

Package ‘repfun’

January 26, 2026

Title Create Tables, Listings and Figures using Functions Styled after
SAS™ Macros

Version 0.1.2

Description Mimic the style of traditional reporting macros for clinical trials. The purpose is to generate tables, listings and figures that support clinical research. This package is well suited for firms or individuals who wish to incorporate R without changing their ways of working as it follows a traditional clinical research workflow. Invoke functions (instead of macros) to summarize data and produce formatted reports. This package differs from others in that it includes tools (wrappers) for both analyzing and reporting data.

License Apache License (== 2.0)

Encoding UTF-8

RoxygenNote 7.3.2

Imports arrow, data.table, glue, jsonlite, rlang, xportr, Hmisc,
r2rtf, haven, dplyr, tidyverse, magrittr, stringr

Depends R (>= 3.5)

Suggests knitr, rmarkdown, testthat (>= 3.0.0), rprojroot, DT,
kableExtra, admirals, tibble, lubridate, ggplot2 (>= 3.5.0),
devtools, spelling

Config/testthat.edition 3

VignetteBuilder knitr

LazyData true

URL <https://gsk-biostatistics.github.io/repfun/>,
<https://github.com/GSK-Biostatistics/repfun>

Language en-US

BugReports <https://github.com/GSK-Biostatistics/repfun/issues>

NeedsCompilation no

Author Chris Rook [aut, cre],
Yongwei Wang [aut],
GlaxoSmithKline Research & Development Limited [cph, fnd]

Maintainer Chris Rook <cr883296@gmail.com>

Repository CRAN**Date/Publication** 2026-01-26 16:40:02 UTC

Contents

adae	3
adsl	6
adv\$	8
ae	12
airquality_4test	14
airquality_updated	15
copydata	16
dm	16
formats	18
mtcars_w2lbls	19
rem_pg_nums	20
rs_setup	20
ru_addbignvar	24
ru_addpage	26
ru_addsupp	28
ru_align	29
ru_contents	31
ru_data2codelist	32
ru_datacompare	33
ru_datetime	34
ru_denorm	35
ru_expvarlist	37
ru_fillcodedcode	38
ru_fillna	39
ru_freq	40
ru_getdata	42
ru_groupbyvars	44
ru_labels	45
ru_libname	45
ru_list	46
ru_load_library	52
ru_setdata	53
ru_stackvar	54
ru_sumstats	55
ru_width_rtf	57
suppae	59
suppdm	60

adae

ADaM ADAE

Description

adae

Usage

adae

Format

A data frame with 105 columns:

STUDYID Study Identifier
DOMAIN Domain Abbreviation
USUBJID Unique Subject Identifier
AESEQ Sequence Number
AESPID Sponsor-Defined Identifier
AETERM Reported Term for the Adverse Event
AELLT Lowest Level Term
AELLTCOD Lowest Level Term Code
AEDECOD Dictionary-Derived Term
AEPTCD Preferred Term Code
AEHLT High Level Term
AEHLTCOD High Level Term Code
AEHLGT High Level Group Term
AEHLGTCOD High Level Group Term Code
AEBODSYS Body System or Organ Class
AEBDSYCOD Body System or Organ Class Code
AESOC Primary System Organ Class
AESOCCD Primary System Organ Class Code
AESEV Severity/Intensity
AESER Serious Event
AEACN Action Taken with Study Treatment
AEREL Causality
AEOUT Outcome of Adverse Event
AESCAN Involves Cancer
AESCONG Congenital Anomaly or Birth Defect

AESDISAB Persist or Signif Disability/Incapacity
AESDTH Results in Death
AESHOSP Requires or Prolongs Hospitalization
AESLIFE Is Life Threatening
AESOD Occurred with Overdose
AEDTC Date/Time of Collection
AESTDTA Start Date/Time of Adverse Event
AEENDTC End Date/Time of Adverse Event
AESTDY Study Day of Start of Adverse Event
AEENDY Study Day of End of Adverse Event
TRTSDT Date of First Exposure to Treatment
TRTEDT Date of Last Exposure to Treatment
DTHDT Date of Death
EOSDT End of Study Date
ASTDTM Analysis Start Date/Time
ASTDTF Analysis Start Date Imputation Flag
ASTTMF Analysis Start Time Imputation Flag
AENDTM Analysis End Date/Time
AENDTF Analysis End Date Imputation Flag
AENTMF Analysis End Time Imputation Flag
ASTDT Analysis Start Date
AENDT Analysis End Date
ASTDY Analysis Start Relative Day
AENDY Analysis End Relative Day
ADURN Analysis Duration (N)
ADURU Analysis Duration Units
LDOSEDTM End Date/Time of Last Dose
ASEV Analysis Severity/Intensity
AREL Analysis Causality
TRTEMFL Treatment Emergent Analysis Flag
ASEVN Analysis Severity/Intensity (N)
AOCCIFL 1st Max Sev./Int. Occurrence Flag
SUBJID Subject Identifier for the Study
RFSTDTA Subject Reference Start Date/Time
RFENDTC Subject Reference End Date/Time
RFXSTDTC Date/Time of First Study Treatment
RFXENDTC Date/Time of Last Study Treatment

RFICDTC Date/Time of Informed Consent
RFPENDTC Date/Time of End of Participation
DTHHTC Date/Time of Death
DTHFL Subject Death Flag
SITEID Study Site Identifier
AGE Age
AGEU Age Units
SEX Sex
RACE Race
ETHNIC Ethnicity
ARMCD Planned Arm Code
ARM Description of Planned Arm
ACTARMCD Actual Arm Code
ACTARM Description of Actual Arm
COUNTRY Country
DMDTC Date/Time of Collection
DMDY Study Day of Collection
TRT01P Planned Treatment for Period 01
TRT01A Actual Treatment for Period 01
TRTSDTM Datetime of First Exposure to Treatment
TRTSTMF Time of First Exposure Imput. Flag
TRTEDTM Datetime of Last Exposure to Treatment
TRTETMF Time of Last Exposure Imput. Flag
TRTDURD Total Treatment Duration (Days)
SCRFDT Screen Failure Date
EOSSTT End of Study Status
FRVDT Final Retrievel Visit Date
RANDDT Date of Randomization
DTHHTF undocumented field
DTHADY Relative Day of Death
LDDTHELD Elapsed Days from Last Dose to Death
DTHCAUS undocumented field
DTHDOM undocumented field
DTHCGR1 undocumented field
LSTALVDT Date Last Known Alive
SAFFL Safety Population Flag
RACEGR1 Pooled Race Group 1

AGEGR1 Pooled Age Group 1
REGION1 Geographic Region 1
LDDTHGR1 Last Dose to Death - Days Elapsed Grp 1
DTH30FL Death Within 30 Days of Last Trt Flag
DTHA30FL Death After 30 Days from Last Trt Flag
DTHB30FL Death Within 30 Days of First Trt Flag

Details

Adverse Events Analysis

Source

Generated from admirals package (template ad_adae.R).

