Package 'wfr'

February 2, 2024

Type Package

Title A Work-Flow to Assist Document Creation for R Data Analysis

Version 0.5.4

VignetteBuilder knitr

Description
Greatly reduces the amount of non-statistical work in conducting large data analysis projects using R and compiling reports containing many table and figures; specifically: 1) It provides a way to systematically record the outputs from the data analysis R script, even including format information if the output is a table. 2) It can automatically create a R markdown file to produce either 'MS Word', HTML, or PDF output. 3) Numeric columns of the tables in the report are formatted automatically and properly based on the distribution of the column.

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Encoding UTF-8

LazyData true

Depends R (>= 3.5.0), flextable (>= 0.5.5)

Imports utils, knitr, kableExtra, stringr, magrittr, captioner, officer, stats, ggplot2, openxlsx, xtable

Suggests bookdown,
pander,
tinytex,
webshot,
testthat

RoxygenNote 7.2.3

URL http://github.com/blueskypie/wfr

BugReports http://github.com/blueskypie/wfr/issues

R topics documented:

`createRmd` *Create a R markdown file*

Description

Automatically creates a Rmd file by appending knitr code chunks to an existing `rmd.template`

Usage

```
createRmd(outputRmdFn, outputListFn, rmdTemplateFn =
          system.file("extdata", "rmd.template.Rmd", package = "wfr"),
          libs = c("ggplot2"), tabPars=NULL)
```

Arguments

`outputRmdFn`	(character) The file name of the produced Rmd file, can contain file paths.
`outputListFn`	(character) The file name of the text file containing the table from `OUTPUTS`
`rmdTemplateFn`	(character, `system.file("extdata", "rmd.template.Rmd",package = "wfr")`) The file name of the `rmd.template`
`libs`	(character, `"ggplot2"`) The names of the libraries needed to execute the object displayed in each knitr code chunk
`tabPars`	(character, NULL) Table parameters passed to `showObj`, excluding the 1st three parameters. For example, "fontSize=12, theme='plain'".

Details

This function creates a Rmd file by appending knitr code chunks to the existing `rmd.template`.

The first appended code chunk is for setting up: loading libraries in `libs` and `rmdTable`, and reading `outputListFn` into a data.frame. The following code chunks are one for each row in `outputListFn`, ordered by `rmdInd` and filtered by `eval` in `saveOutput`. `showObj` displays of the object (figure or table) in each row. By default, only its top three parameters are included in the code chunk; additional parameters for table display should be specified through `tabPars`.

Lines containing R markdown section header in their first cell can be inserted into the Excel file pointed by `outputListFn`. Here is an example where `.` represents empty space and `...` the remaining cells.

`oPath rdsFileName oFileName caption rmdInd eval ...`

`# Method . . . 1 TRUE .`

`/path tab1.rds tab1.csv table1 2 TRUE ...`

When the Excel file contains many lines, adding those section headers make it easier to see the structure of the R markdown file, and the tables and figures at each layer. `createRmd` writes those section headers directly into the produced R markdown file.

The final Rmd file should be edited, e.g. the `isDocx`, `outputFileName`, `title`, `author` and optionally `wordTemplateFileName` for a customized Word template, before knitting.

Value

none

See Also

`OUTPUTS`, `rmd.template`

Examples

```
library(wfr)
library(ggplot2)

df1=data.frame(A=c("a","a","b3"),
               B=c("b1","b2","b3"),
               C1=1:3,C2=2:4)

    tmpDir = tempdir()
    ofn = file.path(tmpDir, "tab.1.csv")
    saveOutput(df1, oFileName = ofn, caption="this is a testing table")

    ofn = file.path(tmpDir, "fig.1.png")
    saveOutput(qplot(1:10,1:10), oFileName=ofn, caption="this is a testing plot")

    exFn=file.path(tmpDir, "all.outputs.xlsx")
    rmdFn=file.path(tmpDir, "all.outputs.Rmd")
    writeExcel(exFn)
    createRmd(rmdFn,exFn, tabPars="fontSize=12,theme='plain'")
```

is.empty *Determine if an object is empty*

Description

Determine if an object is zero length list or factor, or a vector full of NULL, space, dot,NA, Inf, or NaN. It returns a **single** boolean value.

