Package 'goxygen'

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Type Package

Title In-Code Documentation for 'GAMS'

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Description
A collection of tools which extract a model documentation from 'GAMS' code and comments. In order to use the package you need to install 'pandoc' and 'pandoc-citeproc' first (<https://pandoc.org/>).

Imports pander, stringi, gms (>= 0.26.3), citation, withr, yaml

Suggests testthat, knitr, rmarkdown, covr, qgraph

SystemRequirements pandoc, pandoc-citeproc

URL https://github.com/pik-piam/goxygen,
https://doi.org/10.5281/zenodo.1411404

BugReports https://github.com/pik-piam/goxygen/issues

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NeedsCompilation no

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Contents

`.empty` *.empty*

Description

helper function which adds an empty line in a markdown document

Usage

```
.empty(zz)
```

Arguments

`zz`	a connection object of class "textConnection" containing the markdown document

Author(s)

Jan Philipp Dietrich

See Also

goxygen, createModulePage

.header *.header*

Description

helper function which writes a title for a markdown section

Usage

```
.header(zz, title, level, id = NULL)
```

Arguments

zz	a connection object of class "textConnection" containing the markdown document
title	the title to be used (character vector of length 1)
level	level of the heading (1 means main header, higher numbers reflect lower levels)
id	ID given to the title (relevant for anchors)

Author(s)

Jan Philipp Dietrich

See Also

goxygen, createModulePage

.interfaceplot *.interfaceplot*

Description

helper function which includes interface plot figures in a markdown document, if available. The figures need to be created beforehand.

Usage

```
.interfaceplot(zz, name, docfolder)
```

Arguments

zz	a connection object of class "textConnection" containing the markdown document
name	Name of the module for which the interfaceplot should be shown
docfolder	folder the documentation should be written to relative to model folder

Author(s)

Jan Philipp Dietrich

See Also

goxygen, createModulePage

.limitations *.limitations*

Description

helper function which adds a "limitations" section.

Usage

```
.limitations(zz, limitations, emptyIfNULL = FALSE)
```

Arguments

zz	a connection object of class "textConnection" containing the markdown document
limitations	A character vector containing the given limitations
emptyIfNULL	switch which decides whether limitations section should be ignored, if limitations input is NULL or if it should state that there are no known limitations.

Author(s)

Jan Philipp Dietrich

See Also

goxygen, createModulePage

.section *.section*

Description

helper function which creates a section consisting of header and content in a markdown document and skips section when content is empty

Usage

```
.section(data, zz, title, level, id = NULL)
```

Arguments

data	a character vector to be written to the markdown document
zz	a connection object of class "textConnection" containing the markdown document
title	the title to be used (character vector of length 1)
level	level of the heading (1 means main header, higher numbers reflect lower levels)
id	ID given to the title (relevant for anchors)

Author(s)

Falk Benke

See Also

goxygen, createModulePage

.updateImagePaths *.updateImagePaths*

Description

helper function which updates relative image paths so that they refer to a subfolder images instead of refering to the current folder.

Usage

```
.updateImagePaths(x)
```

Arguments

x	A character vector containing image paths.

Author(s)

Jan Philipp Dietrich

See Also

goxygen, createModulePage

.write *.write*

Description

helper function which writes a character vector line by line in a markdown document

Usage

```
.write(zz, data)
```

Arguments

zz	a connection object of class "textConnection" containing the markdown document
data	a character vector to be written to the markdown document

Author(s)

Jan Philipp Dietrich

See Also

goxygen, createModulePage

---

appendExtraPageBlocks *appendExtraPageBlocks*

Description

A helper to merge two nested lists describing extra page blocks. The lists have the page name on the first level and flattened documentation blocks on the second level. It is ensured that elements for the same page are grouped in the same list.

Usage

```
appendExtraPageBlocks(blocks, add)
```

Arguments

blocks	a nested list for extra page blocks per page
add	a seccond nested list for extra page blocks per page to be appended to the first one

Author(s)

Falk Benke

---

buildHTML *buildHTML*

Description

Converts a folder with markdown files and a corresponding literature library (if available) to HTML files and creates cross-links between them.

Usage

```
buildHTML(
  style = "classic",
  folder = "html",
  mdfolder = "markdown",
  literature = "literature.bib",
  citation = "../CITATION.cff",
  supplementary = "images",
  debug = FALSE,
  templatefolder = ".."
)
```

Arguments

style	visualization style to be used for the creation. Currently available styles are "classic" and "ming"
folder	location the HTML files should be written to
mdfolder	path to the markdown folder to be used as source
literature	path to a bibliography, if available (will be ignored if file does not exist)
citation	Citation information in citation file format (optional)
supplementary	a vector of files and/or folders required for the conversion (e.g. an images sub-directory with figures to be shown in the documents)
debug	logical which switches on/off a debug mode which will return additional status updates and keep build files
templatefolder	Folder in which goxygen will search for template files in addition to the pre-installed ones.

