput("selected_letter")
    )
  )
)

server <- function(input, output, session) {
  output$selected_letter <- renderText({
    paste("You selected:", input$letter)
  })
}
```

```
shinyApp(ui, server)
```

get_filter_logical *Compute a Filter Predicate*

Description

Computes a logical vector indicating which elements of `x` match the filter criteria specified by `val`.

Usage

```
get_filter_logical(x, val, ...)
```

Arguments

<code>x</code>	An object to filter; typically a data.frame.
<code>val</code>	The filter criteria.
<code>...</code>	Arguments passed to methods. See details.

Details

The following arguments are supported in ...:

column When `x` is a data.frame, `column` is the name of the column intended to be filtered.

comparison When `x` is a numeric or Date and `val` is a length-**one** numeric or Date, `comparison` is the function used to compare `x` with `val`. The default is `<=`.

gte When `x` is a numeric or Date and `val` is a length-**two** numeric or Date, `gte` controls whether to use `>=` (TRUE, default) or `>` (FALSE) on `val[[1]]`.

lte When `x` is a numeric or Date and `val` is a length-**two** numeric or Date, `lte` controls whether to use `<=` (TRUE, default) or `<` (FALSE) on `val[[2]]`.

Value

A logical vector indicating which elements of `x` match the filter criteria specified by `val`.

Examples

```
df <- data.frame(
  category = rep(letters[1:3], each = 4),
  value = 1:12,
  date = Sys.Date() + 0:11
)

# Filter character column
get_filter_logical(df, c("a", "b"), column = "category")
```

```
# Filter numeric column with single value
get_filter_logical(df, 5, column = "value", comparison = `<=`)

# Filter numeric column with range
get_filter_logical(df, c(3, 8), column = "value", gte = TRUE, lte = FALSE)
```

get_input_ids	<i>Retrieve the Ids of Input Objects</i>
---------------	--

Description

Returns the (unnamed) ids of the inputs for the provided object.

Usage

```
get_input_ids(x, ...)
```

Arguments

x	An object for which to retrieve input ids; typically a data.frame.
...	Passed onto methods.

Value

A character vector of input ids.

Examples

```
df <- data.frame(
  name = c("Alice", "Bob"),
  age = c(25, 30),
  completed = c(TRUE, FALSE)
)

get_input_ids(df)
```

get_input_labels *Retrieve the Labels of Input Objects*

Description

Returns the labels of the **shiny** inputs for the provided object.

Usage

```
get_input_labels(x, ...)
```

Arguments

x An object for which to retrieve input labels; typically a data.frame.
... Passed onto methods.

Value

A character vector of input labels

Examples

```
df <- data.frame(  
  name = c("Alice", "Bob"),  
  age = c(25, 30),  
  completed = c(TRUE, FALSE)  
)  
  
get_input_labels(df)
```

get_input_values *Get Multiple Values from a shiny Input Object*

Description

Retrieves multiple input values from a **shiny** input object based on the names provided in x.

Usage

```
get_input_values(input, x, ...)
```

Arguments

input A **shiny** input object, i.e., the input argument to the shiny server.
x A character vector of input names, or a data.frame whose column names are converted to input names via [get_input_ids\(\)](#).
... Passed onto methods.

Value

A named list of input values corresponding to the names in `x`.

Examples

```
library(shiny)
df <- data.frame(
  name = c("Alice", "Bob"),
  age = c(25, 30),
  completed = c(TRUE, FALSE)
)
ui <- fluidPage(
  sidebarLayout(
    sidebarPanel(
      filterInput(df)
    ),
    mainPanel(
      verbatimTextOutput("output_all"),
      verbatimTextOutput("output_subset")
    )
  )
)
server <- function(input, output, session) {
  output$output_all <- renderPrint({
    get_input_values(input, df)
  })
  output$output_subset <- renderPrint({
    get_input_values(input, c("name", "completed"))
  })
}
shinyApp(ui, server)
```

`serverFilterInput`*Run the backend server for filterInput*

Description

Run the backend server for `filterInput`

Usage

```
serverFilterInput(
  x,
  input,
  filter_combine_method = "and",
  args_apply_filters = NULL,
  ...
)
```

Arguments

<code>x</code>	An object being filtered; typically a <code>data.frame</code> .
<code>input</code>	A shiny input object, or a reactive that resolves to a list of named values.
<code>filter_combine_method</code>	A string or function indicating how to combine multiple filters. If a string, it can be "and" (or "&") for logical AND, or "or" (or " ") for logical OR. If a function, it should take two logical vectors and return a combined logical vector.
<code>args_apply_filters</code>	A named list of additional arguments passed to <code>apply_filters()</code> .
<code>...</code>	Additional arguments passed to <code>updateFilterInput()</code> .

Value

A reactiveValues list with a single element, `input_values`, which contains the current filter input values as a named list.

Examples