Usage

```
is.empty(x)
```

Arguments

x	(any object)

Value

(boolean) a single value

Examples

```
is.empty(c(' ','.'))
is.empty(list(NULL))
```

loadLibs *Load libraries into working space*

Description

It loads libraries successfully in certain scenario where `require/library` fails.

Usage

```
loadLibs(failedPackages)
```

Arguments

failedPackages	(character vector) names of libraries to load

Details

This function loads libraries into the working space. It iterates over each path in `.libPaths()` using `require` until a library is loaded successfully. In comparison, `require(x)` for a library `x` fails if `x` is present in multiple search paths but the 1st presence causes loading error, e.g. due to dependency or other issues.

It raises error if not all libraries are loaded successfully.

Value

none

Examples

```
library(wfr)
loadLibs(c("ggplot2","flextable"))
```

`nDecimal` *Return the number of decimal points of a number*

Description

Trailing zeros are not counted.

Usage

```
nDecimal(x)
```

Arguments

`x`	(numeric or integer vector) a number vector

Value

(integer vector) numbers of decimal points, excluding trailing zeros, or `NA` if `x` is `NA`

Note

This is an internal function used in `num2formattedStr`

See Also

`num2formattedStr`

Examples

```
library(wfr)
nDecimal(c(1.010,0.3,NA))
```

num2formattedStr *Format a vector of numbers based on their distribution*

Description

Format a vector of numbers based on their distribution, removing non-informative digits.

Usage

```
isVecNumeric(v)
num2formattedStr(v,intTypeCutoff)
```

Arguments

v	(vector) a numeric or char vector
intTypeCutoff	(integer, 10) if a number is an integer and its absolute value is less than intTypeCutoff, don't format. Set NULL to disable.

Details

`isVecNumeric` determines whether a vector, numeric or not, contains numbers only. This function is used because often numeric columns are accidently formatted as character or factor classes. If TRUE from `isVecNumeric`, `num2formattedStr` makes decision on the following four aspects of formatting based on the min, median, max values of the vector, so that the formatted numbers carry enough information and are in a length less than 10 characters.

- number of significant digits
- number of decimal points
- whether to apply 1000 separator ','
- whether to apply scientific notation

Value

(boolean) by `isVecNumeric`

(character vector) formatted numbers in character by `num2formattedStr`

Examples

```
library(wfr)
v1=c(-1032.789, 389.4789, 78.00)
num2formattedStr(v1)
v1=c(3.00, 8.00, -10.000)
num2formattedStr(v1)
v1=c(-0.1289, 0.0489, 0.0003765)
num2formattedStr(v1)
v1=c(-0.1289, 0.0489, 0.03765, NA, Inf, -Inf, NaN)
num2formattedStr(v1)
```

```
v1=c(-0.1289, 0.0489, 0.03765, NA,'', Inf, -Inf, NaN)
class(v1)
num2formattedStr(v1)
```

`rmdTable` *Construct a table*

Description

Construct a table in html, pdf, or word document, format the numeric columns, and automatically setting column widths.

Usage

```
rmdTable(dataDf, header = list(colnames(dataDf)), footer = NULL,
         colWidths = NULL, fontSize = 11, caption = NULL,
         rowHeaderInd = NULL, isDocx = TRUE, nRowScroll = 20,
         nRowDisplay = 200, maxTableWidth = 7,
         theme = c("zebra","box","booktabs","vanilla","tron","vader"),
         char2space=NULL, splitCamelCase=FALSE,
         footerFontSize=9, minFontSize=9,...)

myFlexTable(dataDf,header=list(colnames(dataDf)), footer = NULL,
            colWidths = NULL, fontSize = 11, caption = NULL,
            rowHeaderInd = NULL, mergeBodyColumn = TRUE, maxTableWidth = 7,
            theme = c("zebra","box","booktabs","vanilla","tron","vader"),
            char2space=NULL, splitCamelCase=FALSE,
            footerFontSize=9, minFontSize=9,...)

myKable(dataDf,header = list(colnames(dataDf)), footer = NULL,
        caption = NULL, rowHeaderInd = NULL, nRowScroll = 20,
        theme = c("zebra","box","vanilla"),...)

setFlexTableFontSize(ft,fontSize,footerFontSize=9)
```

