Package ‘parallelPlot’

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Title 'Htmlwidget' for a Parallel Coordinates Plot

Version 0.2.0

Description Create a parallel coordinates plot, using 'htmlwidgets' package and 'd3.js'.

URL https://gitlab.com/drti/parallelplot

BugReports https://gitlab.com/drti/parallelplot/-/issues

Depends R (>= 3.5.0)

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Encoding UTF-8

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Imports htmlwidgets

Suggests testthat, shiny, knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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R topics documented:

changeRow *Row edition*

Description

Asks to change a row.

Usage

```
changeRow(id, rowIndex, newValues)
```

Arguments

`id`	output variable to read from (id which references the requested plot)
`rowIndex`	index of the changed row.
`newValues`	list of new values to attribute to the row (list associating a value to a column identifier).

Value

No return value, called from shiny applications for side effects.

Examples

```
 if(interactive()) {
   library(shiny)
   library(parallelPlot)

   ui <- fluidPage(
       sliderInput("rowValueSlider", "Value for 'Sepal.Length' of first row:",
           min = 4, max = 8, step = 0.1, value = iris[["Sepal.Length"]][1]),
     p("The slider controls the new value to assign to the 'Sepal.Length' of the first row"),
       parallelPlotOutput("parPlot")
   )

   server <- function(input, output, session) {
       output$parPlot <- renderParallelPlot({
           parallelPlot(iris)
       })
       observeEvent(input$rowValueSlider, {
           newValues <- iris[1,]
           newValues[["Sepal.Length"]] <- input$rowValueSlider
```

```
            parallelPlot::changeRow("parPlot", 1, newValues)
        })
    }

    shinyApp(ui, server)
  }
```

getPlotConfig — *Asks to retrieve the plot configuration. Result will be sent through a reactive input.*

Description

Asks to retrieve the plot configuration. Result will be sent through a reactive input.

Usage

```
getPlotConfig(id, configInputId)
```

Arguments

`id`	Output variable to read from (id which references the requested plot).
`configInputId`	Reactive input to write to.

Value

No return value, called from shiny applications for side effects.

getValue — *Plot attributes*

Description

Asks to retrieve the value of an attribute.

Usage

```
getValue(id, attrType, valueInputId)
```

Arguments

`id`	output variable to read from (id which references the requested plot)
`attrType`	which value is requested.
`valueInputId`	reactive input to write to.

Details

Available attributes are 'Cutoffs', 'SelectedTraces' and 'ReferenceColumn'. Result will be sent through a reactive input.

Value

No return value, called from shiny applications for side effects.

Examples

```
if(interactive()) {
  library(shiny)
  library(parallelPlot)

  ui <- fluidPage(
      actionButton("getSelectedTracesAction", "Retrieve Selected Traces"),
      p("The button displays the list of uncutted rows (use brush to reduce it)"),
      parallelPlotOutput("parPlot")
  )

  server <- function(input, output, session) {
      output$parPlot <- renderParallelPlot({
          parallelPlot(iris)
      })
      observeEvent(input$getSelectedTracesAction, {
          attributeType <- "SelectedTraces"
          parallelPlot::getValue("parPlot", attributeType, "MySelectedTraces")
      })
      observeEvent(input$MySelectedTraces, {
          showModal(modalDialog(
              title = "Selected Traces",
              toString(input$MySelectedTraces)
          ))
      })
  }

  shinyApp(ui, server)
}
```

`parallelPlot` *htmlwidget for d3.js parallel coordinate plot*

Description

htmlwidget for d3.js parallel coordinate plot

Usage

```
parallelPlot(
  data,
  categorical = NULL,
  inputColumns = NULL,
  keptColumns = NULL,
  histoVisibility = NULL,
  invertedAxes = NULL,
  cutoffs = NULL,
  refRowIndex = NULL,
  refColumnDim = NULL,
  rotateTitle = FALSE,
  columnLabels = NULL,
  continuousCS = "Viridis",
  categoricalCS = "Category10",
  eventInputId = NULL,
  editionMode = "EditionOff",
  controlWidgets = FALSE,
  cssRules = NULL,
  sliderPosition = NULL,
  width = NULL,
  height = NULL,
  elementId = NULL
)
```

Arguments

`data`	data.frame with data to use in the chart.
`categorical`	List of list (one for each data column) containing the name of available categories, or `NULL` if column corresponds to continuous data; `NULL` is allowed, meaning all columns are continuous.
`inputColumns`	List of boolean (one for each data column), `TRUE` for an input column, `FALSE` for an output column; `NULL` is allowed, meaning all columns are inputs.
`keptColumns`	List of boolean (one for each data column), `FALSE` if column has to be ignored; `NULL` is allowed, meaning all columns are available.
`histoVisibility`	List of boolean (one for each data column), `TRUE` if an histogram must be displayed; `NULL` is allowed, meaning no histogram must be displayed.
`invertedAxes`	List of boolean (one for each data column), `TRUE` if orientation of axis must be inverted; `NULL` is allowed, meaning no axis must be inverted.
`cutoffs`	List of list (one for each data column) of list (one for each cutoff) containing two values (min and max values defining the cutoff) or `NULL` if there is no cutoff to apply; `NULL` is allowed, meaning all columns are without cutoff.
`refRowIndex`	Index of the sample row which has to appear horizontal; `NULL` is allowed, meaning there is no row to use as reference.

