Package ‘ready4’

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Title  Develop and Use Modular Health Economic Models
Version  0.1.14
Description  A template model module, tools to help find model modules derived from this template and a programming syntax to use these modules in health economic analyses. These elements are the foundation for a prototype software framework for developing living and transferable models and using those models in reproducible health economic analyses. The software framework is extended by other R libraries. For detailed documentation about the framework and how to use it visit <https://www.ready4-dev.com/>. For a background to the methodological issues that the framework is attempting to help solve, see Hamilton et al. (2024) <doi:10.1007/s40273-024-01378-8>.
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Imports  curl, dataverse, dplyr, gh, kableExtra, lifecycle, magrittr, methods, piggyback, purrr, rlang, rvest, stats, stringi, stringr, tibble, tidyRSS, tidyselect, tools, utils

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**Description**

`author()` is a method that authors and saves files.

**Usage**

```r
author(x, ...)  
```

**Arguments**

- `x`  
  A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)

- `...`  
  Additional arguments
Value

Either a model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method or no return value (when called for side-effects only).

---

authorClasses

**Author and document classes**

Description

authorClasses() is a method that authors and saves R package files for creating and documenting classes to describe the data structures of model modules.

Usage

```r
authorClasses(x, ...)
```

Arguments

- `x`: A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
- `...`: Additional arguments

Value

Either a model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method or no return value (when called for side-effects only).

---

authorData

**Author and document datasets**

Description

authorData() is a method that authors, documents and saves model module datasets.

Usage

```r
authorData(x, ...)
```

Arguments

- `x`: A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
- `...`: Additional arguments
authorFunctions

Value
Either a model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method or no return value (when called for side-effects only).

authorFunctions Author and document functions

Description
authorFunctions() is a method that authors and saves R package files necessary for creating and documenting functions that implement model module algorithms.

Usage
authorFunctions(x, ...)

Arguments
x A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
... Additional arguments

Value
Either a model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method or no return value (when called for side-effects only).

authorReport Author and save a report

Description
authorReport() is a method that authors and saves a report.

Usage
authorReport(x, ...)

Arguments
x A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
... Additional arguments
authorSlot

Apply the author method to a model module slot

Description

authorSlot() is a convenience method that applies the author method to a specified slot of a model module.

authorSlot method applied to Ready4Module

Usage

authorSlot(x, slot_nm_1L_chr, ...)

## S4 method for signature 'Ready4Module'
authorSlot(x, slot_nm_1L_chr, ...)

Arguments

x An object of class Ready4Module
slot_nm_1L_chr Slot name (a length one character vector)
... Additional arguments

Value

Either a model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or no value (when called for side-effects only).

Either a ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or no value (when called for side effects only).
Characterize model module data by generating (tabular) descriptive statistics

Description

characterize() is a method that generates descriptive tabular summaries about data contained in a model module.

Usage

characterize(x, ...)

Arguments

x A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
...

Additional arguments

Value

A data.frame, tibble or other table based class.

characterizeSlot() is a convenience method that applies the characterize method to a specified slot of a model module.

Usage

characterizeSlot(x, slot_nm_1L_chr, ...)

## S4 method for signature 'Ready4Module'
characterizeSlot(x, slot_nm_1L_chr, ...)

Arguments

x An object of class Ready4Module
slot_nm_1L_chr Slot name (a length one character vector)
...

Additional arguments
**Value**

Either a model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or a data.frame, tibble or other table class.

Either a ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or a data.frame, tibble or other table class.

---

**depict**

*Depict (plot) features of model module data*

---

**Description**

depict() is a method that plots features of data contained in a model module (or sub-module).

**Usage**

depict(x, ...)

**Arguments**

- **x**
  - A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
- **...**
  - Additional arguments

**Value**

A ggplot, gg or other plot type class.

---

**depictSlot**

*Apply the depict method to a model module slot*

---

**Description**

depictSlot() is a convenience method that applies the depict method to a specified slot of a model module.

depictSlot method applied to Ready4Module

**Usage**

depictSlot(x, slot_nm_1L_chr, ...)

## S4 method for signature 'Ready4Module'
depictSlot(x, slot_nm_1L_chr, ...)

---
**Arguments**

- `x` An object of class `Ready4Module`
- `slot_nm_1L_chr` Slot name (a length one character vector)
- `...` Additional arguments

**Value**

Either a model module (an instance of a class that inherits from `Ready4Module`) of the same class as that supplied to the method or no value (when called for side effects only).

Either a ready4 model module (an instance of a class that inherits from `Ready4Module`) of the same class as that supplied to the method or no value (when called for side effects only).

---

**Description**

`enhance()` is a method that adds new data fields (columns for tabular data, elements for arrays) and values to a model module by transforming it into a module of an inheriting class.

**Usage**

```r
enhance(x, ...)
```

**Arguments**

- `x` A model module (an instance of a class that inherits from `Ready4Module`) or submodule (any S3 class instance)
- `...` Additional arguments

**Value**

A model module (an instance of a class that inherits from `Ready4Module`) or submodule (any S3 class instance) of the same class as that supplied to the method.
**enhanceSlot**

Apply the enhance method to a model module slot

**Description**

enhanceSlot() is a convenience method that applies the enhance method to a specified slot a model module.

enhanceSlot method applied to Ready4Module

**Usage**

```
enhanceSlot(x, slot_nm_1L_chr, ...)
```

## S4 method for signature 'Ready4Module'

```
enhanceSlot(x, slot_nm_1L_chr, ...)
```

**Arguments**

- `x` An object of class Ready4Module
- `slot_nm_1L_chr` Slot name (a length one character vector)
- `...` Additional arguments

**Value**

A model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.

A ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.

---

**exhibit**

Exhibit features of model module data by printing them to the R console

**Description**

exhibit() is a method that prints to console selected features of data contained in a model module.

**Usage**

```
exhibit(x, ...)
```

**Arguments**

- `x` A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
- `...` Additional arguments
**Value**

A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method or no return value (when called for side-effects only).