Details

Pandoc (https://pandoc.org/) together with pandoc-citeproc need to be installed on the system.

Author(s)

Jan Philipp Dietrich

See Also

goxygen, buildTEX

---

buildMarkdown *buildMarkdown*

Description

Creates a folder filled with markdown files from a list object with markdown code

Usage

```
buildMarkdown(x, folder = "markdown")
```

Arguments

x	a named list of markdown codes which should be written as markdown files. The name of each entry will become the file name.
folder	folder the markdown files should be written to

Author(s)

Jan Philipp Dietrich

See Also

goxygen, buildHTML

buildTEX *buildTEX*

Description

Converts a folder with markdown files and a corresponding literature library (if available) to a tex file

Usage

```
buildTEX(
  file = "documentation.tex",
  mdfolder = "markdown",
  literature = "literature.bib",
  citation = "../CITATION.cff",
  supplementary = NULL,
  pdf = TRUE,
  style = "classic",
  templatefolder = ".."
)
```

Arguments

file	name of the tex file to be written
mdfolder	path to the markdown folder to be used as source
literature	path to a bibliography, if available (will be ignored if file does not exist)
citation	Citation information in citation file format (optional)
supplementary	a vector of files and/or folders required for the conversion (e.g. an images subdirectory with figures to be shown in the documents)
pdf	boolean which specifies whether pdf file should be generated from tex
style	visualization style to be used for the Latex/PDF creation. Currently only "classic" style is available. Ignored for outputs other than Latex/PDF. Can be extended by additional templates stored in the `templatefolder` in the format `<style>.latex`. Classic template `system.file("templates","classic.latex",package="goxygen` can serve as a starting point for own templates.
templatefolder	Folder in which goxygen will search for template files in addition to the preinstalled ones.

Details

Pandoc (https://pandoc.org/) together with pandoc-citeproc need to be installed on the system.

Author(s)

Jan Philipp Dietrich, Kristine Karstens

See Also

goxygen, buildHTML

---

check_pandoc *check_pandoc*

Description

Support function which checks pandoc availability and stops with an error in case that pandoc cannot be found

Usage

```
check_pandoc(error = FALSE)
```

Arguments

error	boolean indicating whether function should throw an error in case of missing pandoc or return a boolean FALSE.

Value

boolean indicating whether pandoc is available or not.

Author(s)

Jan Philipp Dietrich

---

chooseTemplate *chooseTemplate*

Description

Support function helping to choose the selected template

Usage

```
chooseTemplate(style, templatefolder, ftype = NULL)
```

Arguments

style	visualization style to be used for the creation.
templatefolder	Folder in which goxygen will search for template files in addition to the pre-installed ones.
ftype	template file type / file ending, or NULL if looking for a whole directory

Author(s)

Jan Philipp Dietrich

See Also

goxygen, buildTEX

---

createIndexPage *createIndexPage*

Description

Creates markdown code from a supplied data list

Usage

```
createIndexPage(data)
```

Arguments

data	a list of data entries for the resulting markdown page. Following entries can be provided: **title** Page title **description** General description **citation** A read in citation in Citation File Format (CFF)

Value

a character vector containing the produced markdown text

Author(s)

Jan Philipp Dietrich

See Also

goxygen

createListModularCode *createListModularCode*

Description

support function to create documentation of modular GAMS code.

Usage

```
createListModularCode(
  cc,
  interfaces,
  path = ".",
  citation = NULL,
  unitPattern = c("\\(", "\\)"),
  includeCore = FALSE,
  mainfile = "main.gms",
  docfolder = "doc",
  startType = "equations"
)
```

Arguments

cc	codeCheck information
interfaces	interface information
path	path to the model to be documented
citation	citation data read from a CFF file
unitPattern	pattern that is usedto identify the unit in the description, default =c("\(","\)")
includeCore	Boolean whether core should be included or not, default=FALSE
mainfile	main file of the model
docfolder	folder the documentation should be written to relative to model folder
startType	input parameter for extractDocumentation to be passed when extracting documentation from realizations. Defaults to "equations", meaning that documentation in realizations should be interpreted as equations documentation, if no identifier is set.

Author(s)

Jan Philipp Dietrich

See Also

codeCheck

createListSimpleCode *createListSimpleCode*

Description

support function to create documentation of non-modular GAMS code.