References

None

Examples

```
data("adae")
```

ads1

ADaM ADSL

Description

ads1

Usage

ads1

Format

A data frame with 54 columns:

STUDYID Study Identifier
USUBJID Unique Subject Identifier
SUBJID Subject Identifier for the Study
RFSTDTC Subject Reference Start Date/Time
RFENDTC Subject Reference End Date/Time
RFXSTDTC Date/Time of First Study Treatment
RFXENDTC Date/Time of Last Study Treatment

RFICDTC Date/Time of Informed Consent
RFPENDTC Date/Time of End of Participation
DTHHTC Date/Time of Death
DTHFL Subject Death Flag
SITEID Study Site Identifier
AGE Age
AGEU Age Units
SEX Sex
RACE Race
ETHNIC Ethnicity
ARMCD Planned Arm Code
ARM Description of Planned Arm
ACTARMCD Actual Arm Code
ACTARM Description of Actual Arm
COUNTRY Country
DMDTC Date/Time of Collection
DMDY Study Day of Collection
TRT01P Planned Treatment for Period 01
TRT01A Actual Treatment for Period 01
TRTSDTM Datetime of First Exposure to Treatment
TRTSTMF Time of First Exposure Imput. Flag
TRTEDTM Datetime of Last Exposure to Treatment
TRTETMF Time of Last Exposure Imput. Flag
TRTSDT Date of First Exposure to Treatment
TRTEDT Date of Last Exposure to Treatment
TRTDURD Total Treatment Duration (Days)
SCRFDT Screen Failure Date
EOSDT End of Study Date
EOSSTT End of Study Status
FRVDT Final Retrievel Visit Date
RANDDT Date of Randomization
DTHDT Date of Death
DTHDTF Date of Death Imputation Flag
DTHADY Relative Day of Death
LDDTHELD Elapsed Days from Last Dose to Death
DTHCAUS undocumented field
DTHDOM undocumented field

DTHCGR1 undocumented field
LSTALVDT Date Last Known Alive
SAFFL Safety Population Flag
RACEGR1 Pooled Race Group 1
AGEGR1 Pooled Age Group 1
REGION1 Geographic Region 1
LDDTHGR1 Last Dose to Death - Days Elapsed Grp 1
DTH30FL Death Within 30 Days of Last Trt Flag
DTHA30FL Death After 30 Days from Last Trt Flag
DTHB30FL Death Within 30 Days of First Trt Flag

Details

Subject Level Analysis

Source

Generated from admiral package (template ad_adsl.R).

References

None

Examples

```
data("adsl")
```

advs

ADaM ADVS

Description

advs

Usage

advs

Format

A data frame with 105 columns:

STUDYID Study Identifier
DOMAIN Domain Abbreviation
USUBJID Unique Subject Identifier
VSSEQ Sequence Number
VTESTCD Vital Signs Test Short Name
VTEST Vital Signs Test Name
VSPOS Vital Signs Position of Subject
VSORRES Result or Finding in Original Units
VSORRESU Original Units
VSSTRESC Character Result/Finding in Std Format
VSSTRESN Numeric Result/Finding in Standard Units
VSSTRESU Standard Units
VSSTAT Completion Status
VSLOC Location of Vital Signs Measurement
VSBLFL Baseline Flag
VISITNUM Visit Number
VISIT Visit Name
VISITDY Planned Study Day of Visit
VSDTC Date/Time of Measurements
VSDY Study Day of Vital Signs
VSTPT Planned Time Point Name
VSTPTNUM Planned Time Point Number
VSELTM Planned Elapsed Time from Time Point Ref
VSTPTREF Time Point Reference
TRTSDT Date of First Exposure to Treatment
TRTEDT Date of Last Exposure to Treatment
TRT01A Actual Treatment for Period 01
TRT01P Planned Treatment for Period 01
ADT Analysis Date
ADY Analysis Relative Day
PARAMCD Parameter Code
AVAL Analysis Value
ATPTN Analysis Timepoint (N)
ATPT Analysis Timepoint
AVISIT Analysis Visit

AVISITN Analysis Visit (N)
DTYPE Derivation Type
ONTRTFL On Treatment Record Flag
ANRLO Analysis Normal Range Lower Limit
ANRHI Analysis Normal Range Upper Limit
A1LO Analysis Range 1 Lower Limit
A1HI Analysis Range 1 Upper Limit
ANRIND Analysis Reference Range Indicator
BASETYPE Baseline Type
ABLFL Baseline Record Flag
BASE Baseline Value
BNRIND Baseline Reference Range Indicator
CHG Change from Baseline
PCHG Percent Change from Baseline
ANL01FL Analysis Flag 01
TRTP Planned Treatment
RTA Actual Treatment
ASEQ Analysis Sequence Number
AVALCAT1 Analysis Value Category 1
AVALCA1N Analysis Value Category 1 (N)
PARAM Parameter
PARAMN Parameter (N)
SUBJID Subject Identifier for the Study
RFSTDT Subject Reference Start Date/Time
RFENDTC Subject Reference End Date/Time
RFXSTDT Date/Time of First Study Treatment
RFXENDTC Date/Time of Last Study Treatment
RFICDT Date/Time of Informed Consent
RFPENDTC Date/Time of End of Participation
DTHDT Date/Time of Death
DTHFL Subject Death Flag
SITEID Study Site Identifier
AGE Age
AGEU Age Units
SEX Sex
RACE Race
ETHNIC Ethnicity

ARMCD Planned Arm Code
ARM Description of Planned Arm
ACTARMCD Actual Arm Code
ACTARM Description of Actual Arm
COUNTRY Country
DMDTC Date/Time of Collection
DMDY Study Day of Collection
TRTSDTM Datetime of First Exposure to Treatment
TRTSTMF Time of First Exposure Imput. Flag
TRTEDTM Datetime of Last Exposure to Treatment
TRTETMF Time of Last Exposure Imput. Flag
TRTDURD Total Treatment Duration (Days)
SCRFDT Screen Failure Date
EOSDT End of Study Date
EOSSTT End of Study Status
FRVDT Final Retrievel Visit Date
RANDDT Date of Randomization
DTHDT Date of Death
DTHDTF undocumented field
DTHADY Relative Day of Death
LDDTHELD Elapsed Days from Last Dose to Death
DTHCAUS undocumented field
DTHDOM undocumented field
DTHCGR1 undocumented field
LSTALVDT Date Last Known Alive
SAFFL Safety Population Flag
RACEGR1 Pooled Race Group 1
AGEGR1 Pooled Age Group 1
REGION1 Geographic Region 1
LDDTHGR1 Last Dose to Death - Days Elapsed Grp 1
DTH30FL Death Within 30 Days of Last Trt Flag
DTHA30FL Death After 30 Days from Last Trt Flag
DTHB30FL Death Within 30 Days of First Trt Flag

Details

Vital Signs Analysis

Source

Generated from admirals package (template ad_advs.R).