**Description**

`exhibitSlot()` is a convenience method that applies the exhibit method to a specified slot a model module.

*exhibitSlot method applied to Ready4Module*

**Usage**

```r
exhibitSlot(x, slot_nm_1L_chr, ...)
```

```r
## S4 method for signature 'Ready4Module'
exhibitSlot(x, slot_nm_1L_chr, ...)
```

**Arguments**

- `x` An object of class Ready4Module
- `slot_nm_1L_chr` Slot name (a length one character vector)
- `...` Additional arguments

**Value**

Either a model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or no return value (when called purely for side-effects).

Either a ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or no return value (when called purely for side effects).
get_from_lup_obj

Get a value from a lookup table

Description

get_from_lup_obj() retrieves from a lookup table (a data.frame) the values in a target column for cases where values in a second column match a specified value.

Usage

get_from_lup_obj(
  data_lookup_tb,  
  match_value_xx,  
  match_var_nm_1L_chr,  
  target_var_nm_1L_chr,  
  evaluate_1L_lgl = FALSE  
)

Arguments

data_lookup_tb  Data lookup (a tibble)
match_value_xx  Match value (an output object of multiple potential types)
match_var_nm_1L_chr  Match variable name (a character vector of length one)
target_var_nm_1L_chr  Target variable name (a character vector of length one)
evaluate_1L_lgl  Evaluate (a logical vector of length one), Default: FALSE

Value

Cell value (an output object of multiple potential types)

Examples

lookup_tb <- tibble::tibble(Name = c("Sajid","Siobhan"),
                            Treat = c("Cake", "Chocolate"))
get_from_lup_obj(lookup_tb, match_value_xx = "Siobhan",
                  match_var_nm_1L_chr = "Name", target_var_nm_1L_chr = "Treat")
get_from_lup_obj(lookup_tb, match_value_xx = "Cake",
                  match_var_nm_1L_chr = "Treat", target_var_nm_1L_chr = "Name")
get_gracefully

Get data from the internet with graceful failure

Description

get_gracefully() attempts to retrieve objects from the internet but returns NULL and an informative message if there is no internet connection or the specified resource could not be found.

Usage

get_gracefully(
  url_1L_chr,
  args_ls = NULL,
  fn = readRDS,
  not_chr_1L_lgl = F,
  tests_chr = character(0)
)

Arguments

url_1L_chr  Url (a character vector of length one)
args_ls  Arguments (a list), Default: NULL
fn  Function (a function), Default: readRDS
not_chr_1L_lgl  Not character vector (a logical vector of length one), Default: F
tests_chr  Tests (a character vector), Default: character(0)

Value

Object (an output object of multiple potential types)

Examples

# Likely execution time greater than current CRAN limit.
get_gracefully(paste0("https://github.com/ready4-dev/ready4/",
"/releases/download/Documentation_0.0/ready4_badges_lup.RDS"))
get_gracefully("DOES NOT EXIST")
if(requireNamespace("dataverse", quietly = TRUE)) {
  get_gracefully("https://doi.org/10.7910/DVN/RIQTKK", fn = dataverse::dataset_files,
    args_ls = list(key = NULL, server = "dataverse.harvard.edu"))
  get_gracefully("https://doi.org/10.7910/DVN/RIQTKK", fn = dataverse::dataset_files,
    args_ls = list(key = NULL, server = "DOES_NOT_EXIST"))
  get_gracefully("DOES_NOT_EXIST", fn = dataverse::dataset_files,
    args_ls = list(key = NULL, server = "dataverse.harvard.edu"))
}
if (requireNamespace("gh", quietly = TRUE)) {
  get_gracefully("/orgs/ready4-dev/repos", fn = gh::gh, args_ls=list(type = "public"))
get_libraries_tb

Get a table of ready4 libraries

Description

get_libraries_tb() retrieves a tabular summary of ready4 libraries that have been developed within a specified GitHub organisation.

Usage

get_libraries_tb(github = "github::gh");

Arguments

gh_repo_1L_chr Github repository (a character vector of length one), Default: 'ready4-dev/ready4'
gh_tag_1L_chr Github tag (a character vector of length one), Default: 'Documentation_0.0'

Value

Libraries (a tibble)
**get_methods**

**Examples**

get_libraries_tb("ready4-dev/ready4")

---

**get_methods**  
Get the methods associated with a ready4 model module

**Description**

get_methods() retrieves the ready4 methods that are available for a specified ready4 model module.

**Usage**

get_methods(pkg_nm_1L_chr = "ready4", cls_nm_1L_chr = "Ready4Module")

**Arguments**

- **pkg_nm_1L_chr**: Package name (a character vector of length one), Default: 'ready4'
- **cls_nm_1L_chr**: Class name (a character vector of length one), Default: 'Ready4Module'

**Value**

Methods (a character vector)

**Examples**

get_methods()

---

**get_methods_tb**  
Get a table of methods associated with ready4 model modules

**Description**

get_methods_tb() ingests 'methods_tb.RDS' (a table of methods associated with ready4 model modules) from a specified GitHub repository release.

**Usage**

get_methods_tb(
  gh_repo_1L_chr = "ready4-dev/ready4",
  gh_tag_1L_chr = "Documentation_0.0"
)

**Arguments**

- **gh_repo_1L_chr**: Github repository (a character vector of length one), Default: 'ready4-dev/ready4'
- **gh_tag_1L_chr**: Github tag (a character vector of length one), Default: 'Documentation_0.0'
Value

Methods (a tibble)

Examples

get_methods_tb("ready4-dev/ready4")

get_modules_tb

Get a table of ready4 model modules

Description

get_modules_tb() ingests 'modules_tb.RDS' (a table of ready4 model modules) from a specified GitHub repository release.

Usage

get_modules_tb(
  gh_repo_1L_chr = "ready4-dev/ready4",
  gh_tag_1L_chr = "Documentation_0.0"
)

Arguments

gh_repo_1L_chr Github repository (a character vector of length one), Default: 'ready4-dev/ready4'
gh_tag_1L_chr Github tag (a character vector of length one), Default: 'Documentation_0.0'

Value

Modules (a tibble)

Examples

get_modules_tb("ready4-dev/ready4")
**ingest**

**Ingest data**

**Description**

`ingest()` is a method that ingests data saved in external files into a model module or submodule.