Arguments

`dataDf`	(data.frame or matrix) the content of the table to be displayed
`header`	(character or list of character vectors, list(colnames(dataDf)))

- list: each vector is the column title. The last vector replaces the `colnames(dataDf)`. Neighboring cells of identical content in the header will be merged into one cell. For `myKable`, merge is only horizontal and not on the last row.
- character: use 'I' to separate cell, and 'II' to separate rows. It is converted to list using str2list

`footer` (character or list of character vectors, NULL)

- list: each vector contains the following items:

1. (optional, character). The cell content which the footnote refers to.
2. (character). The content of the footer. use `$~i$` and `$^i$` to represent the sub/super-script of `i`
3. (optional, character). The super-script of #1
4. (optional, character, "header" or "body") the portion of the table where #1 is to be searched. If "body", only the columns in `rowHeaderInd` are searched.

- character: use 'I' to separate cell, and 'II' to separate rows. It is converted to list using `str2list`

`colWidths` (character or numeric vector, NULL). For `myFlexTable` only, the column widths, a numerical vector of the length of `ncol(dataDf)`. Unit is inch. It can also be a character string where the numbers are separated by ',', e.g. "2,1,1,1".

`fontSize` (integer, 10) For `myFlexTable` only, the font size of the header and body. Font size of footer is `fontSize - 2`.

`caption` (character, NULL) the caption of the table.

`rowHeaderInd` (integer, NULL). Row headers are the columns in the left of table body serving as headers for rows in the table body. `rowHeaderInd` are the last index of those columns, so the column indices of row headers is `1:rowHeaderInd`. If `rowHeaderInd` is specified, the font of row header becomes bold, and neighboring cells of identical content are collapsed. The merge can be both horizontal and vertical in `myFlexTable`, and only vertical in `myKable`.

`mergeBodyColumn`

(boolean, TRUE) `if(mergeBodyColumn && rowHeaderInd > 1)`, neighboring horizontal cells in table body are merged if they are in rows where exists identical neighboring horizontal cells in row header. This flag is to prevent, if set to `FALSE`, the merging of identical neighboring horizontal cells in table body, when the intention is to limit such merging to row header only.

`isDocx` (boolean, TRUE) if `TRUE`, use `myFlexTable`; otherwise, `myKable`

`nRowScroll` (integer, 20) For `myKable` only, the cutoff on number of rows to apply a scroll window.

`nRowDisplay` (integer, 200) For `myFlexTable` only, the cutoff on number of rows to display. If there are more than `nRowDisplay` rows in the table, the caption of the table is appended "(top `nRowDisplay` rows only)".

`theme` (character) The theme of the table.

`maxTableWidth,minFontSize`

see those parameters in `setWidths`. For `myFlexTable` only.

`char2space` (character string, NULL) A regular expression. Should the characters represented by this regular expression in the bottom row of column header be changed to space? If so, when the column header is wrapped, the wrapping happens at a space in stead of the middle of a word. For example, setting `char2space = '[^A-z0-9]'` changes all non-letter and non-digit characters into space.

`splitCamelCase` (boolean, FALSE) Should the camel cases in the 1st row of column header be split into separated words? for example, change "youMadeItLOL" into "you Made It LOL". If so, when a column header in camel case is wrapped, the wrapping happens at a space in stead of the middle of a word.

footerFontSize	(integer,9) For myFlexTable only; the size of footer font.
ft	a flextable object
intTypeCutoff	(integer, 10) if a number is an integer and its absolute value is less than intTypeCutoff, don't format. Set NULL to disable.
...	if isDocx, passed to flextable::flextable(), and kableExtra::kable() otherwise.

Details

myFlexTable and myKable are wrapper functions of flextable and kable, and rmdTable is a wrapper of the two wrappers with isDocx TRUE referring to myFlexTable and FALSE to myKable

Value

(flextable or kable object)

Note

Numeric columns are formatted using num2formattedStr. If a numeric column is not formatted in the displayed table, probably it is because its data type in dataDf is not numeric or integer.