References

None

Examples

```
data("advs")
```

ae

Adverse Events

Description

An updated SDTM AE dataset that uses the CDISC pilot project

Usage

```
ae
```

Format

A data frame with 35 columns:

STUDYID Study Identifier
DOMAIN Domain Abbreviation
USUBJID Unique Subject Identifier
AESEQ Sequence Number
AESPID Sponsor-Defined Identifier
AETERM Reported Term for the Adverse Event
AELLT Lowest Level Term
AELLTC Lowest Level Term Code
AEDECOD Dictionary-Derived Term
AEPTCD Preferred Term Code
AEHLT High Level Term
AEHTCD High Level Term Code
AEHLGT High Level Group Term
AEHLGTC High Level Group Term Code
AEBODSYS Body System or Organ Class
AEBDSYCD Body System or Organ Class Code
AESOC Primary System Organ Class

AESOCCD Primary System Organ Class Code
AESEV Severity/Intensity
AESER Serious Event
AEACN Action Taken with Study Treatment
AEREL Causality
AEOUT Outcome of Adverse Event
AESCAN Involves Cancer
AESCONG Congenital Anomaly or Birth Defect
AESDISAB Persist or Signif Disability/Incapacity
AESDTH Results in Death
AESHOSP Requires or Prolongs Hospitalization
AESLIFE Is Life Threatening
AESOD Occurred with Overdose
AEDTC Date/Time of Collection
AESTDTA Start Date/Time of Adverse Event
AEENDTC End Date/Time of Adverse Event
AESTDY Study Day of Start of Adverse Event
AEENDY Study Day of End of Adverse Event

Details

Adverse Events

An updated SDTM AE dataset that uses the CDISC pilot project

Author(s)

Gopi Vigesna

Source

Access the source of the Adverse Events dataset.

airquality_4test *Updated airquality for testing.*

Description

`airquality_4test`

Usage

`airquality_4test`

Format

A data frame with 100 observations and 8 columns:

Ozone Ozone Score

Solar.R Solar Score

Wind Wind Score

Temp Temperature

Month Month of Year

Day Day of Month

CharVar1 Dummy Character Variable 1

CharVar2 Dummy Character Variable 2

Details

Updated version of the `airquality` data frame that includes filled NA values for testing.

Source

Generated from `replfun` package.

References

None

Examples

```
data("airquality_4test")
```

airquality_updated *Updated airquality*

Description

airquality_updated

Usage

airquality_updated

Format

A data frame with 100 observations and 8 columns:

Ozone Ozone Score

Solar.R Solar Score

Wind Wind Score

Temp Temperature

Month Month of Year

Day Day of Month

CharVar1 Dummy Character Variable 1

CharVar2 Dummy Character Variable 2

Details

Updated version of the airquality data frame that includes NA values.

Source

Generated from repfun package.

References

None

Examples

```
data("airquality_updated")
```

copydata	<i>Copy package data to the directory specified.</i>
----------	--

Description

Copy all package data into a temporary directory that can be used when running examples.

Usage

```
copydata(p)
```

Arguments

p	A path as a string.
---	---------------------

Value

'NULL' because package dataframes are copied to a folder.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
copydata(tempdir())
```

dm	<i>Demography</i>
----	-------------------

Description

A SDTM DM dataset from the CDISC pilot project

Usage

```
dm
```

Format

A data frame with 25 columns:

STUDYID Study Identifier
DOMAIN Domain Abbreviation
USUBJID Unique Subject Identifier
SUBJID Subject Identifier for the Study
RFSTDTC Subject Reference Start Date/Time
RFENDTC Subject Reference End Date/Time
RFXSTDTC Date/Time of First Study Treatment
RFXENDTC Date/Time of Last Study Treatment
RFICDTC Date/Time of Informed Consent
RFPENDTC Date/Time of End of Participation
DTHDTTC Date/Time of Death
DTHFL Subject Death Flag
SITEID Study Site Identifier
AGE Age
AGEU Age Units
SEX Sex
RACE Race
ETHNIC Ethnicity
ARMCD Planned Arm Code
ARM Description of Planned Arm
ACTARMCD Actual Arm Code
ACTARM Description of Actual Arm
COUNTRY Country
DMDTC Date/Time of Collection
DMDY Study Day of Collection

Details

Demography
A SDTM DM dataset from the CDISC pilot project

Source

[Access the source of the Demography dataset.](#)

formats	<i>Data frame of SAS formats</i>
---------	----------------------------------

Description

formats

Usage

formats

Format

A data frame with 5 columns and 8 observations:

FMTNAME Name of Format

START Start Value of Format

END End Value of Format

LABEL Label of Format

TYPE Type of Format

Details

Formats Data Frame (SAS Style)

Source

Generated for repfun package.

References

None

Examples

```
data("formats")
```

mtcars_w2lbls	<i>This is the mtcars data frame with labels added for columns mpg and cyl.</i>
---------------	---

Description

mtcars_w2lbls

Usage

```
mtcars_w2lbls
```

Format

A data frame with 32 observations and 11 columns:

mpg Miles/(US) gallon
cyl Number of cylinders
disp Displacement (cu.in.)
hp Gross horsepower
drat Rear axle ratio
wt Weight (1000 lbs)
qsec 1/4 mile time
vs Engine (0 = V-shaped, 1 = straight)
am Transmission (0 = automatic, 1 = manual)
gear Number of forward gears
carb Number of carburetors

Details

Updated version of the mtcars data frame that includes labels for 2 variables.

Source

Generated from repfun package.

References

None

Examples

```
data("mtcars_w2lbls")
```

rem_pg_nums*Remove floating page numbers from RTF files.***Description**

Pass in an RTF file to have floating page numbers removed and result saved to the same file.

Usage

```
rem_pg_nums(infile)
```

Arguments

infile	A path to the RTF file as a string.
---------------	-------------------------------------

Value

'NULL' because floating page numbers are removed from rtf files.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```
## Not run:
library(repfun)
repfun::rem_pg_nums('/path/to/an/rtf/file.rtf')

## End(Not run)
```

rs_setup*Pass values to setup function and the global environment will be arranged for use reporting tools.***Description**

Pass values to setup function and the global environment will be arranged for use reporting tools.

Usage

```
rs_setup(
  R_DICTION = "./inst/formats",
  R_MACDIRS = NULL,
  R_DDDATA = NULL,
  R_OTHERDATA = paste0("./data"),
  R_INPUTDATA = paste0("./data"),
  R_RAWDATA = paste0("./data"),
  R_SDSTM DATA = paste0("./data"),
  R_ADAMDATA = paste0("./data"),
  R_RFMTDIR = paste0("./inst/formats"),
  D_CENTID = "SITEID",
  D_DATADATE = NULL,
  D_DSPLYNUM = 1,
  D_DSPLYTYP = "T",
  D_FONTSIZE = 10,
  D_KEEPPOPVARS = NULL,
  D_OUTFILE = "./inst/t_ru_list_1.rtf",
  D_PGMPTH = "./R/rs_setup.R",
  D_STUDYID = NULL,
  D_STUDY_DESC = NULL,
  D_POP = "ITTEFL",
  D_POPDATA = NULL,
  D_POPLBL = "Intent-to-Treat",
  D_SUBJID = "USUBJID",
  D_SUBPOP = NULL,
  D_SUBSET = NULL,
  D_TITLE1 = NULL,
  D_TITLE2 = NULL,
  D_TITLE3 = NULL,
  D_TITLE4 = NULL,
  D_TITLE5 = NULL,
  D_TITLE6 = NULL,
  D_TITLE7 = NULL,
  D_FOOT1 = NULL,
  D_FOOT2 = NULL,
  D_FOOT3 = NULL,
  D_FOOT4 = NULL,
  D_FOOT5 = NULL,
  D_FOOT6 = NULL,
  D_FOOT7 = NULL,
  D_FOOT8 = NULL,
  D_FOOT9 = NULL,
  D_USERID = Sys.getenv("USERNAME"),
  D_RTFYN = "N",
  D_DEBUG = 0,
  RetEnv = FALSE
)
```