**Usage**

```r
ingest(x, ...)
```

**Arguments**

- `x` A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
- `...` Additional arguments

**Value**

A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance).

---

**ingestSlot**

**Apply the ingest method to a model module slot**

**Description**

`ingestSlot()` is a convenience method that applies the ingest method to a specified slot of a model module.

**Usage**

```r
ingestSlot(x, slot_nm_1L_chr, ...)
```

**Arguments**

- `x` An object of class Ready4Module
- `slot_nm_1L_chr` Slot name (a length one character vector)
- `...` Additional arguments
investigate

Investigate solutions to an inverse problem

Description

investigate() is a method that applies an algorithm to data contained in a model module in order to solve an inverse problem (i.e., identify a statistical model that can generate approximations of that data).

Usage

investigate(x, ...)

Arguments

x  A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
... Additional arguments

Value

A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance).

investigateSlot

Apply the investigate method to a model module slot

Description

investigateSlot() is a convenience method that applies the investigate method to a specified slot of a model module.

Usage

investigateSlot(x, slot_nm_1L_chr, ...)

# S4 method for signature 'Ready4Module'
investigateSlot(x, slot_nm_1L_chr, ...)

Value

A model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.

A ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.
Arguments

`x`     An object of class Ready4Module
`slot_nm_1L_chr`    Slot name (a length one character vector)
...

Value

A model module (an instance of a class that inherits from Ready4Module).

A ready4 model module (an instance of a class that inherits from Ready4Module).

Description

`make_code_releases_tbl()` scrapes the details of a specified GitHub repository to generate a release history of ready libraries and executables. To work all repositories without any release need to be supplied using the `exclude_chr` argument.

Usage

```r
make_code_releases_tbl(
  repo_type_1L_chr = c("Framework", "Module", "Package", "Program", "Subroutine", "Program_and_Subroutine"),
  as_kbl_1L_lgl = TRUE,
  brochure_repos_chr = character(0),
  exclude_chr = character(0),
  format_1L_chr = "%d-%b-%Y",
  frameoork_repos_chr = character(0),
  gh_repo_1L_chr = "ready4-dev/ready4",
  gh_tag_1L_chr = "Documentation_0.0",
  model_repos_chr = character(0),
  program_repos_chr = character(0),
  org_1L_chr = "ready4-dev",
  repos_chr = character(0),
  subroutine_repos_chr = character(0),
  tidy_desc_1L_lgl = TRUE,
  url_stub_1L_chr = "https://ready4-dev.github.io/",
  ...
)
```
Arguments

repo_type_1L_chr
Repository type (a character vector of length one), Default: c("Framework", "Module", "Package", "Program", "Subroutine", "Program_and_Subroutine")
as_kbl_1L_lgl  As kable (a logical vector of length one), Default: TRUE
brochure_repos_chr  Brochure repositories (a character vector), Default: character(0)
exclude_chr  Exclude (a character vector), Default: character(0)
format_1L_chr  Format (a character vector of length one), Default: '%d-%b-%Y'
framework_repos_chr  Framework repositories (a character vector), Default: character(0)
gh_repo_1L_chr  Github repository (a character vector of length one), Default: 'ready4-dev/ready4'
gh_tag_1L_chr  Github tag (a character vector of length one), Default: 'Documentation_0.0'
model_repos_chr  Model repositories (a character vector), Default: character(0)
program_repos_chr  Program repositories (a character vector), Default: character(0)
org_1L_chr  Organisation (a character vector of length one), Default: 'ready4-dev'
repos_chr  Repositories (a character vector), Default: character(0)
subroutine_repos_chr  Subroutine repositories (a character vector), Default: character(0)
tidy_desc_1L_lgl  Tidy description (a logical vector of length one), Default: TRUE
url_stub_1L_chr  Url stub (a character vector of length one), Default: 'https://ready4-dev.github.io/

Value

Releases (an output object of multiple potential types)

Examples

# Likely to take more than one minute to execute.
if(requireNamespace("tidyRSS", quietly = TRUE)) {

  make_code_releases_tbl("Framework",
    gh_repo_1L_chr = "ready4-dev/ready4")

  make_code_releases_tbl("Module",
    gh_repo_1L_chr = "ready4-dev/ready4")

  make_code_releases_tbl("Program",
    gh_repo_1L_chr = "ready4-dev/ready4")

  make_code_releases_tbl("Subroutine",
    gh_repo_1L_chr = "ready4-dev/ready4")

}

Description

make_datasets_tb() scrapes metadata from a specified Dataverse collection to create a summary table of its contents. The contents table can detail either subsidiary data collections or individual datasets from those subsidiary data collections.

Usage

make_datasets_tb(
  dv_nm_1L_chr = "ready4",
  dvs_tb = NULL,
  filter_cdns_ls = NULL,
  key_1L_chr = NULL,
  server_1L_chr = "dataverse.harvard.edu",
  toy_data_dv_1L_chr = "fakes",
  type_1L_chr = c("collections", "datasets"),
  what_1L_chr = "all"
)

Arguments

dv_nm_1L_chr  Dataverse name (a character vector of length one), Default: 'ready4'
dvs_tb        Dataverses (a tibble), Default: NULL
filter_cdns_ls Filter conditions (a list), Default: NULL
key_1L_chr    Key (a character vector of length one), Default: NULL
server_1L_chr Server (a character vector of length one), Default: 'dataverse.harvard.edu'
toy_data_dv_1L_chr Toy data dataverse (a character vector of length one), Default: 'fakes'
type_1L_chr   Type (a character vector of length one), Default: c("collections", "datasets")
what_1L_chr   What (a character vector of length one), Default: 'all'

Value

Datasets (a tibble)