See Also

num2formattedStr, flextable, kable

Examples

```
library(wfr)
df1=data.frame(A=c("a","a","b3"),
               B=c("b1","b2","b3"),
               C1=c(1001.123,58.04,32.01),
               C2=c(-0.00321, 0.0121, 0.325))

header=list(c('A','A','C','C'),
            c('A','A','C1','C2'))

footer=list(c("A","Arkansas$~ref$",'1','header'),
            c("C1","Kansas$^ref$",'x','header'),
            c('a',"Arizona",'2','body'))

rmdTable(df1,header = header,
           rowHeaderInd = 2,
           footer = footer,
           caption = "my first table",
           colWidths = c(2,1,1,1),
           fontSize = 12, isDocx = TRUE)

colWidths = "2,1,1,1"
header = "A | A | C | C || A | A | C1 | C2"
footer = "A|Arkansas$~ref$|1|header
               || C1|Kansas$^ref$|x|header
```

```
                || a|Arizona|2|body"

rmdTable(df1,header = header,
           rowHeaderInd = 2,
           footer = footer,
           caption = "my second table",
           colWidths = colWidths,
           fontSize = 12, isDocx = TRUE)
```

`saveOutput` *Save the current R image or the object rds file and add its information to the matrix OUTPUTS*

Description

Save the current R image or the object rds file and optionally other formats of the object (e.g. csv for tables and png for figures), its caption, and other information related to its appearance in the R markdown file, to the matrix OUTPUTS

Usage

```
saveOutput(obj=NULL,oFileName, saveWorkspace=FALSE, oPath=getwd(), caption=NA ,
           rmdInd=NA, eval=TRUE,objID=NA, header=NA, footer=NA,
           rowHeaderInd=NA, colWidths=NA, fontSize=11, nRowScroll = 20,
           nRowDisplay = 200, maxTableWidth = 7.2, theme = "zebra",
           numberOutputFiles=TRUE,...)

ofcmm(num=1)
```

Arguments

`obj`	The target object, usually a data.frame or ggplot object. If `NULL`, `oFileName` can be used to insert an existing figure file into `OUTPUTS`, so that the figure file can be auto-included into the Rmd file produced by `createRmd` function.
`oFileName`	(character). The file name of the text (e.g. csv) or image (e.g. png) file of the `obj` to save. Can contain relative or absolute file paths; Use, e.g. `./path1/my.csv`, instead of `path1/my.csv` to include a relative path into the file name. If `oFileName` contains either a relative or absolute path, the `oPath` will be replaced by the whole path.
`saveWorkspace`	(boolean, FALSE) • FALSE: Save the rds file of the `obj` only. If `oFileName` is provided, the rds file name is `paste0(ofNamePrefix,'.rds')`; otherwise, `paste0(sprintf("%03d", OFCOUNTER),'.rds')`. • TRUE: In addition to the rds file, save the R image of the workspace where `obj` is generated as `paste0(sprintf("%03d", OFCOUNTER),'.r.image.rdata')`
`oPath`	(character, getwd()). The output path.

caption	(character, NA). The caption of the target object.
rmdInd	(integer, OFCOUNTER). The order to display obj in the Rmd file.
eval	(boolean, TRUE). Should the obj be included/evaluated in the Rmd file?
objID	(character, NA, or paste0('tab',OFCOUNTER), or paste0('fig',OFCOUNTER)). The label of the obj in the Rmd code chunk. Its default value depends on the data type of obj: paste0('tab',OFCOUNTER) for data.frame or matrix, paste0('fig',OFCOUNTER) for ggplot, and NA otherwise. If provided, it is cleaned by gsub("[^A-Za-z0-9]","",objID), and prefixed by tab or fig depending on the type of obj. If it's already present in OUTPUTS[,"objID"], OFCOUNTER is appended, i.e. objID = paste0(objID,OFCOUNTER), to make it unique.
header	(character, NA). The header of the obj, if it is displayed as a table in the Rmd file. See parameter header of rmdTable for more details and its character representation.
footer	(character, NA). The footer of the obj, if it is displayed as a table in the Rmd file. See parameter footer of rmdTable for more details and its character representation.
colWidths	(character, NA). The column width of the obj, if it is displayed as a table in the Rmd file. See parameter colWidths of rmdTable for more details and its character representation.
rowHeaderInd, fontSize, nRowScroll, nRowDisplay, maxTableWidth, theme	Parameters for obj, if it is displayed as a table in the Rmd file. See same parameters in rmdTable for more details.
numberOutputFiles	(boolean, TRUE). Should the output files be numbered?
...	parameters passed to write.csv or ggsave to save the obj, if a data.frame or matrix, as text file.
num	the number to deduct from OFCOUNTER