Arguments

R_DICTION	Location of reporting dictionaries.
R_MACDIRS	List of folders to search for functions when they are invoked.
R_DDDATA	Location to write DDDATA reporting data sets.
R_OTHERDATA	Location of additional production data sets.
R_INPUTDATA	Location of permanent formats data sets and miscellaneous data sets.
R_RAWDATA	Location of raw data sets.
R_SDATM DATA	Location of SDTM data sets.
R_ADAMDATA	Location of ADAM data sets.
R_RFMTDIR	Location of format catalogs and corresponding lists.
D_CENTID	Variable name for investigational center.
D_DATADATE	Date of data sets for use in titles/footnotes.
D_DSPLYNUM	Display number for title.
D_DSPLYTYP	Type of Display ('T','L','F').
D_FONTSIZE	Size of font on output file which is RTF by default (with automated PDF conversion via script).
D_KEEPPOPVARS	Variables to keep on the population data set when merging to apply populations and sub-populations.
D_OUTFILE	Production location for output TLFs.
D_PGMPTH	Path of the driver file that generates current outputs or data sets.
D_STUDYID	Protocol ID for the study.
D_STUDY_DESC	Description of Study.
D_POP	Population variable from ADSL that must equal Y for subjects to be included in the analysis.
D_POPDATA	Data set that contains the population to be analyzed.
D_POPLBL	Label for population being analyzed which can be used in the TLF header.
D_SUBJID	The variable used to uniquely identify a subject in this analysis.
D_SUBPOP	Condition to identify the sub-population when applied to ADSL.
D_SUBSET	Condition to filter data from incoming source data sets used for this TLF.
D_TITLE1	First title text.
D_TITLE2	Second title text.
D_TITLE3	Third title text.
D_TITLE4	Fourth title text.
D_TITLE5	Fifth title text.
D_TITLE6	Sixth title text.
D_TITLE7	Seventh title text.
D_FOOT1	First footnote text.
D_FOOT2	Second footnote text.

D_FOOT3	Third footnote text.
D_FOOT4	Fourth footnote text.
D_FOOT5	Fifth footnote text.
D_FOOT6	Sixth footnote text.
D_FOOT7	Seventh footnote text.
D_FOOT8	Eighth footnote text.
D_FOOT9	Ninth footnote text.
D_USERID	User name.
D_RTFYN	Y or N to generate RTf output.
D_DEBUG	Level of debugging to show in log files.
RetEnv	Return environment variable containing current settings.

Value

'NULL' because variables defined for use with the reporting tools.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
library(dplyr)
datadir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "datdir")
dir.create(datadir, showWarnings=FALSE)
outdir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "outdir")
dir.create(outdir, showWarnings=FALSE)
fmtdir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "fmtdir")
dir.create(fmtdir, showWarnings=FALSE)
repfun::copydata(datadir)
repfun::rs_setup(
  D_CENTID="SITEID",
  D_DATADATE=Sys.Date(),
  D_DSPLYNUM=1,
  D_DSPLYTYP='T',
  D_FONTSIZE=10,
  D_FOOT1='1.) Only treatment emergent events related to lipids are displayed.',
  D_FOOT2='2.) Subjects are counted once in each body system & preferred term.',
  D_KEEPPOPVARS=c('STUDYID', 'USUBJID', 'SAFFL'),
  D_USERID=Sys.getenv("USERNAME"),
  D_STUDYID='ABCXYZPDQ',
  D_POP="SAFFL",
  D_POPDATA=repfun::adsl %>% dplyr::filter(SAFFL=='Y'),
  D_POPLBL="Safety",
  D_SUBJID=c("STUDYID", "USUBJID"),
  D_TITLE1=paste0('Table 1: Summary of Treatment Emergent Adverse Events'),
```

```
D_RTFYN="Y",
D_DEBUG=0,
R_DICTION=NULL,
R_OTHERDATA=NULL,
R_INPUTDATA=NULL,
R_RAWDATA=NULL,
R_SDTMDATA=NULL,
R_ADAMDATA=datadir,
R_RFMTDIR=fmtdir,
R_DDDATA=paste0(outdir,'/t_ru_list_1.rds'),
D_OUTFILE=paste0(outdir,"/t_ru_list_1.rtf"),
D_PGMPTH="/path/to/code/rs_setup.R")
```

ru_addbignvar *Assign Big N to Data Frame.*

Description

Pass in a data frame along with identification options and have Big N added to it.

Usage

```
ru_addbignvar(
  dsetintoaddbign,
  dsetintocount,
  countdistinctvars = c("STUDYID", "USUBJID"),
  groupbyvars = NULL,
  totalforvar = NULL,
  totalid = NULL,
  totaldecode = c("Total"),
  codedecodevarpairs = NULL,
  varcodelistpairs = NULL,
  codelistnames = list(),
  addbignтоварvalue = TRUE,
  splitchar = " "
)
```

Arguments

dsetintoaddbign

The data set that will hold the derived big N value.

dsetintocount The data set that will be counted to generate big N.

countdistinctvars

Variable(s) that contain values to be counted uniquely within any output grouping.

groupbyvars

Variables in DSETINTOCOUNT to group the data by when counting to deriving the big N.

totalforvar	Variable for which overall totals are required within all other grouped class variables.
totalid	Value(s) used to populate the variable(s) specified in totalforvar.
totaldecode	Value(s) used to populate the variable(s) of the decode variable(s) of the totalforvar.
codedecodevarpairs	Specifies code and decode variable pairs. Those variables should be in parameter GROUPBYVARSNUMER. One variable in the pair will contain the code, which is used in counting and ordering, and the other will contain decode, which is used for presentation.
varcodelistpairs	List of code/decode pairs of variables.
codelistnames	List of decodes for use with decoding code/decode pairs.
addbignтоварvalue	Place big N in a new variable or append to an existing variable (last groupbyvars value)?
splitchar	Text to insert between existing string and big N.

Value

A data frame based on the incoming data frame but collapsed by groups with descriptive statistics added.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(reffun)
library(dplyr)
library(tibble)
datadir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "datdir");
dir.create(datdir, showWarnings=FALSE)
reffun::copydata(datdir)
rfenv <- reffun::rs_setup(D_POPDATA=reffun::adsl %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID", "USUBJID"),
                           R_DICTION=NULL,
                           R_OTHERDATA=NULL,
                           R_INPUTDATA=NULL,
                           R_RAWDATA=NULL,
                           R_SDATMDATA=NULL,
                           R_ADAMDATA=datdir,
                           RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>% dplyr::mutate(TRT01AN=
                                                 ifelse(TRT01A=='Placebo',1,
                                                       ifelse(TRT01A=='Xanomeline Low Dose',2,3)))
attr(G_POPDATA$TRT01AN,"label") <- 'Actual Treatment for Period 01 (n)'
```

```

adae <- tibble::as_tibble(rfenv$adamdata$adae.rda()) %>%
  dplyr::inner_join(G_POPDATA,
                     by=c('STUDYID', 'USUBJID', 'SAFFL', 'TRT01A')) %>%
  dplyr::filter(TRTEMFL=='Y')
addbign <- reffun::ru_addbignvar(adae,
  G_POPDATA,
  groupbyvars=c("TRT01AN", "TRT01A"),
  countdistinctvars=c("STUDYID", "USUBJID"),
  totalforvar=c("TRT01AN"),
  totalid = 99,
  totaldecode = 'Total',
  codedecodevarpairs=c("TRT01AN", "TRT01A"),
  varcodelistpairs=c(""),
  codelistnames=list(),
  addbigntovarvalue=TRUE,
  splitchar="~") %>%
dplyr::select(STUDYID, USUBJID, TRT01AN, TRT01A, AEBODSYS, AEDECOD)

```

ru_addpage*Add a Page Number Column to an Existing Dataframe***Description**

Take incoming dataframe and add page number variable to it accounting for grouping variables, stacked variables, and no-split variables.