Examples

# Likely to take more than one minute to execute.
make_datasets_tb("ready4")
dvs_tb <- get_datasets_tb("ready4-dev/ready4")
make_datasets_tb("ready4", dvs_tb = dvs_tb)
make_datasets_tb("ready4", dvs_tb = dvs_tb, what_1L_chr = "real")
make_datasets_tb("ready4", dvs_tb = dvs_tb, what_1L_chr = "fakes")
make_ds_releases_tbl

make_datasets_tb("ready4", dvs_tb = dvs_tb, type_1L_chr = "datasets")
make_datasets_tb("ready4", dvs_tb = dvs_tb, type_1L_chr = "datasets", what_1L_chr = "real")
make_datasets_tb("ready4", dvs_tb = dvs_tb, type_1L_chr = "datasets", what_1L_chr = "fakes")

---

**Description**

`make_ds_releases_tbl()` scrapes metadata from Dataverse datasets for which a valid Digital Object Identifier (DOI) has been supplied to create a table summarising the entire release history of these datasets.

**Usage**

```r
make_ds_releases_tbl(
  ds_dois_chr,
  format_1L_chr = "%d-%b-%Y",
  key_1L_chr = NULL,
  server_1L_chr = "dataverse.harvard.edu",
  as_kbl_1L_lgl = TRUE,
  ...
)
```

**Arguments**

- `ds_dois_chr` : Dataset digital object identifiers (a character vector)
- `format_1L_chr` : Format (a character vector of length one), Default: `%d-%b-%Y`
- `key_1L_chr` : Key (a character vector of length one), Default: NULL
- `server_1L_chr` : Server (a character vector of length one), Default: 'dataverse.harvard.edu'
- `as_kbl_1L_lgl` : As kable (a logical vector of length one), Default: TRUE
- ... : Additional arguments

**Value**

Dataset releases (an output object of multiple potential types)

**Examples**

```r
make_ds_releases_tbl("10.7910/DVN/RIQTKK", as_kbl_1L_lgl = FALSE)
```
**make_methods_tb**

Make a tabular summary of methods associated with ready model modules

---

**Description**

make_methods_tb() scrapes the documentation websites of all libraries of ready4 modules in a specified GitHub organisation and then creates a tabular summary of vignette examples of ready4 module methods.

**Usage**

```r
make_methods_tb(
  packages_tb = NULL,
  exclude_mthds_for_chr = NA_character_,
  framework_only_1L_lgl = TRUE,
  gh_repo_1L_chr = "ready4-dev/ready4",
  gh_tag_1L_chr = "Documentation_0.0",
  module_pkgs_chr = character(0),
  ns_var_nm_1L_chr = "pt_ns_chr",
  path_1L_chr = character(0),
  return_1L_chr = "all"
)
```

**Arguments**

- `packages_tb`: Packages (a tibble), Default: NULL
- `exclude_mthds_for_chr`: Exclude methods for (a character vector), Default: `NA`
- `framework_only_1L_lgl`: Framework only (a logical vector of length one), Default: TRUE
- `gh_repo_1L_chr`: Github repository (a character vector of length one), Default: `ready4-dev/ready4`
- `gh_tag_1L_chr`: Github tag (a character vector of length one), Default: `Documentation_0.0`
- `module_pkgs_chr`: Module packages (a character vector), Default: character(0)
- `ns_var_nm_1L_chr`: Namespace variable name (a character vector of length one), Default: `pt_ns_chr`
- `path_1L_chr`: Path (a character vector of length one), Default: character(0)
- `return_1L_chr`: Return (a character vector of length one), Default: `all`

**Value**

Methods (a tibble)
Examples

# Likely to take more than one minute to execute.
make_methods_tb(gh_repo_1L_chr = "ready4-dev/ready4")

make_modules_tb

Make a tabular summary of ready4 model modules and sub-modules

Description

make_modules_tb() scrapes the documentation websites of all libraries of ready4 modules in a
specified GitHub organisation and then creates a tabular summary of the modules included in those
libraries and vignette examples of their use.

Usage

make_modules_tb(
    pkg_extensions_tb = NULL,
    cls_extensions_tb = NULL,
    gh_repo_1L_chr = "ready4-dev/ready4",
    gh_tag_1L_chr = "Documentation_0.0",
    module_pkgs_chr = character(0),
    include_1L_chr = "modules",
    ns_var_nm_1L_chr = "pt_ns_chr",
    url_stub_1L_chr = "https://ready4-dev.github.io/",
    what_chr = "all"
)

Arguments

pkg_extensions_tb
    Package extensions (a tibble), Default: NULL

cls_extensions_tb
    Class extensions (a tibble), Default: NULL

g_h_repo_1L_chr
    Github repository (a character vector of length one), Default: 'ready4-dev/ready4'

g_h_tag_1L_chr
    Github tag (a character vector of length one), Default: 'Documentation_0.0'

module_pkgs_chr
    Module packages (a character vector), Default: character(0)

include_1L_chr
    Include (a character vector of length one), Default: 'modules'

ns_var_nm_1L_chr
    Namespace variable name (a character vector of length one), Default: 'pt_ns_chr'

url_stub_1L_chr
    Url stub (a character vector of length one), Default: 'https://ready4-dev.github.io/

what_chr
    What (a character vector), Default: 'all'
**make_programs_tbl**

Value

Modules (a tibble)

Examples

```r
# Likely to take more than one minute to execute.
make_modules_tb(gh_repo_1L_chr = "ready4-dev/ready4")
```

---

**make_programs_tbl**  
*Make a tabular summary of programs using ready4 model modules*

Description

`make_programs_tbl()` scrapes the GitHub organisation and Zenodo community associated specified for a ready4 model implementation to create a tabular summary of programs and sub-routines associated with that implementation.