Details

For the simplicity of coding, two global variables are created for this function:

- OFCOUNTER (integer,1). A global variable to count the number of outputs, initial value is 1.
- OUTPUTS (character matrix, NULL). A global variable to record the information of the current r image file and obj. At the 1st run of saveOutput, it is assigned to be a character matrix of following columns:
  - rImageName The name of saved R image or rds file, depending on the flag saveWorkspace.
  - all other parameters of saveOutput except obj, and values assigned by them.

saveOutput does the following:

1. Save the current R image as paste0(sprintf("%03d", OFCOUNTER),'.r.image.rdata') or the object rds file in the oPath directory.
2. If oFileName is provided, save obj as paste0(sprintf("%03d", OFCOUNTER),'.',oFileName) in the oPath directory, using either utils::write.csv or ggplot2::ggsave depending on the data type of obj

3. Create the matrix OUTPUTS if it is NULL, and assign the values of all other parameters to corresponding columns in OUTPUTS
4. Increment OFCOUNTER by 1

ofcmm deducts OFCOUNTER by num. It can be used to remove the information appended to OUTPUTS from running saveOutput.

Value

none

See Also

OUTPUTS, OFCOUNTER

Examples

```
library(wfr)
library(ggplot2)

print(OFCOUNTER)
print(OUTPUTS)

df1=data.frame(A=c("a","a","b3"),
               B=c("b1","b2","b3"),
               C1=1:3,C2=2:4)

  tmpDir = tempdir()
  ofn = file.path(tmpDir, "tab.1.csv")
  saveOutput(df1, oFileName=ofn, caption="this is a wrong caption")
  print(OFCOUNTER)
  print(OUTPUTS)
  ofcmm()
  print(OFCOUNTER)
  saveOutput(df1, oFileName=ofn, caption="this is the correct caption")
  print(OUTPUTS)


print(OFCOUNTER)
print(OUTPUTS)


  ofn = file.path(tmpDir, "fig.1.png")
  saveOutput(qplot(1:10,1:10), oFileName=ofn, caption="this is a testing plot")


print(OFCOUNTER)
print(OUTPUTS)
```

saveWfrInfo *save and read back the values of OFCOUNTER and OUTPUTS*

Description

these functions are used in R scripts that are separate and run in order, using the SAME OFCOUNTER and OUTPUTS

Usage

```
saveWfrInfo(rdsFileName)
restoreWfrInfo(rdsFileName)
```

Arguments

rdsFileName	The name of the rds file keeping the values of OFCOUNTER and OUTPUTS

Details

The rds file is a `list(ofc=OFCOUNTER,outp=OUTPUTS)`

Value

(list) by `restoreWfrInfo`

See Also

OFCOUNTER and OUTPUTS

setHtmlHeaderProperty *Set the formatting properties of Title, Author, and Date in Rmd file*

Description

Font size in px, font family, and color can be set. Alignment is center.

Usage

```
setHtmlHeaderProperty(
    titleFontSize = NULL, titleFontFamily = NULL, titleColor = NULL,
    authorFontSize = NULL, authorFontFamily = NULL, authorColor = NULL,
    dateFontSize = NULL, dateFontFamily = NULL, dateColor = NULL,
    pageWidth=NULL,tableWidth = 100)
```

Arguments

titleFontSize	
titleFontFamily	
titleColor	
authorFontSize	
authorFontFamily	
authorColor	
dateFontSize	
dateFontFamily	
dateColor	
pageWidth	(numeric) the page width in px
tableWidth	(numeric) the percentage of table width over page width

References

stackoverflow link

Examples

```
setHtmlHeaderProperty(titleFontSize=18,
    titleFontFamily='"Times New Roman", Times, serif',
    titleColor='DarkBlue')
```

---

setNsmall *Set the nSmall of a number, and convert it to character*

Description

set the nsmall, i.e. number of decimal points, of a number, and convert it to character; 1000 separator ',' is added if `max(abs(v)) > 999`.