`refColumnDim`	Name of the reference column (used to determine the color to attribute to a row); `NULL` is allowed, meaning there is no coloring to apply.
`rotateTitle`	`TRUE` if column title must be rotated.
`columnLabels`	List of string (one for each data column) to display in place of column name found in data, or `NULL` if there is no alternative name; `NULL` is allowed, meaning all columns are without alternative name; <br> can be used to insert line breaks.
`continuousCS`	Name of the color Scale to use for continuous data; supported names: "Viridis", "Inferno", "Magma", "Plasma", "Warm", "Cool", "Rainbow", "CubehelixDefault", "Blues","Greens", "Greys", "Oranges", "Purples", "Reds", "BuGn", "BuPu", "GnBu", "OrRd", "PuBuGn","PuBu", "PuRd", "RdBu", "RdPu", "YlGnBu", "YlGn", "YlOrBr", "YlOrRd"; default value is `Viridis`.
`categoricalCS`	Name of the color Scale to use for categorical data; supported names: Category10, Accent, Dark2, Paired, Set1; default value is `Category10`.
`eventInputId`	When plot event occurred, reactive input to write to; `NULL` is allowed, default value is 'plotEvent'.
`editionMode`	Supported edition modes: `EditionOff,EditionOnDrag,EditionOnDragEnd`; default value is `EditionOff` .
`controlWidgets`	Tells if some widgets must be available to control plot; `NULL` is allowed, meaning that '!HTMLWidgets.shinyMode' is to use; default value is `FALSE`.
`cssRules`	CSS rules to add. Must be a named list of the form list(selector = declarations), where selector is a valid CSS selector and declarations is a string or vector of declarations.
`sliderPosition`	Set initial position of slider, specifying which columns interval is visible. Default value is `NULL` which is equivalent to: list(dimCount = 8, startingDimIndex = 1)
`width`	Integer in pixels defining the width of the widget.
`height`	Integer in pixels defining the height of the widget.
`elementId`	Unique `CSS` selector id for the widget.

Value

An object of class `htmlwidget` that will intelligently print itself into HTML in a variety of contexts including the R console, within R Markdown documents, and within Shiny output bindings.

Examples

```
 if(interactive()) {
   library(parallelPlot)

  categorical <- list(NULL, c(4, 6, 8), NULL, NULL, NULL, NULL, NULL, c(0, 1), c(0, 1), 3:5, 1:8)
   parallelPlot(mtcars, categorical = categorical, refColumnDim = "cyl")
   # 'cyl' and four last columns have a box representation for its categories

   histoVisibility <- rep(TRUE, ncol(iris))
   parallelPlot(iris, histoVisibility = histoVisibility)
   # An histogram is displayed for each column
   histoVisibility <- rep(TRUE, ncol(iris))
   cutoffs <- list(list(c(6, 7)), NULL, NULL, NULL, c("virginica", "setosa"))
   parallelPlot(iris, histoVisibility = histoVisibility, cutoffs = cutoffs)
   # Cut traces are greyed; an histogram is displayed considering only kept traces

   parallelPlot(iris, refRowIndex = 1)
  # Axes are shifted vertically in such a way that first trace of the dataset looks horizontal

   columnLabels <- gsub("\\.", "<br>", colnames(iris))
   parallelPlot(iris, refColumnDim = "Species", columnLabels = columnLabels)
  # Given names are displayed in place of dataset column names; <br> is used to insert line breaks

   parallelPlot(iris, cssRules = list(
       "svg" = "background: white",
       ".tick text" = c("fill: red", "font-size: 1.8em")
   ))
   # Background of plot is white and text of axes ticks is red and greater
 }
```

`parallelPlot-shiny` *Shiny bindings for parallelPlot*

Description

Output and render functions for using parallelPlot within Shiny applications and interactive Rmd documents.

Usage

```
parallelPlotOutput(outputId, width = "100%", height = "600px")

renderParallelPlot(expr, env = parent.frame(), quoted = FALSE)
```

Arguments

`outputId`	output variable to read from
`width, height`	Must be a valid CSS unit (like `'100%'`, `'400px'`, `'auto'`) or a number, which will be coerced to a string and have `'px'` appended.
`expr`	An expression that generates a parallelPlot
`env`	The environment in which to evaluate `expr`.
`quoted`	Is `expr` a quoted expression (with `quote()`)? This is useful if you want to save an expression in a variable.