Usage

```r
make_programs_tbl(
  what_1L_chr = c("Program", "Subroutine", "Program_and_Subroutine"),
  as_kbl_1L_lgl = FALSE,
  exclude_chr = character(0),
  format_1L_chr = "%d-%b-%Y",
  gh_repo_1L_chr = "ready4-dev/ready4",
  gh_tag_1L_chr = "Documentation_0.0",
  tidy_desc_1L_lgl = TRUE,
  url_stub_1L_chr = "https://ready4-dev.github.io/",
  zenodo_1L_chr = "ready4",
  ...
)
```

Arguments

- `what_1L_chr`: What (a character vector of length one), Default: c("Program", "Subroutine", "Program_and_Subroutine")
- `as_kbl_1L_lgl`: As kable (a logical vector of length one), Default: FALSE
- `exclude_chr`: Exclude (a character vector), Default: character(0)
- `format_1L_chr`: Format (a character vector of length one), Default: '%d-%b-%Y'
- `gh_repo_1L_chr`: Github repository (a character vector of length one), Default: 'ready4-dev/ready4'
- `gh_tag_1L_chr`: Github tag (a character vector of length one), Default: 'Documentation_0.0'
- `tidy_desc_1L_lgl`: Tidy description (a logical vector of length one), Default: TRUE
**manufacture**

Url stub (a character vector of length one), Default: 'https://ready4-dev.github.io/'

Zenodo (a character vector of length one), Default: 'ready4'

Additional arguments

**Value**

Programs (an output object of multiple potential types)

**See Also**

`zen4R::ZenodoManager()`

**Examples**

```r
# Likely to take more than one minute to execute.
if(requireNamespace("zen4R", quietly = TRUE)) {
  make_programs_tbl("Program",
                  gh_repo_1L_chr = "ready4-dev/ready4")
  make_programs_tbl("Subroutine",
                  gh_repo_1L_chr = "ready4-dev/ready4")
}
```

**Description**

`manufacture()` is a method that used data contained in a model module or submodule to create a new object (other than a model module).

**Usage**

`manufacture(x, ...)`

**Arguments**

- **x**: A model module (an instance of a class that inherits from `Ready4Module`) or submodule (any S3 class instance)
- **...**: Additional arguments

**Value**

An object other than a model module (an instance of a class that inherits from `Ready4Module`).
**manufactureSlot**

Apply the manufacture method to a model module slot

**Description**

`manufactureSlot()` is a convenience method that applies the manufacture method to a specified slot of a model module.

`manufactureSlot` method applied to Ready4Module

**Usage**

```r
manufactureSlot(x, slot_nm_1L_chr, ...)
```

```r
## S4 method for signature 'Ready4Module'
manufactureSlot(x, slot_nm_1L_chr, ...)
```

**Arguments**

- `x`: An object of class Ready4Module
- `slot_nm_1L_chr`: Slot name (a length one character vector)
- `...`: Additional arguments

**Value**

An object that is not the same class as that supplied to the method.

An object that is not the same class as that supplied to the method.

---

**metamorphose**

Metamorphose a model module to a model module of a different (non-inheriting) class

**Description**

`metamorphose()` is a method that transforms a model module into a model module of a different (non-inheriting) class.

**Usage**

```r
metamorphose(x, ...)
```

**Arguments**

- `x`: A model module (an instance of a class that inherits from Ready4Module)
- `...`: Additional arguments
Value
A model module (an instance of a class that inherits from `Ready4Module`) of a different class to that supplied to the method.

---

**metamorphoseSlot**

Apply the metamorphose method to a model module slot

---

Description

metamorphoseSlot() is a convenience method that applies the metamorphose method to a specified slot of a model module.

metamorphoseSlot method applied to `Ready4Module`

Usage

```r
code
metamorphoseSlot(x, slot_nm_1L_chr, ...)
```

# S4 method for signature 'Ready4Module'
metamorphoseSlot(x, slot_nm_1L_chr, ...)

Arguments

- **x**: An object of class `Ready4Module`
- **slot_nm_1L_chr**: Slot name (a length one character vector)
- **...**: Additional arguments

Value

A model module (an instance of a class that inherits from `Ready4Module`).

A `ready4` model module (an instance of a class that inherits from `Ready4Module`).

---

**print_data**

Print a table of `ready4` model data collections

---

Description

`print_data()` formats the output of either `get_datasets_tb()` or `make_datasets_tb()` as HTML. The type of output can be customised to display Dataverse data collections or Dataverse datasets. Similarly output can be restricted to real or toy datasets.
**print_data**

**Usage**

```r
print_data(
  datasets_tb,
  by_dv_1L_lgl = FALSE,
  filter_cdns_ls = NULL,
  root_1L_chr = "https://dataverse.harvard.edu/dataverse/",
  scroll_height_1L_chr = character(0),
  scroll_width_1L_chr = character(0),
  toy_data_dv_1L_chr = "fakes",
  what_1L_chr = "all",
  ...
)
```

**Arguments**

- `datasets_tb`  Datasets (a tibble)
- `by_dv_1L_lgl`  By dataverse (a logical vector of length one), Default: FALSE
- `filter_cdns_ls`  Filter conditions (a list), Default: NULL
- `root_1L_chr`  Root (a character vector of length one), Default: 'https://dataverse.harvard.edu/dataverse/'
- `scroll_height_1L_chr`  Scroll height (a character vector of length one), Default: character(0)
- `scroll_width_1L_chr`  Scroll width (a character vector of length one), Default: character(0)
- `toy_data_dv_1L_chr`  Toy data dataverse (a character vector of length one), Default: 'fakes'
- `what_1L_chr`  What (a character vector of length one), Default: 'all'
- `...`  Additional arguments

**Value**

Datasets (a kable)

**Examples**

```r
datasets_tb <- get_datasets_tb("ready4-dev/ready4")
print_data(datasets_tb, by_dv_1L_lgl = TRUE)
print_data(datasets_tb, what_1L_chr = "real")
print_data(datasets_tb, what_1L_chr = "fakes")
```
print_methods() formats the output of either get_methods_tb() or make_methods_tb() as HTML.