Usage

```
createListSimpleCode(path = ".", citation = NULL, mainfile = "main.gms")
```

Arguments

path	path to the model to be documented
citation	citation data read from a CFF file
mainfile	main file of the model

Author(s)

Jan Philipp Dietrich

See Also

codeCheck

createModulePage *createModulePage*

Description

Creates markdown code from a supplied data list

Usage

```
createModulePage(data, docfolder)
```

Arguments

data	a list of data entries for the resulting markdown page. Following entries can be provided: **name** Name of the module **title** Page title **description** General description **input** Table containing inputs to the module

output Table containing outputs from the module

realizations A list of realizations with entries "description" and "limitations" for each of them

declarations Table of declarations for internal objects

stes Table containing sets used in the module

authors Module authors

seealso A vector with names of relevant other documentation pages.

`docfolder` folder the documentation should be written to relative to model folder

Value

a character vector containing the produced markdown text

Author(s)

Jan Philipp Dietrich

See Also

`goxygen`

`createSimplePage` *createSimplePage*

Description

Creates markdown code from a supplied data list

Usage

```
createSimplePage(data)
```

Arguments

`data` a list of data entries for the resulting markdown page. Following entries can be provided:

title Page title

description General description

limitations Limitations the implementation comes with

authors Module authors

Value

a character vector containing the produced markdown text

Author(s)

Jan Philipp Dietrich

See Also

goxygen

`extractDocumentation` *extractDocumentation*

Description

Extracts doxygen-like GAMS documentation. Entries are introduced with an @type at the beginning of the line. In case of @realization also GAMS code is read and interpreted, in all other cases only the specific documentation comment is evaluated.

Usage

```
extractDocumentation(path, startType = NULL, comment = "*'")
```

Arguments

`path`	path to the file(s) which should be evaluated
`startType`	set type for first line of code. This can be useful to extract documentation even if no documentation type has been set (e.g reading equations.gms as type realization)
`comment`	comment chars used for documentation comments

Value

a nested list of documentation pieces with type as name of each element. Each element contains two lists ‘content‘ containing the actual documentation and ‘cfg‘ containing optional attributes passed with the type.

Author(s)

Jan Philipp Dietrich

See Also

goxygen

Examples

```
mainfile <- paste0(system.file("dummymodel", package = "gms"), "/main.gms")
calcfile <- paste0(system.file("dummymodel", package = "gms"),
                           "/modules/02_crazymodule/complex/calculations.gms")
# extracting information from the main file of the model
extractDocumentation(mainfile)
# extracting information from a file with some equations in it
extractDocumentation(calcfile)
```

`flattenPageBlockList` *flattenPageBlockList*

Description

A helper that processes additional attributes for a given list of code documentation blocks. Code documentation blocks are described as lists consisting of ‘content‘ containing the documentation and a ‘cfg‘ list containing attributes.

Usage

```
flattenPageBlockList(data)
```

Arguments

`data`	a list of documentation pieces with type as name of each element

Details

If a block entry has the ‘cgf‘ attribute ‘extrapage‘, it is moved to a separate list ‘extraPageBlocks‘ in the output, as these need to be rendered separately later.

Regular blocks without the ‘extrapage‘ attribute are moved to a list ‘blocks‘ and multiple blocks with the same name are merged into one block.

Cfg attributes other than ‘extrapage‘ are currently not supported and therefore ignored, but a warning is thrown.

After processing the ‘cfg‘ attributes, the code documentation blocks are flattened, i.e. a list consisting of a ‘content‘ and ‘cfg‘ entry is replaced by the data in ‘cfg‘.

This helper supports nesting of blocks in ‘realizations‘ with code documentation per realization.

Value

a list with two element (1) ‘blocks‘ containing the documentation elements with type as name of the element and (2) ‘extraPageBlocks‘ containing lists for blocks to be put on an extra pages, sorted by page names.

Author(s)

Falk Benke

gamsequation2tex *gamsequation2tex*

Description

Convert a gams equation into latex code

Usage

```
gamsequation2tex(x)
```

Arguments

x	GAMS equation provided as character

Value

GAMS equation converted to latex code

Author(s)

Jan Philipp Dietrich

See Also

goxygen

Examples

```
x <- "eq_1 .. v_a =e= sum(j,v_b(j)*((1-s_c)+sum(cell(i,j),v_d(i)/f_d(i))));"
cat(gamsequation2tex(x))
```

goxygen *goxygen*

Description

Documentation function which extracts a full model documentation from a modularized gams model. The function extracts comments used as documentation, extracts code and can extract and convert GAMS equations as latex code. Output is returned in Markdown, HTML and PDF format.