Value

An output or render function that enables the use of the widget within Shiny applications.

setCategoricalColorScale *Traces colors*

Description

Tells which color scale to use when reference column is of type categorical.

Usage

```
setCategoricalColorScale(id, categoricalCsId)
```

Arguments

`id`	output variable to read from (id which references the requested plot)
`categoricalCsId`	one of the available color scale ids

Details

If a column is defined as the reference (for example by clicking on its header), a color scale is associated to this column. Available color scale ids are: ‘Category10‘, ‘Accent‘, ‘Dark2‘, ‘Paired‘, ‘Set1‘.

Value

No return value, called from shiny applications for side effects.

Examples

```
if(interactive()) {
  library(shiny)
  library(parallelPlot)

  ui <- fluidPage(
      selectInput("categoricalCsSelect", "Categorical Color Scale:",
       choices = list("Category10" = "Category10", "Accent" = "Accent", "Dark2" = "Dark2",
                      "Paired" = "Paired", "Set1" = "Set1"), selected = "Category10"),
    p("The selector controls the colors used when reference column is of type categorical"),
      parallelPlotOutput("parPlot")
  )

  server <- function(input, output, session) {
      output$parPlot <- renderParallelPlot({
          parallelPlot(data = iris, refColumnDim = "Species")
      })
      observeEvent(input$categoricalCsSelect, {
          parallelPlot::setCategoricalColorScale("parPlot", input$categoricalCsSelect)
      })
  }

  shinyApp(ui, server)
}
```

---

setContinuousColorScale   *Traces colors*

Description

Tells which color scale to use when reference column is of type continuous.

Usage

```
setContinuousColorScale(id, continuousCsId)
```

Arguments

id	Output variable to read from (id which references the requested plot).
continuousCsId	One of the available color scale ids ("Viridis", "Inferno", "Magma", "Plasma", "Warm", "Cool", "Rainbow", "CubehelixDefault", "Blues","Greens", "Greys", "Oranges", "Purples", "Reds", "BuGn", "BuPu", "GnBu", "OrRd", "PuBuGn","PuBu", "PuRd", "RdBu", "RdPu", "YlGnBu", "YlGn", "YlOrBr", "YlOrRd").

Details

If a column is defined as the reference (for example by clicking on its header), a color scale is associated to this column. Available color scale ids are: ‘Blues‘, ‘RdBu‘, ‘YlGnBu‘, ‘YlOrRd‘, ‘Reds‘.

Value

No return value, called from shiny applications for side effects.

Examples

```
if(interactive()) {
  library(shiny)
  library(parallelPlot)

  ui <- fluidPage(
      selectInput(
        "continuousCsSelect",
        "Continuous Color Scale:",
        choices = list(
          "Viridis" = "Viridis", "Inferno" = "Inferno", "Magma" = "Magma",
          "Plasma" = "Plasma", "Warm" = "Warm", "Cool" = "Cool", "Rainbow" ="Rainbow",
          "CubehelixDefault" = "CubehelixDefault", "Blues" = "Blues",
          "Greens" = "Greens", "Greys" = "Greys", "Oranges" = "Oranges",
          "Purples" = "Purples", "Reds" = "Reds", "BuGn" = "BuGn", "BuPu" = "BuPu",
          "GnBu" = "GnBu", "OrRd" = "OrRd", "PuBuGn" = "PuBuGn", "PuBu" = "PuBu",
          "PuRd" = "PuRd", "RdBu" = "RdBu", "RdPu" = "RdPu", "YlGnBu" = "YlGnBu",
          "YlGn" = "YlGn", "YlOrBr" = "YlOrBr", "YlOrRd" = "YlOrRd"
        ),
        selected = "Viridis"
      ),
    p("The selector controls the colors used when reference column is of type continuous"),
      parallelPlotOutput("parPlot")
  )

  server <- function(input, output, session) {
      output$parPlot <- renderParallelPlot({
          parallelPlot(iris, refColumnDim = "Sepal.Length")
      })
      observeEvent(input$continuousCsSelect, {
          parallelPlot::setContinuousColorScale("parPlot", input$continuousCsSelect)
      })
  }

  shinyApp(ui, server)
}
```

`setCutoffs` *Cutoffs values*

Description

Tells which cutoffs to use for each column.