Usage

```r
print_methods(
  methods_tb = NULL,
  exclude_mthds_for_chr = NA_character_,
  gh_repo_1L_chr = "ready4-dev/ready4",
  gh_tag_1L_chr = "Documentation_0.0",
  methods_chr = NULL,
  module_pkgs_chr = character(0),
  ns_var_nm_1L_chr = "pt_ns_chr",
  path_1L_chr = character(0),
  packages_tb = NULL,
  return_1L_chr = "all",
  scroll_height_1L_chr = character(0),
  scroll_width_1L_chr = character(0),
  ...
)
```

Arguments

- `methods_tb`: Methods (a tibble), Default: NULL
- `exclude_mthds_for_chr`: Exclude methods for (a character vector), Default: 'NA'
- `gh_repo_1L_chr`: Github repository (a character vector of length one), Default: 'ready4-dev/ready4'
- `gh_tag_1L_chr`: Github tag (a character vector of length one), Default: 'Documentation_0.0'
- `methods_chr`: Methods (a character vector), Default: NULL
- `module_pkgs_chr`: Module packages (a character vector), Default: character(0)
- `ns_var_nm_1L_chr`: Namespace variable name (a character vector of length one), Default: 'pt_ns_chr'
- `path_1L_chr`: Path (a character vector of length one), Default: character(0)
- `packages_tb`: Packages (a tibble), Default: NULL
- `return_1L_chr`: Return (a character vector of length one), Default: 'all'
- `scroll_height_1L_chr`: Scroll height (a character vector of length one), Default: character(0)
- `scroll_width_1L_chr`: Scroll width (a character vector of length one), Default: character(0)
- `...`: Additional arguments
print_modules

Value
Methods (a kable)

Examples

methods_tb <- get_methods_tb("ready4-dev/ready4")
print_methods(methods_tb)
print_methods(methods_tb, return_1L_chr = "core")
print_methods(methods_tb, return_1L_chr = "slot")
print_methods(methods_tb, return_1L_chr = "extended")

print_modules  Print a table of ready4 model modules

Description
print_modules() formats the output of either get_modules_tb() or make_modules_tb() as HTML.

Usage
print_modules(
  modules_tb,
  scroll_height_1L_chr = character(0),
  scroll_width_1L_chr = character(0),
  what_1L_chr = "All",
  ...
)

Arguments
modules_tb Modules (a tibble)
scroll_height_1L_chr Scroll height (a character vector of length one), Default: character(0)
scroll_width_1L_chr Scroll width (a character vector of length one), Default: character(0)
what_1L_chr What (a character vector of length one), Default: 'All'
...

Value
Modules (a kable)

Examples

modules_tb <- get_modules_tb("ready4-dev/ready4")
# Print sub-modules
print_modules(modules_tb, what_1L_chr = "S3")
# Print full-modules
print_modules(modules_tb, what_1L_chr = "S4")
print_packages

Print a table of ready4 libraries

Description

print_packages() formats the output of get_libraries_tb() as HTML.

Usage

```r
print_packages(
  pkg_extensions_tb = NULL,
  gh_repo_1L_chr = "ready4-dev/ready4",
  gh_tag_1L_chr = "Documentation_0.0",
  include_1L_chr = "modules",
  module_pkgs_chr = character(0),
  ns_var_nm_1L_chr = "pt_ns_chr",
  project_badges_url_1L_chr = "https://img.shields.io/badge/ready4",
  reference_var_nm_1L_chr = "Reference",
  scroll_height_1L_chr = character(0),
  scroll_width_1L_chr = character(0),
  sections_chr = character(0),
  url_stub_1L_chr = "https://ready4-dev.github.io/",
  vignette_var_nm_1L_chr = "Vignettes",
  vignette_url_var_nm_1L_chr = "Vignettes_URLs",
  what_chr = "all",
  ...
)
```

Arguments

- `pkg_extensions_tb`: Package extensions (a tibble), Default: NULL
- `gh_repo_1L_chr`: Github repository (a character vector of length one), Default: 'ready4-dev/ready4'
- `gh_tag_1L_chr`: Github tag (a character vector of length one), Default: 'Documentation_0.0'
- `include_1L_chr`: Include (a character vector of length one), Default: 'modules'
- `module_pkgs_chr`: Module packages (a character vector), Default: character(0)
- `ns_var_nm_1L_chr`: Namespace variable name (a character vector of length one), Default: 'pt_ns_chr'
- `project_badges_url_1L_chr`: Project badges url (a character vector of length one), Default: 'https://img.shields.io/badge/ready4'
- `reference_var_nm_1L_chr`: Reference variable name (a character vector of length one), Default: 'Reference'
- `scroll_height_1L_chr`: Scroll height (a character vector of length one), Default: character(0)
- `scroll_width_1L_chr`: Scroll width (a character vector of length one), Default: character(0)
- `sections_chr`: Sections (a character vector), Default: character(0)
- `url_stub_1L_chr`: URL stub (a character vector of length one), Default: 'https://ready4-dev.github.io/
- `vignette_var_nm_1L_chr`: Vignette variable name (a character vector of length one), Default: 'Vignettes'
- `vignette_url_var_nm_1L_chr`: Vignette URLs (a character vector of length one), Default: 'Vignettes_URLs'
- `what_chr`: What (a character vector), Default: 'all'
procure

scroll_width_1L_chr
Scroll width (a character vector of length one), Default: character(0)

sections_chr
Sections (a character vector), Default: character(0)

url_stub_1L_chr
Url stub (a character vector of length one), Default: 'https://ready4-dev.github.io/'

vignette_var_nm_1L_chr
Vignette variable name (a character vector of length one), Default: 'Vignettes'

vignette_url_var_nm_1L_chr
Vignette url variable name (a character vector of length one), Default: 'Vignettes_URLs'

what_chr
What (a character vector), Default: 'all'

... Additional arguments

Value
Package extensions (a kable)

Examples

# Method 1
libraries_tb <- get_libraries_tb(gh_repo_1L_chr = "ready4-dev/ready4")
## Print framework libraries
update_libraries_tb(libraries_tb,
    url_stub_1L_chr = "https://ready4-dev.github.io/",
    include_1L_chr = "framework") %>%
    print_packages()
## Print module libraries
update_libraries_tb(libraries_tb,
    url_stub_1L_chr = "https://ready4-dev.github.io/",
    include_1L_chr = "modules") %>%
    print_packages()
# Method 2
## Print framework libraries
print_packages(gh_repo_1L_chr = "ready4-dev/ready4",
    include_1L_chr = "framework")
## Print module libraries
print_packages(gh_repo_1L_chr = "ready4-dev/ready4",
    include_1L_chr = "modules")

procure
Procure data from a model module

Description
procure() is a "getter" method that retrieves data contained within a model module or sub-module.
Usage

procure(x, ...)