Usage

```

ru_addpage(
  dsetin,
  grpvars = NULL,
  stackvars = NULL,
  varlabls = NULL,
  rowsprbdy = NULL,
  startpaging = 0,
  lastbygrp = FALSE,
  fpage = "all",
  nftnotes = 0,
  nosplitvars = FALSE,
  npgvars = 0
)

```

Arguments

- | | |
|------------------------|--|
| <code>dsetin</code> | The dataframe for which a paging variable will be added. |
| <code>grpvars</code> | Grouping variables used in the output (used for nosplitvars). |
| <code>stackvars</code> | Specify stacked grouping variables (reduces # of page lines available for data). |

varlabs	Apply labels to outgoing dataframe.
rowsprbdy	Number of rows in the body of the report.
startpaging	Set to zero on first call, and > 0 on recalls to fix widows.
lastbygrp	Set to true if this page is processing the last value of the grouping variables (used when footnote is applied only to last page).
fpage	Setting to 'last' indicates that footnotes are only displayed on the last page.
nftnotes	Enter the number of footnotes (determines # of page lines available for data).
nosplitvars	Setting to true requires all values of the last grouping/stackvar must be on the same page (if possible).
npgvars	Number of page-by variables for this report (reduces # of page lines available for data).

Value

A dataframe based on the incoming dataframe but with a paging variable added.

Author(s)

Chris Rook, <cr883296@gmail.com>
Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>

Examples

```
library(repfun)
library(dplyr)
datadir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "datdir");
dir.create(datadir, showWarnings=FALSE)
repfun::copydata(datadir)
rfenv <- repfun::rs_setup(D_POPDATA=repfun::adsl %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID", "USUBJID"),
                           R_DICTION=NULL,
                           R_OTHERDATA=NULL,
                           R_INPUTDATA=NULL,
                           R_RAWDATA=NULL,
                           R_SDATMDATA=NULL,
                           R_ADAMDATA=datadir,
                           RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>%
  dplyr::mutate(TRT01AN=ifelse(TRT01A=='Placebo', 1,
                                ifelse(TRT01A=='Xanomeline Low Dose', 2, 3))) %>%
  repfun::ru_labels(varlabels=list('TRT01AN'='Actual Treatment for Period 001 (n)'))
adae <- rfenv$adamdata$adae.rda() %>%
  dplyr::inner_join(G_POPDATA, by=c('STUDYID', 'USUBJID', 'SAFFL', 'TRT01A'))
aesum_t <- repfun::ru_freq(
  adae,
  dsetindenom=G_POPDATA,
  countdistinctvars=c('STUDYID', 'USUBJID'),
  groupbyvarsnumer=c('TRT01AN', 'TRT01A', 'AEBODSYS', 'AEDECOD'),
  anyeventvars = c('AEBODSYS', 'AEDECOD'),
```

```

anyeventvalues = c('ANY EVENT', 'ANY EVENT'),
groupbyvarsdenom=c('TRT01AN'),
resultstyle="NUMERPCT",
totalforvar=c('TRT01AN'),
totalid=99,
totaldecode='Total',
codedecodevarpairs=c("TRT01AN", "TRT01A"),
varcodelistpairs=c(""),
codelistnames=list(),
resultpctdps=0) %>%
repfun::ru_denorm(varstodenorm=c("tt_result", "PERCENT"),
                    groupbyvars=c("tt_summarylevel", "AEBODSYS", "AEDECOD"),
                    acrossvar="TRT01AN",
                    acrossvarlabel="TRT01A",
                    acrossvarprefix=c("tt_ac", "tt_p")) %>%
dplyr::mutate(ord1=ifelse(tt_summarylevel==0, 0, 1)) %>%
dplyr::rename(ord2=tt_summarylevel) %>%
dplyr::arrange(ord1, AEBODSYS, ord2, AEDECOD) %>%
dplyr::select(-c(starts_with('tt_p'), starts_with('ord')))

aesum_p3 <- repfun::ru_addpage(aesum_t, grpvars=c('AEBODSYS'), rowsprbdy=35,
                                nosplitvars=TRUE)
print(head(aesum_p3, 10))

```

ru_addsupp

Cobmine an SDTM domain with its corresponding Supplemental data set

Description

Pass in an SDTM data frame along with its Supplemental version and they will be combined.

Usage

```
ru_addsupp(dsetin, dsetinsupp)
```

Arguments

- | | |
|------------|--|
| dsetin | Incoming data frame to have supplemental data added. |
| dsetinsupp | The supplemental data set to add. |

Value

The original SDTM data set with its supplemental data appended as new variables.

Author(s)

- Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
library(knitr)
ae <- repfun::ae
suppae <- repfun::suppae
aesupp <- repfun::ru_addsupp(dsetin=ae,dsetinsupp=suppae)
knitr::kable(head(aesupp,5), caption = "SDTM.AE combined with SDTM.SUPPAE")
```

ru_align

Align Columns for Reporting

Description

Pass in a data frame alignment criteria to have columns aligned for reporting.

Usage

```
ru_align(
  dsetin,
  varsin,
  byvars = NULL,
  alignment = "Right",
  compresschry = "Y",
  ncspace = 1
)
```

Arguments

dsetin	The data set holding the columns to align.
varsin	Columns to align.
byvars	Set of group-by variables.
alignment	Type of alignment.
compresschry	Compress by removing leading and trailing spaces for the resulting aligned column?
ncspace	Number of spaces between N and Percent.

Value

A data frame based having the requested columns aligned for reporting.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```

#=====
# Adverse Events
#=====
library(repfun)
library(dplyr)
datadir <- file.path(gsub("\\\\","/",tempdir()),fixed=TRUE),"datdir")
dir.create(datadir,showWarnings=FALSE)
repfun::copydata(datadir)
rfenv <- repfun::rs_setup(D_POP="SAFFL",
                           D_POPLBL="Safety",
                           D_POPDATA=repfun::adsl %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID", "USUBJID"),
                           R_DICTION=NULL,
                           R_OTHERDATA=NULL,
                           R_INPUTDATA=NULL,
                           R_RAWDATA=NULL,
                           R_SDATMDATA=NULL,
                           R_ADAMDATA=datadir,
                           RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>% dplyr::mutate(TRT01AN=
                                                ifelse(TRT01A=='Placebo',1,
                                                       ifelse(TRT01A=='Xanomeline Low Dose',2,3)))
attr(G_POPDATA$TRT01AN,"label") <- 'Actual Treatment for Period 01 (n)'
adae <- rfenv$adamdata$adae().rda() %>% dplyr::select(-SAFFL) %>%
  repfun::ru_getdata(G_POPDATA, c("STUDYID", "USUBJID"),
                      keepopvars=c("TRT01AN", "TRT01A"))
aesum_t <- repfun::ru_freq(adae,
                           dsetindenom=G_POPDATA,
                           countdistinctvars=c('STUDYID','USUBJID'),
                           groupbyvarsnumer=c('TRT01AN','TRT01A','AEBODSYS','AEDECOD'),
                           anyeventvars = c('AEBODSYS','AEDECOD'),
                           anyeventvalues = c('ANY EVENT','ANY EVENT'),
                           groupbyvarsdenom=c('TRT01AN'),
                           resultstyle="NUMERPCT",
                           totalforvar=c('TRT01AN'),
                           totalid=99,
                           totaldecode='Total',
                           codedecodevarpairs=c("TRT01AN", "TRT01A"),
                           varcodelistpairs=c(""),
                           codelistnames=list(),
                           resultpctdps=0) %>%
  repfun::ru_denorm(varstodenom=c("tt_result", "PERCENT"),
                     groupbyvars=c("tt_summarylevel", "AEBODSYS", "AEDECOD"),
                     acrossvar="TRT01AN",
                     acrossvarlabel="TRT01A",
                     acrossvarprefix=c("tt_ac", "tt_p"))

print('Before Aligning')
print(head(aesum_t[,grep('(AEBODSYS|AEDECOD|tt_ac)',names(aesum_t))],20))
aesum_t_a <- repfun::ru_align(aesum_t, "tt_ac:")
print('After Aligning')
print(head(aesum_t_a[,grep('(AEBODSYS|AEDECOD|tt_ac)',names(aesum_t_a))],20))