Usage

```
setNsmall(v, nSmall, keepInt)
```

Arguments

v	(numeric or integer vector) a number vector
nSmall	(integer) nsmall, i.e. number of decimal points, of a number (0 <= nsmall <= 20)
keepInt	(logical, F) if TRUE, don't format integers

Value

(character vector) formatted numbers in character

Note

This is an internal function used in num2formattedStr

See Also

format, num2formattedStr

Examples

```
setNsmall(c(1.003,2.1),2)
```

---

setWidths *Set column widths of a table*

Description

Properly setting column widths given the maximum width of the table, for non-html output only.

Usage

```
setWidths(x, header1, maxTableWidth = 7, rowHeaderInd = NULL,
          minFontSize=9, nRowPerRowHeader=NULL)
breakRatio(aStr)
```

Arguments

x	A flextable object
header1	(character vector) the first row of the column header
maxTableWidth	(numeric, 7.0) the maximum width of the table in inch. The default 7.0 corresponds to "PAGE LAYOUT" > "size" > "letter"; "Margins" > "Moderate" in MS Word.
rowHeaderInd	(integer, NULL) See rowHeaderInd in rmdTable. Because row headers are bold font, their lengths in inch is increased by 10%.
minFontSize	(integer, 9) The minimum font size in table body.
nRowPerRowHeader	(integer vector, NULL) The average number of rows spanned by each row header under a row header index. So it's a vector of length rowHeaderInd.
aStr	(a character string) The string is the content of a header cell.

Details

`setWidths` sets the width of each column of a table to fit `maxTableWidth`. Here is a brief description of its algorithm:

let `HBWidths = mapply(max, wHeader,wBody)`

1. if(sum(HBWidths) <= maxTableWidth), set HBWidths to be the final table widths.
2. Else if(sum(HBWidths)/maxTableWidth < 1.08), reducing font size by 1, set HBWidths*0.92 to be the final table widths.
3. Else
   (a) For columns where the header is longer than the body and the header is a single word, wrap the header at a non-letter character closest to the middle of the header.
   (b) If the table still doesn't fit, further wrapping the columns of row headers if any, and if the cells under those columns span vertically across multiple cells.
   (c) If the table still doesn't fit, reduce font size up to `minFontSize`
   (d) If the table still doesn't fit, wrap the table body, staring from the longest table columns, until the table fits.

`breakRatio` computes the wrapping point of a header.

Value

(numeric) by `breakRatio`, the ratio of the original length after wrapping. (list) by `setWidths`. The list contains 1)widths: a numeric vector of column widths and 2)fs: the new font size.

---

showObj *Display an object in knitr code chunk*

Description

Display an object in knitr code chunk and set the caption with cross reference.

Usage

```
showObj(oDf,objID=NULL,isDocx=FALSE,...)
```

Arguments

`oDf`	(data.frame or matrix) Refers to `OUTPUTS`, the table containing the information of saved objects.
`isDocx`	(boolean, FALSE) is the Rmd output word_document2?
`objID`	(character, NULL) The objID of the object in `oDf`. If NULL, it is assigned the `label` of the code chunk. But when running the code chunk alone, e.g. for debugging, the `label` is not accessible and must be explicitly supplied.
`...`	parameters passed to `rmdTable` to define table properties. Unsupplied properties are taken from the corresponding columns on the row identified by `objID`, if those cells are not `NA`.

Value

An object identified by `objID`, can be a ggplot2 or a table (flextable if `isDocx` `T`; kable otherwise)

See Also

`rmdTable` `OUTPUTS`

Examples

```
library(wfr)
library(ggplot2)
isDocx=TRUE

df1=data.frame(A=c("a","a","b3"),
               B=c("b1","b2","b3"),
               C1=1:3,C2=2:4)
colWidth = "2,1,1,1"
header = "A | A | C | C || A | A | C1 | C2"
footer = "A|Arkansas$~ref$|1|header
|| C1|Kansas$^ref$|x|header
|| a|Arizona|2|body"


    tmpDir = tempdir()
    ofn = file.path(tmpDir, "t1.csv")
    saveOutput(df1,ofn,caption = "1st testing table",header = header,
               footer = footer, colWidth = colWidth,fontSize = 12 )
    saveOutput(qplot(1:10,1:10),oPath=tmpDir, caption = "1st testing fig")

    ofn = file.path(tmpDir, "all.outputs.csv")
    write.csv(OUTPUTS,ofn)

    oDf=read.csv(ofn,stringsAsFactors = FALSE)
    showObj(oDf,isDocx,objID = "tab1",rowHeaderInd=2)
    showObj(oDf,objID = "fig2")
```