Arguments

x A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)

... Additional arguments

Value

An object of the same class as that supplied to the method or of one of the same classes that constitute the input object’s slots or elements.

procureSlot Procure (get) data from a slot

Description

procureSlot() is a "getter" method that, depending on input arguments, retrieves either data contained in a specified model module slot (the default behaviour) or the value returned by applying the procure method to the specified slot.

procureSlot method applied to Ready4Module

Usage

procureSlot(x, slot_nm_1L_chr, ...)

## S4 method for signature 'Ready4Module'
procureSlot(x, slot_nm_1L_chr, use_procure_mthd_1L_lgl = FALSE, ...)

Arguments

x An object of class Ready4Module
slot_nm_1L_chr Slot name (a length one character vector)

... Additional arguments
use_procure_mthd_1L_lgl Use procure method (a length one logical vector)

Value

A model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or an instance of a class contained in that Ready4Module’s slots.

A ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or an instance of a class contained in that Ready4Module’s slots.
**prognosticate**

**Examples**

```r
X <- Ready4Module()
procureSlot(X, "dissemination_1L_chr")
```

---

**prognosticate**  
*Prognosticate (make predictions) by solving a forward problem*

---

**Description**

prognosticate() is a method that applies an algorithm to data contained in a model module to solve a forward problem (i.e., use simulation and statistical methods to make predictions).

**Usage**

```r
prognosticate(x, ...)
```

**Arguments**

- `x`: A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
- `...`: Additional arguments

**Value**

A model module (an instance of a class that inherits from Ready4Module).

---

**prognosticateSlot**  
*Apply the prognosticate method to a model module slot*

---

**Description**

prognosticateSlot() is a convenience method that applies the prognosticate method to a specified slot of a model module.

**Usage**

```r
prognosticateSlot(x, slot_nm_1L_chr, ...)
```

## S4 method for signature 'Ready4Module'

```r
prognosticateSlot(x, slot_nm_1L_chr, ...)
```
Arguments

\( x \)  
An object of class Ready4Module

\( \text{slot\_nm\_1L\_chr} \)  
Slot name (a length one character vector)

\( \ldots \)  
Additional arguments

Value

A model module (an instance of a class that inherits from Ready4Module).

A ready4 model module (an instance of a class that inherits from Ready4Module).

\[
\begin{array}{ll}
\text{ratify} & \text{Ratify that input or output data meet validity criteria} \\
\end{array}
\]

Description

ratify() is a method that validates that a model module or submodule conforms to specified internal consistency criteria, potentially updating the invalid values in the model module so that these criteria are met.

Usage

ratify(x, \ldots)

Arguments

\( x \)  
A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)

\( \ldots \)  
Additional arguments

Value

A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method.
ratifySlot

Apply the ratify method to a model module slot

Description

ratifySlot() is a convenience method that applies the ratify method to a specified slot of a model module.

ratifySlot method applied to Ready4Module

Usage

ratifySlot(x, slotNm_1L_chr, ...)

## S4 method for signature 'Ready4Module'
ratifySlot(x, slotNm_1L_chr, ...)

Arguments

x
An object of class Ready4Module

slotNm_1L_chr
Slot name (a length one character vector)

... Additional arguments

Value

A model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.

A ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.

Ready4Module-class

Description

A module of the ready4 representational system.

Slots

dissemination_1L_chr Dissemination (a character vector of length one)
### Ready4Private-class

**Description**

A module of the ready4 representational system that contains data not intended for public dissemination.

**Slots**

- `dissemination_1L_chr` Dissemination (a character vector of length one)

### Ready4Public-class

**Description**

A virtual class denoting a module of the ready4 representational system that is suitable for public dissemination in its current form.

**Slots**

- `dissemination_1L_chr` Dissemination (a character vector of length one)

### reckon

**Description**

`reckon()` is a method that performs a calculation using data contained in a model module (or submodule).

**Usage**

`reckon(x, ...)`

**Arguments**

- `x` A model module (an instance of a class that inherits from `Ready4Module`) or submodule (any S3 class instance)
- `...` Additional arguments

**Value**

A numeric class.
**reckonSlot**

*Apply the reckon method to a model module slot*

**Description**

reckonSlot() is a convenience method that applies the reckon method to a specified slot of a model module.

reckonSlot method applied to Ready4Module

**Usage**

```r
reckonSlot(x, slot_nm_1L_chr, ...)
```

```r
## S4 method for signature 'Ready4Module'
reckonSlot(x, slot_nm_1L_chr, ...)
```

**Arguments**

- **x**: An object of class Ready4Module
- **slot_nm_1L_chr**: Slot name (a length one character vector)
- **...**: Additional arguments

**Value**

A numeric class.

A numeric class.

---

**renew**

*Renew (update) values*

**Description**

renew() is a "setter" method that updates values of selected data contained in a model module or sub-module.

**Usage**

```r
renew(x, ...)
```

**Arguments**

- **x**: A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
- **...**: Additional arguments
Value

A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method.

---

renewSlot

Renew (set) the values of data in a module slot

---

Description

renewSlot() is a "setter" method that renews (sets) the value of a specified model module slot with either the value returned by applying the renew method to that slot (the default behaviour) or a supplied new value.

renewSlot method applied to Ready4Module

Usage

renewSlot(x, slot_nm_1L_chr, new_val_xx = "use_renew_mthd", ...)