Usage

```
goxygen(
  path = ".",
  docfolder = "doc",
  cache = FALSE,
  output = c("html", "tex", "pdf"),
  htmlStyle = "ming",
  texStyle = "classic",
  templatefolder = ".",
  cff = "CITATION.cff",
  modularCode = is.modularGAMS(),
  unitPattern = c("\\(", "\\)"),
  includeCore = FALSE,
  mainfile = "main.gms",
  startType = "equations",
  ...
)
```

Arguments

path	path to the model to be documented
docfolder	folder the documentation should be written to relative to model folder
cache	Boolean to allow read data from existing cache file
output	List of output to be written, available are "html","pdf" and "tex"
htmlStyle	visualization style to be used for the HTML creation. Currently available styles are "classic" and "ming". Ignored for outputs other than HTML. Can be extended by additional templates stored in the `templatefolder` in the form `<style>.html5` together with a subfolder with supplementary files and the name of the style `<style>` (both need to be provided). The preinstalled ming template `system.file("templates","ming.` and `system.file("templates","ming.html5",package="goxygen")` can serve as a starting point for own templates.
texStyle	visualization style to be used for the Latex/PDF creation. Currently only "classic" style is available. Ignored for outputs other than Latex/PDF. Can be extended by additional templates stored in the `templatefolder` in the format `<style>.latex`. Classic template `system.file("templates","classic.latex",package="goxygen` can serve as a starting point for own templates.
templatefolder	Folder in which goxygen will search for template files in addition to the preinstalled ones.
cff	path to a citation file in citation-file-format (ignored if not existing)
modularCode	Boolean deciding whether code should be interpreted as modular GAMS code (only av)
unitPattern	pattern that is usedto identify the unit in the description, default =c("\(","\)")
includeCore	boolean whether core should be included or not, default=FALSE
mainfile	main file of the model
startType	input parameter for `createListModularCode`, default = "equations"
...	optional arguments to `interfaceplot`, passed via `modules_interfaceplot`.

Note

Documentation lines in the code must start with *' to be detected as documentation. Identifier at the beginning of each block describe what kind of documentation is given. All identifiers start with @ followed by the name of the identifier. Currently, following identifiers are available

- @title Title
- @authors List of authors
- @description Model description (only the documentation text will be interpreted)
- @equations Equation description (documentation text will be extracted and gams equations will be converted to latex code)
- @code Code description (documentation text and code will be extracted)
- @limitations details about limitations of an implementation
- @stop everything following will be ignored until the next identifier is mentioned again. Useful to stop a section

In addition you can store a model logo (100px height, 100px weight) as `logo.png` in the main folder of the model which then will be used in the HTML version of the documentation. If you want to add citations to your documentation you can do so by adding a bibtex file with the name literature.bib in the main folder of the model. To link these references in the text you can use the syntax `@<id>` in which "<id>" stands for the identifier given to the corresponding bibtex entry.

Author(s)

Jan Philipp Dietrich

See Also

codeCheck,interfaceplot

Examples

```
# make sure that pandoc is available
if (check_pandoc()) {
  # run goxygen for dummy model and store documentation as HTML in a temporary directory
  docfolder <- paste0(tempdir(), "/doc")
 goxygen(system.file("dummymodel", package = "gms"),  docfolder = docfolder, output = "html")
}
```

`oldBuildHTML` *oldBuildHTML*

Description

Converts a folder with markdown files and a corresponding literature library (if available) to HTML files and creates cross-links between them.

Usage

```
oldBuildHTML(
  folder = "html",
  mdfolder = "markdown",
  literature = "literature.bib",
  citation = "../CITATION.cff",
  supplementary = NULL,
  addHTML = NULL
)
```

Arguments

folder	location the HTML files should be written to
mdfolder	path to the markdown folder to be used as source
literature	path to a bibliography, if available (will be ignored if file does not exist)
citation	Citation information in citation file format (optional)
supplementary	a vector of files and/or folders required for the conversion (e.g. an images sub-directory with figures to be shown in the documents)
addHTML	character vector with HTML code which should be added to the body of each HTML file.

Details

Pandoc (https://pandoc.org/) together with pandoc-citeproc need to be installed on the system.

Author(s)

Jan Philipp Dietrich

See Also

goxygen, buildTEX

---

returnReferences *returnReferences*

Description

Support function to create a reference file linking references with corresponding adresses.

Usage

```
returnReferences(names, targets, file, level = 2)
```

Arguments

`names`	vector of reference names
`targets`	vector of reference adresses (same order and lengths as names)
`file`	name of the reference file to be written
`level`	level of the "References" title to be written

Author(s)

Jan Philipp Dietrich

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