```

```

#=====
# Baseline Characteristics
#=====
rfenv <- repfun::rs_setup(D_POP="SAFFL",
                           D_POPLBL="Safety",
                           D_POPDATA=repfun::ads1 %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID", "USUBJID"),
                           R_DICTION=NULL,
                           R_OTHERDATA=NULL,
                           R_INPUTDATA=NULL,
                           R_RAWDATA=NULL,
                           R_SDATMDATA=NULL,
                           R_ADAMDATA=datdir,
                           RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>%
  dplyr::mutate(TRT01AN=ifelse(TRT01A=='Placebo', 1,
                               ifelse(TRT01A=='Xanomeline Low Dose', 2, 3))) %>%
  repfun::ru_labels(varlabels=list('TRT01AN'='Actual Treatment for Period 01 (n)'))
demstats_t <- repfun::ru_sumstats(G_POPDATA,
                                    analysisvars=c("AGE", "TRTDURD"),
                                    groupbyvars=c("STUDYID", "TRT01AN"),
                                    codedecodevarpairs=c("TRT01AN", "TRT01A"),
                                    totalforvar="TRT01AN", totalid=99,
                                    totaldecode="Total",
                                    statsinrowsyn = "Y",
                                    analysisvardps=list("AGE"=1, "TRTDURD"=2),
                                    statslist=c("n", "mean", "median", "sd", "min", "max")) %>%
  repfun::ru_denorm(varstodenorm=c("tt_result"),
                     groupbyvars=c("tt_avid", "tt_avnm", "tt_svid", "tt_svnm"),
                     acrossvar="TRT01AN", acrossvarlabel="TRT01A",
                     acrossvarprefix=c("tt_ac"))

print('Before Aligning')
print(head(demstats_t,10))
demstats_t_a <- repfun::ru_align(demstats_t, "tt_ac:", ncspace=10)
print('After Aligning')
print(head(demstats_t_a,10))

```

ru_contents*Generate proc contents of data frame similar to that generated by SAS***Description**

Pass in a data frame and the contents will be displayed.

Usage

```
ru_contents(dsetin)
```

Arguments

dsetin Incoming data frame to have proc contents generated.

Value

'NULL' because the proc contents output will be displayed.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
repfun::ru_contents(mtcars)
```

ru_data2codelist *Return a list with codelist, code and label based on input codelist dataset.*

Description

Pass in a data set from a SAS format catalog (or similar) and have a list returned in the structure of a SAS format for decoding variables.

Usage

```
ru_data2codelist(
  dsetin,
  codelistvarname = "FMTNAME",
  codevarname = "START",
  decodevarname = "LABEL",
  typevarname = "TYPE"
)
```

Arguments

dsetin	Name of incoming data set structured as a SAS format catalog saved as a data set.
codelistvarname	Name of the variable containing the SAS format or similar.
codevarname	Name of the variable that holds the code value.
decodevarname	Name of the variable that holds the decode value.
typevarname	Type of format (character or numeric).

Value

A list based on the incoming data frame but with decode values added along with records when completetypes is true.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
datadir <- file.path(gsub("\\\\","/",tempdir()),fixed=TRUE),"datdir")
dir.create(datadir,showWarnings=FALSE)
repfun::copydata(datadir)
rfenv <- repfun::rs_setup(R_RFMTDIR=datadir,RetEnv=TRUE)
list <- repfun::ru_data2codelist(rfenv$rfmtdata$formats.rda())
list$SEXS$START[[1]] # Code value 1
list$SEXS$LABEL[[1]] # Decode value 1
list$SEXS$START[[2]] # Code value 2
list$SEXS$LABEL[[2]] # Decode value 2
```

ru_datacompare

Compare 2 data frames and report differences.

Description

Pass in a base and compare data frame to find out if they are equal similar to proc compare in SAS.

Usage

```
ru_datacompare(dsetinbase, dsetincomp, idvars, maxprint = 50)
```

Arguments

dsetinbase	First data set.
dsetincomp	Second data set.
idvars	Match on these values prior to comparing records.
maxprint	Maximum number of differences per variable to display.

Value

An output similar to proc compare will be printed and returned as a list.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
repfun::ru_datacompare(iris,iris,idvars='Species')
```

ru_datetime

Add numeric datetimes to data frame that only has character versions.

Description

Pass in a data frame and variables ending in "DTC" will have corresponding numeric versions created and saved.

Usage

```
ru_datetime(dsetin, includevars = NULL)
```

Arguments

dsetin	Incoming data frame to have numeric datetimes added.
includevars	Specify which variables ending in DTC will be processed.

Value

The incoming data frame with numeric dates and times added will be returned.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
library(knitr)
ae <- repfun::ru_datetime(repfun::ae)
knitr::kable(head(ae[,grepl('(^DT\$|^TM\$|^DTC$)',names(ae))],5),
            caption = "After Invoking ru_labels()")
```

<code>ru_denorm</code>	<i>Transpose a Data Frame</i>
------------------------	-------------------------------

Description

Pass in a data frame along with identification options and have it transposed (denormalized, long to wide) to display treatment columns.

Usage

```
ru_denorm(  
  dsetin,  
  varstodenorm = NULL,  
  groupbyvars = NULL,  
  acrossvar = NULL,  
  acrossvarlabel = NULL,  
  acrossvarprefix = "tt_",  
  acrossvarsuffix = NULL  
)
```

Arguments

<code>dsetin</code>	The data set to transpose.
<code>varstodenorm</code>	The variables to transpose.
<code>groupbyvars</code>	Definition of one row in the output data frame.
<code>acrossvar</code>	Variable to define the columns in the transposed data frame.
<code>acrossvarlabel</code>	Variable to define the labels in the transposed data frame.
<code>acrossvarprefix</code>	Add to the beginning of each value in the across variable in the output data frame.
<code>acrossvarsuffix</code>	Add to the end of each value in the across variable in the output data frame.