## S4 method for signature 'Ready4Module'
renewSlot(x, slot_nm_1L_chr, new_val_xx = "use_renew_mthd", ...)

Arguments

x
An object of class Ready4Module

slot_nm_1L_chr
Slot name (a length one character vector)

new_val_xx
New value (slot dependent object type), Default 'use_renew_mthd'

...
Additional arguments

Value

A model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.

A ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method.

Examples

X <- Ready4Module()
X <- renewSlot(X, "dissemination_1L_chr", new_val_xx = "Some new text.")
share

Share data via an online repository

Description

share() is a method that uploads data contained in a model module to an online repository. If requested, the method will also publish the updated repository.

Usage

share(x, ...)

Arguments

x A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance)
...

Additional arguments

Value

A model module (an instance of a class that inherits from Ready4Module) or submodule (any S3 class instance) of the same class as that supplied to the method or no return value (when called for side-effects only).

shareSlot

Apply the share method to a model module slot

Description

shareSlot() is a convenience method that applies the share method to a specified slot of a model module.

shareSlot method applied to Ready4Module

Usage

shareSlot(x, slot_nm_1L_chr, ...)

## S4 method for signature 'Ready4Module'
shareSlot(x, slot_nm_1L_chr, ...)

Arguments

x An object of class Ready4Module
slot_nm_1L_chr Slot name (a length one character vector)
...

Additional arguments
**write_to_copy_rmds**

**Value**

Either a model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or no value (when called purely for side effects).

Either a ready4 model module (an instance of a class that inherits from Ready4Module) of the same class as that supplied to the method or no value (when called purely for side effects).

---

**write_to_copy_rmds**  
*Write a local copy of RMD or Rmarkdown files*

**Description**

`write_to_copy_rmds()` is used to copy template RMD or Rmarkdown files to specified sub-directories of a model documentation website. These template copies can then be manually edited before being rendered with `write_to_render_post()`.

**Usage**

```r
write_to_copy_rmds(
dir_path_1L_chr,
fl_nm_1L_chr,
consent_1L_chr = "",
rmds_dir_1L_chr = "R/RMD Templates",
consent_indcs_int = 1L,
options_chr = c("Y", "N"),
return_1L_lgl = FALSE
)
```

**Arguments**

- `dir_path_1L_chr`: Directory path (a character vector of length one)
- `fl_nm_1L_chr`: File name (a character vector of length one)
- `consent_1L_chr`: Consent (a character vector of length one), Default: "
- `rmds_dir_1L_chr`: R Markdowns directory (a character vector of length one), Default: 'R/RMD Templates'
- `consent_indcs_int`: Consent indices (an integer vector), Default: 1
- `options_chr`: Options (a character vector), Default: c("Y", "N")
- `return_1L_lgl`: Return (a logical vector of length one), Default: FALSE

**Value**

No return value, called for side effects.
**Examples**

```r
write_to_copy_rmds(dir_path_1L_chr = tempdir(),
                   fl_nm_1L_chr = "RMDs",
                   rmds_dir_1L_chr = system.file("MD_RMDs",
                                                package = "ready4"))
```

**Description**

`write_to_render_post()` is designed to help overcome practical challenges of rendering RMD or Rmarkdown files to Markdown output in a modelling project’s Hugo Docsy documentation website. You must have ‘hugodown’ installed for this function to work.

**Usage**

```r
write_to_render_post(
  included_dirs_chr,
  path_to_main_dir_1L_chr,
  consent_1L_chr = "",
  consent_indcs_int = 1L,
  is_rmd_1L_lgl = TRUE,
  options_chr = c("Y", "N")
)
```

**Arguments**

- `included_dirs_chr`: Included directories (a character vector)
- `path_to_main_dir_1L_chr`: Path to main directory (a character vector of length one)
- `consent_1L_chr`: Consent (a character vector of length one), Default: ""
- `consent_indcs_int`: Consent indices (an integer vector), Default: 1
- `is_rmd_1L_lgl`: Is Markdown (a logical vector of length one), Default: TRUE
- `options_chr`: Options (a character vector), Default: c("Y", "N")

**Value**

No return value, called for side effects.

**See Also**

`rmarkdown::render()`
Examples

# Note, In addition to rmarkdown, the non CRAN package "hugodown" is also required.
if(requireNamespace("rmarkdown", quietly = TRUE)) {
    # Example 1 - RMD files
    # Copy template RMD files
    write_to_copy_rmds(dir_path_1L_chr = tempdir(),
                       fl_nm_1L_chr = "RMDs",
                       rmds_dir_1L_chr = system.file("MD_RMDs",
                                                  package = "ready4"))
    # Typically you would now edit these templates before proceeding.
    # Render post from RMD files.
    write_to_render_post("RMDs", path_to_main_dir_1L_chr = tempdir())
    # Example 2 - Rmarkdown file
    # Copy template Rmarkdown file
    write_to_copy_rmds(dir_path_1L_chr = tempdir(),
                       fl_nm_1L_chr = "Rmarkdown",
                       rmds_dir_1L_chr = system.file("MD_Rmarkdown",
                                                  package = "ready4"))
    # Typically you would now edit these templates before proceeding.
    # Render post from RMD files.
    write_to_render_post("Rmarkdown", path_to_main_dir_1L_chr = tempdir(),
                          is_rmd_1L_lgl = F)
}

write_ws

Write ready4 software development local directories

Description

write_ws() creates a standardised directory structure as a local development environment for modeling projects developed with the ready4 framework.

Usage

write_ws(
    path_1L_chr = "",
    consent_1L_chr = "",
    consent_indcs_int = 1L,
    options_chr = c("Y", "N")
)
**Arguments**

- `path_1L_chr`  Path (a character vector of length one)
- `consent_1L_chr` Consent (a character vector of length one), Default: ”
- `consent_indcs_int` Consent indices (an integer vector), Default: 1
- `options_chr` Options (a character vector), Default: c("Y", "N")

**Value**

No return value, called for side effects.

**Examples**

```r
write_ws(tempdir())
```
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