`str2list` *Convert a character string to list of character vectors*

Description

In the character string, 'I' separates items inside a vector; 'II' separates vectors.

Usage

```
str2list(x)
```

Arguments

x	(character) a character string

Value

(list of character vectors)

Note

This is an internal function used in rmdTable so that header and footer can accept character string.

See Also

rmdTable

Examples

```
str2list("A | A | C | C || A | A | C1 | C2")
```

---

table.cross.ref *Create the cross-reference string, and the caption of a table with cross-reference*

Description

tRef creates the cross-reference string, and tCap creates the caption.

Usage

```
tRef(label, isDocx)
tCap(cap, label, isDocx)
```

Arguments

cap	(character) the original caption string
label	(character) the label of the table in the knitr code chunk
isDocx	(boolean) is the output format of the Rmd file word_document2?

Details

Because the current version of flextablev0.5.5 does not work with bookdownv0.12 in automatically producing table cross-reference, these functions are a workaround.

Value

(character) If `isDocx` is `FALSE`, `tRef` returns `Table \@ref(tab:label)` and `tCap` simply returns `cap`; otherwise, `tRef` returns `Table. x` and `tCap` returns `Table. x cap`, where `x` is the ordered index of the table.

Examples

```
library(wfr)
tCap("first table","tab1",FALSE)
tCap("first table","tab1",TRUE)
tCap("second table","tab2",TRUE)
tCap("first table","tab1",TRUE)

tRef("tab2",TRUE)
tRef("tab1",TRUE)
```

`template.files` *A R markdown and a Word template file*

Description

A R markdown template file that can produce 'MS Word', html, or pdf file based on a flag, and a 'MS Word' template file on which the style of Word output file is based on.

Details

This R markdown template can produce 'MS Word', html, or pdf file based on the flag `oFormat` on line 3. The style of 'MS Word' format is based on the 'MS Word' template file. They can be accessed by

- `system.file("extdata", "rmd.template.Rmd", package = "wfr")`
- `system.file("extdata", "word.template.for.Rmd.docx", package = "wfr")`

Function `createRmd` appends knitr code chunks to this Rmd template to form the final Rmd file.

`writeExcel` *Save the `OUTPUTS` to an Excel file*

Description

While writing the `OUTPUTS` to an Excel file, column `oFileName` is embedded with URL `file.path(df1[,"oPath"],df1[,"o`

Usage

```
writeExcel(fileName, ...)
```

Arguments

fileName	(character) The name of the Excel file with extension 'xlsx'. Can contain relative or absolute file paths.
...	parameters passed to write.xlsx

Details

It is not a general function to save a data.frame or matrix to an Excel file. And there is no append mode; the target file will be covered if already present.

Value

none

See Also

write.xlsx

Examples

```
library(wfr)
library(openxlsx)
library(ggplot2)
df1=data.frame(A=c("a","a","b3"),
               B=c("b1","b2","b3"),
               C1=1:3,C2=2:4)
colWidth = "2,1,1,1"
header = "A | A | C | C || A | A | C1 | C2"
footer = "A|Arkansas$~ref$|1|header
|| C1|Kansas$^ref$|x|header
|| a|Arizona|2|body"


  tmpDir = tempdir()
  ofn = file.path(tmpDir, "tab.1.csv")
  saveOutput(df1,ofn,caption = "1st testing table",header = header,
             footer = footer,colWidth = colWidth,fontSize = 12 )

  saveOutput(qplot(1:10,1:10),oPath=tmpDir,caption = "1st testing fig")

  fn1=file.path(tmpDir, "output.xlsx")
  writeExcel(fn1)
  df2=read.xlsx(fn1)
```

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