Details

`dsetin, varstodenorm=NULL, groupbyvars=NULL, acrossvar=NULL, acrossvarlabel=NULL, acrossvarprefix="tt_", acrossvarsuffix=NULL`

Value

A data frame based on the incoming data frame transposed from long to wide.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```

#=====
# AEs: N and Percent
#=====

library(repfun)
library(dplyr)
datadir <- file.path(gsub("\\\\","/",tempdir()),fixed=TRUE),"datdir")
dir.create(datadir,showWarnings=FALSE)
repfun::copydata(datadir)
rfenv <- repfun::rs_setup(D_POP="SAFFL",
                           D_POPLBL="Safety",
                           D_POPDATA=repfun::adsl %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID", "USUBJID"),
                           R_DICTION=NULL,
                           R_OTHERDATA=NULL,
                           R_INPUTDATA=NULL,
                           R_RAWDATA=NULL,
                           R_SDATMDATA=NULL,
                           R_ADAMDATA=datadir,
                           RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>%
  dplyr::mutate(TRT01AN=ifelse(TRT01A=='Placebo',1,
                               ifelse(TRT01A=='Xanomeline Low Dose',2,3))) %>%
  repfun::ru_labels(varlabels=list('TRT01AN'='Actual Treatment for Period 01 (n)'))
adae <- rfenv$adamdata$adae() %>% select(-SAFFL) %>%
  repfun::ru_getdata(G_POPDATA, c("STUDYID", "USUBJID"),
                     keeppopvars=c("TRT01AN", "TRT01A"))
aesum_t <- repfun::ru_freq(adae,
                            dsetindenom=G_POPDATA,
                            countdistinctvars=c('STUDYID','USUBJID'),
                            groupbyvarsnumer=c('TRT01AN','TRT01A','AEBODSYS','AEDECOD'),
                            anyeventvars = c('AEBODSYS','AEDECOD'),
                            anyeventvalues = c('ANY EVENT','ANY EVENT'),
                            groupbyvarsdenom=c('TRT01AN'),
                            resultstyle="NUMERPCT",
                            totalforvar=c('TRT01AN'),
                            totalid=99,
                            totaldecode='Total',
                            codedecodevarpairs=c("TRT01AN", "TRT01A"),
                            varcodelistpairs=c(""),
                            codelistnames=list(),
                            resultpctdps=0) %>%
  repfun::ru_denorm(varstodenorm=c("tt_result", "PERCENT"),
                     groupbyvars=c("tt_summarylevel", "AEBODSYS", "AEDECOD"),
                     acrossvar="TRT01AN",
                     acrossvarlabel="TRT01A",
                     acrossvarprefix=c("tt_ac", "tt_p"))

#=====
# Demography Statistics: N and Percent
#=====

repfun::rs_setup(D_POP="SAFFL",

```

```

D_POPLBL="Safety",
D_POPDATA=repfun::adsl %>% dplyr::filter(SAFFL =='Y'),
D_SUBJID=c("STUDYID","USUBJID"),
R_DICTION=NULL,
R_OTHERDATA=NULL,
R_INPUTDATA=NULL,
R_RAWDATA=NULL,
R_SDTMDATA=NULL,
R_ADAMDATA=datdir)
G_POPDATA <- rfenv$G_POPDATA %>%
  dplyr::mutate(TRT01AN=
    ifelse(TRT01A=='Placebo',1,
    ifelse(TRT01A=='Xanomeline Low Dose',2,3))) %>%
  repfun::ru_labels(varlabels=list('TRT01AN'='Actual Treatment for Period 01 (n)'))
demstats_t <- repfun::ru_sumstats(G_POPDATA,
  analysisvars=c("AGE","TRTDURD"),
  groupbyvars=c("STUDYID","TRT01AN"),
  codedecodevarpairs=c("TRT01AN", "TRT01A"),
  totalforvar="TRT01AN", totalid=99,
  totaldecode="Total",
  statsinrowsyn = "Y",
  analysisvardps=list("AGE"=1,"TRTDURD"=2),
  statslist=c("n", "mean", "median", "sd", "min", "max")) %>%
  repfun::ru_denorm(varstodenorm=c("tt_result"),
  groupbyvars=c("tt_avid", "tt_avnm", "tt_svid", "tt_svnm"),
  acrossvar="TRT01AN", acrossvarlabel="TRT01A",
  acrossvarprefix=c("tt_ac"))

```

ru_expvarlist*Expand SAS Style Variable/Column List***Description**

Pass in a data frame along with column/variable identifiers formatted with SAS Style (i.e., using colon) and it will be expanded to the actual variable list.

Usage

```
ru_expvarlist(dsetin, varsin = NULL, keepnotexist = FALSE)
```

Arguments

- | | |
|--------------|--|
| dsetin | A dataframe holding columns whose names will be expanded. |
| varsin | A SAS style list of variable names. |
| keepnotexist | If the variable does not exist on the dataframe it will be excluded from the list. |

Value

A list of column/variable names.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(reffun)
df <- data.frame(tt_ac01=c('1','2','3'),
                  tt_ac02=c('a','b','b'),
                  tt_ac03=c('10','11','12'))
chk <- reffun::ru_expvarlist(df, varsin="tt_ac:")
print(chk)
```

ru_fillcodedcode *Fill missing code/decode records*

Description

Pass in a data frame with along code/decode variables and values to have missings populated.

Usage

```
ru_fillcodedcode(
  dsetin,
  codedecodevarpairs = NULL,
  varcodelistpairs = NULL,
  codelistnames = list(),
  groupbyvars = NULL,
  completetypes = TRUE
)
```

Arguments

dsetin The data set that will be counted to generate numerators for counts and percents.

codedecodevarpairs

Specifies code and decode variable pairs. Those variables should be in parameter GROUPBYVARSNUMER. One variable in the pair will contain the code, which is used in counting and ordering, and the other will contain decode, which is used for presentation.

varcodelistpairs

List of code/decode pairs of variables.

codelistnames List of decodes for use with decoding code/decode pairs.

groupbyvars Set of by-variables used to merge the incoming data set with the decode data set.

completetypes Keep all code/decode pairs even it not present on the incoming data set?

Value

A data frame based on the incoming data frame but with decode values added along with records when completetypes is true.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
fmtlist <- list('SEXS'=list('START'=list('M','F'),
                             'LABEL'=c('Male','Female')))
adsl <- repfun:::adsl
adsl2 <- repfun:::ru_fillcodedcode(adsl, codedecodevarpairs=c("SEX", "SEXDCD"),
                                     varcodelistpairs=c("SEX", "SEXS"),
                                     codelistnames=fmtlist)
unique(adsl2[c("SEX", "SEXDCD")])
```

ru_fillna

Fill NA values with specified values or zeros/blanks by default.

Description

Pass in a data frame along with a vector of variables and a vector of fill values. (Default fill is 0 for numeric and blank " " for character.)

Usage

```
ru_fillna(dsetin, vars = NULL, fills = NULL)
```

Arguments

- | | |
|--------|--|
| dsetin | Incoming data frame to have labels added to columns. |
| vars | Vector of variables to replace NA values. |
| fills | Vector of fill values. |

Value

The incoming data frame with the requested NA values replaced.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
repfun::ru_fillna(airquality, vars=c('Ozone','Solar.R'), fills=c(1111,2222)) %>% head(10)
```

ru_freq

Create Percentage based on Numerator and Denominator Data

Description

Pass in a data frame along with identification options and have descriptive statistics derived.