Usage

```
setCutoffs(id, cutoffs)
```

Arguments

`id`	output variable to read from (id which references the requested plot)
`cutoffs`	Vector of list (one for each data column) of vector (one for each cutoff) containing two values for continuous input (min and max value defining the cutoff), or one value for categorical input (name of the category to keep), or `NULL` if there is no cutoff to apply; `NULL` is allowed, meaning all columns are without cutoff. A named list can also be provided to only indicate which columns must be assigned to a new cutoff.

Details

It's possible to filter some traces by defining cutoffs to apply to columns.

Value

No return value, called from shiny applications for side effects.

Examples

```
if(interactive()) {
  library(shiny)
  library(parallelPlot)

  ui <- fluidPage(
      sliderInput("brushSlider", "Brush for 'Sepal.Length' column:",
          min = 4, max = 8, step = 0.1, value = c(4, 8)),
      p("The slider controls the rows which are kept by cutoff (others are greyed)"),
      parallelPlotOutput("parPlot")
  )

  server <- function(input, output, session) {
      output$parPlot <- renderParallelPlot({
          parallelPlot(iris)
      })
      observeEvent(input$brushSlider, {
          cutoffs <- list()
          cutoffs["Sepal.Length"] <- list(list(input$brushSlider))
          parallelPlot::setCutoffs("parPlot", cutoffs)
      })
  }

  shinyApp(ui, server)
}
```

`setHistoVisibility` *Histograms visibility*

Description

Tells which columns have to be displayed with histograms.

Usage

```
setHistoVisibility(id, histoVisibility)
```

Arguments

`id`	output variable to read from (id which references the requested plot)
`histoVisibility`	Vector of boolean (one for each data column), `TRUE` if an histogram must be displayed; `NULL` is allowed, meaning no histogram must be displayed. A named list can also be provided to only indicate which columns must be assigned to a new display.

Value

No return value, called from shiny applications for side effects.

Examples

```
if(interactive()) {
  library(shiny)
  library(parallelPlot)

  ui <- fluidPage(
      checkboxInput("histCB", "Histogram Visibility", FALSE),
      p("The check box controls the visibility of histograms"),
      parallelPlotOutput("parPlot")
  )

  server <- function(input, output, session) {
      output$parPlot <- renderParallelPlot({
          parallelPlot(iris)
      })
      observeEvent(input$histCB, {
          histoVisibility <- rep(input$histCB, ncol(iris))
          parallelPlot::setHistoVisibility("parPlot", histoVisibility)
      })
  }

  shinyApp(ui, server)
}
```

`setInvertedAxes` *Axis orientation*

Description

Tells which axes have to be displayed with an inverted orientation.

Usage

```
setInvertedAxes(id, invertedAxes)
```

Arguments

`id`	output variable to read from (id which references the requested plot)
`invertedAxes`	Vector of boolean (one for each data column), `TRUE` if axis orientation must be inverted; `NULL` is allowed, meaning no axis must be inverted. A named list can also be provided to only indicate which axes must be assigned to a new orientation.

Value

No return value, called from shiny applications for side effects.

Examples

```
if(interactive()) {
  library(shiny)
  library(parallelPlot)

  ui <- fluidPage(
      checkboxInput("orientationCB", "Axis orientation", FALSE),
      p("The check box controls the orientation of axes"),
      parallelPlotOutput("parPlot")
  )

  server <- function(input, output, session) {
      output$parPlot <- renderParallelPlot({
          parallelPlot(iris)
      })
      observeEvent(input$orientationCB, {
          invertedAxes <- rep(input$orientationCB, ncol(iris))
          parallelPlot::setInvertedAxes("parPlot", invertedAxes)
      })
  }

  shinyApp(ui, server)
}
```

`setKeptColumns` *Column visibility*

Description

Tells which columns have to be visible.

Usage

```
setKeptColumns(id, keptColumns)
```

Arguments

`id`	output variable to read from (id which references the requested plot)
`keptColumns`	Vector of boolean (one for each data column), `FALSE` if column has to be hidden. A named list can also be provided to only indicate which columns must be assigned to a new visibility.

Value

No return value, called from shiny applications for side effects.

Examples

```
if(interactive()) {
  library(shiny)
  library(parallelPlot)

  ui <- fluidPage(
      checkboxInput("hideColumnsCB", "Hide last columns", FALSE),
      p("The check box controls the visibility of the two last columns"),
      parallelPlotOutput("parPlot")
  )

  server <- function(input, output, session) {
      output$parPlot <- renderParallelPlot({
          parallelPlot(mtcars)
      })
      observeEvent(input$hideColumnsCB, {
          keptColumns <- vapply(
            1:ncol(mtcars),
            function(i) {
              return(ifelse(input$hideColumnsCB, ncol(mtcars) - i >= 2, TRUE))
            },
            logical(1)
          )
          parallelPlot::setKeptColumns("parPlot", keptColumns)
      })
  }

  shinyApp(ui, server)
}
```

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