```
library(bslib)
library(DT)
library(S7)
library(shiny)

must_use_radio <- new_S3_class(
  class = "must_use_radio",
  constructor = function(.data) .data
)
method(filterInput, must_use_radio) <- function(x, ...) {
  call_filter_input(x, shiny::radioButtons, ...)
}
method(updateFilterInput, must_use_radio) <- function(x, ...) {
  call_update_filter_input(x, shiny::updateRadioButtons, ...)
}

use_radio <- function(x) {
  structure(x, class = unique(c("must_use_radio", class(x))))
}

df_shared <- data.frame(
  x = letters,
  y = use_radio(sample(c("red", "green", "blue"), 26, replace = TRUE)),
  z = round(runif(26, 0, 3.5), 2),
  q = sample(Sys.Date() - 0:7, 26, replace = TRUE)
)

filters_ui <- function(id) {
  ns <- shiny::NS(id)
  filterInput(
    x = df_shared,
    range = TRUE,
```

```

selectize = TRUE,
slider = TRUE,
multiple = TRUE,
ns = ns
)
}

filters_server <- function(id) {
  moduleServer(id, function(input, output, session) {
    # serverFilterInput() returns a shiny::observe() expression
    serverFilterInput(df_shared, input = input, range = TRUE)
  })
}

ui <- page_sidebar(
  sidebar = sidebar(filters_ui("demo")),
  DTOutput("df_full"),
  verbatimTextOutput("input_values"),
  DTOutput("df_filt")
)

server <- function(input, output, session) {
  res <- filters_server("demo")
  output$df_full <- renderDT(datatable(df_shared))
  output$input_values <- renderPrint(res$input_values)
  output$df_filt <- renderDT(datatable(apply_filters(
    df_shared,
    res$input_values
  )))
}

shinyApp(ui, server)

```

updateFilterInput *Update a shiny Input*

Description

Updates a **shiny** input based the type of object `x` and other arguments.

Usage

```
updateFilterInput(x, ...)
```

Arguments

<code>x</code>	The object used to create the input.
<code>...</code>	Arguments used for input selection or passed to the selected input update function. See details.

Details

The following arguments passed to . . . are supported:

area (*character*). Logical. Controls whether to use `shiny::updateTextAreaInput` (TRUE) or `shiny::updateTextInput` (FALSE, default). Only applies when `textbox` is TRUE.

radio (*character, factor, list, logical*). Logical. Controls whether to use `shiny::updateRadioButtons` (TRUE) or a dropdown input update function (FALSE, default). For character vectors, radio only applies if `textbox` is FALSE, the default.

range (*Date, POSIXt*). Logical. Controls whether to use `shiny::updateDateRangeInput` (TRUE) or `shiny::updateDateInput` (FALSE, default).

selectize (*character, factor, list, logical*). Logical. Controls whether to use `shiny::updateSelectizeInput` (TRUE) or `shiny::updateSelectInput` (FALSE, default). For character vectors, selectize only applies if `textbox` is FALSE, the default.

slider (*numeric*). Logical. Controls whether to use `shiny::updateSliderInput` (TRUE) or `shiny::updateNumericInput` (FALSE, default).

textbox (*character*). Logical. Controls whether to update a text input (TRUE) or a dropdown input (FALSE, default).

Remaining arguments passed to . . . are passed to `args_update_filter_input()` or the selected input update function.

Value

The result of the following **shiny** input updates is returned, based on the type of object passed to `x`, and other specified arguments.

Value	x	Arguments
<code>shiny::updateDateInput</code>	Date, POSIXt	<i>default</i>
<code>shiny::updateDateRangeInput</code>	Date, POSIXt	<code>range = TRUE</code>
<code>shiny::updateNumericInput</code>	numeric	<i>default</i>
<code>shiny::updateRadioButtons</code>	character, factor, list, logical	<code>radio = TRUE</code>
<code>shiny::updateSelectInput</code>	character, factor, list, logical	<i>default</i>
<code>shiny::updateSelectizeInput</code>	character, factor, list, logical	<code>selectize = TRUE</code>
<code>shiny::updateSliderInput</code>	numeric	<code>slider = TRUE</code>
<code>shiny::updateTextAreaInput</code>	character	<code>textbox = TRUE, area = TRUE</code>
<code>shiny::updateTextInput</code>	character	<code>textbox = TRUE</code>

Examples

```
library(shiny)

fruits <- list(
  "a" = c("apples", "avocados"),
  "b" = c("bananas", "blueberries"),
  "c" = c("cherries", "cantaloupe")
)
```

```
ui <- fluidPage(  
  sidebarLayout(  
    sidebarPanel(  
      filterInput(  
        x = letters[1:3],  
        inputId = "letter",  
        label = "Pick a letter:",  
        multiple = TRUE  
      ),  
      filterInput(  
        x = fruits,  
        inputId = "fruits",  
        label = "Pick a fruit:"  
      )  
    ),  
    mainPanel()  
  )  
)  
  
server <- function(input, output, session) {  
  shiny::observe({  
    fruits_filtered <- fruits  
    if (!is.null(input$letter) && length(input$letter) != 0L) {  
      fruits_filtered <- fruits[input$letter]  
    }  
    # Call updateFilterInput() inside the shiny server:  
    updateFilterInput(x = fruits_filtered, inputId = "fruits")  
  })  
}  
shinyApp(ui, server)
```

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