Usage

```
ru_freq(
  dsetin,
  dsetindenom = NULL,
  countdistinctvars = NULL,
  groupbyvarsnumer = NULL,
  groupbyvarsdenom = NULL,
  resultstyle = "NUMERPCT",
  totalforvar = NULL,
  totalid = NULL,
  totaldecode = c("Total"),
  anyeventvars = NULL,
  anyeventvalues = NULL,
  codedecodevarpairs = NULL,
  varcodelistpairs = NULL,
  codelistnames = list(),
  groupminmaxvar = NULL,
  resultpctdps = 0
)
```

Arguments

- dsetin** The data set that will be counted to generate descriptive statistics.
- dsetindenom** Input dataset containing data to be counted to obtain the denominator.
- countdistinctvars**
 - Variable(s) that contain values to be counted uniquely within any output grouping.
- groupbyvarsnumer**
 - Variables in DSETINNUMER to group the data by when counting to obtain the numerator.
- groupbyvarsdenom**
 - Variables in DSETINDENOM to group the data by when counting to obtain the denominator.

resultstyle	The appearance style of the result columns that will be displayed in the report.
totalforvar	Variable for which overall totals are required within all other grouped class variables.
totalid	Value(s) used to populate the variable(s) specified in totalforvar.
totaldecode	Value(s) used to populate the variable(s) of the decode variable(s) of the totalforvar.
anyeventvars	Set of variables for which total rows will be added.
anyeventvalues	Set of text values for total rows generated above.
codedecodevarpairs	Specifies code and decode variable pairs. Those variables should be in parameter GROUPBYVARSNUMER. One variable in the pair will contain the code, which is used in counting and ordering, and the other will contain decode, which is used for presentation.
varcodelistpairs	List of code/decode pairs of variables.
codelistnames	List of decodes for use with decoding code/decode pairs.
groupminmaxvar	Specify if frequency of each group should be from first or last value of a variable in format MIN(variables).
resultpctdps	The reporting precision for percentages.

Value

A data frame based on the incoming data frame but collapsed by groups with descriptive statistics added.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
library(dplyr)
library(tibble)
datadir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "datdir")
dir.create(datadir, showWarnings=FALSE)
outdir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "outdir")
dir.create(outdir, showWarnings=FALSE)
fmtdir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "fmtdir")
dir.create(fmtdir, showWarnings=FALSE)
repfun::copydata(datadir)
rfenv <- repfun::rs_setup(D_POPDATA=repfun::adsl %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID", "USUBJID"),
                           R_DICTION=NULL,
                           R_OTHERDATA=NULL,
                           R_INPUTDATA=NULL,
                           R_RAWDATA=NULL,
```

```

R_SDTMDATA=NULL,
R_ADAMDATA=datadir,
RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>%
  dplyr::mutate(TRT01AN=ifelse(TRT01A=='Placebo',1,
                               ifelse(TRT01A=='Xanomeline Low Dose',2,3)))
attr(G_POPDATA$TRT01AN,"label") <- 'Actual Treatment for Period 01 (n)'
adae <- rfenv$adamdata$adae.rda() %>%
  dplyr::inner_join(G_POPDATA, by=c('STUDYID','USUBJID','SAFFL','TRT01A'))
aesum <- reppfun::ru_freq(adae,
                           dsetindenom=G_POPDATA,
                           countdistinctvars=c('STUDYID','USUBJID'),
                           groupbyvarsnumer=c('TRT01AN','TRT01A','AEBODSYS','AEDECOD'),
                           anyeventvars = c('AEBODSYS','AEDECOD'),
                           anyeventvalues = c('ANY EVENT','ANY EVENT'),
                           groupbyvarsdenom=c('TRT01AN'),
                           resultstyle="NUMERPCT",
                           totalforvar=c('TRT01AN'),
                           totalid=99,
                           totaldecode='Total',
                           codedecodevarpairs=c("TRT01AN", "TRT01A"),
                           varcodelistpairs=c(""),
                           codelistnames=list(),
                           resultpctdps=0)

```

ru_getdata*Assign Big N to Data Frame.***Description**

Merge input data with population data to keep only subjects which are in population sub data,

Usage

```

ru_getdata(
  dsetin,
  dsetinpop = rfenv$G_POPDATA,
  subjidvars = c("STUDYID", "USUBJID"),
  subpop = rfenv$G_SUBPOP,
  pop = rfenv$G_POP,
  keeppopvars = rfenv$G_KEEPPOPVARS
)

```

Arguments

dsetin	The data set that will be merged with the population data set.
dsetinpop	The population data set.
subjidvars	Variable(s) that define a unique subject.

subpop	A sub-population expression where variables are on DSETINPOP.
pop	The population expression (SAFFL==’Y’).
keeppopvars	Variables to keep on the population data set.

Value

A data frame based on the incoming data frame but restricted to the population of interest with relevant population variables added.

Author(s)

Yongwei Wang, <yongwei.x.wang@viihealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

ru_groupbyvars *Modify groupbyvars by adding or removing decode vars.*

Description

Pass in a vector of group-by variables along with a vector of code/decode pairs to have decode variables added or removed.

Usage

```
ru_groupbyvars(groupbyvars, codedecodevarpairs, adddecode = TRUE)
```

Arguments

- groupbyvars** Vector of group-by variables.
- codedecodevarpairs** Specifies code and decode variable pairs. Those variables should be in parameter GROUPBYVARSNUMER. One variable in the pair will contain the code, which is used in counting and ordering, and the other will contain decode, which is used for presentation.
- adddecode** Add decode variables (true) or remove (false).

Value

A data frame based on the incoming data frame but collapsed by groups with counts and percents added.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
add_decode <- repfun::ru_groupbyvars(
  c("TRTCD", "TRTGRP", "ATOXGRN", "AEDECOD", "AEBODSYS"),
  c("TRTCD", "TRTGRP", "ATOXGRN", "ATOXGR"), TRUE)
rem_decode <- repfun::ru_groupbyvars(
  c("TRTCD", "TRTGRP", "ATOXGRN", "AEDECOD", "AEBODSYS"),
  c("TRTCD", "TRTGRP", "ATOXGRN", "ATOXGR"), FALSE)
```

ru_labels	<i>Assign labels to variables in a data frame</i>
-----------	---

Description

Pass in a data frame along with a named list of columns with their corresponding labels.

Usage

```
ru_labels(dsetin, varlabels = list(), style = c("base", "Hmisc"))
```

Arguments

- | | |
|-----------|--|
| dsetin | Incoming data frame to have labels added to columns. |
| varlabels | List of variables and their labels. |
| style | Type of method used to add labels. |

Value

The incoming data frame with labels added.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
df_with_labels <- ru_labels(mtcars, varlabels=list(mpg='Miles per gallon',
                                                    cyl='Number of cylinders'))
```

ru_libname	<i>Automate retrieval of data sets/frames in specified folder.</i>
------------	--

Description

Provide a folder containing data sets/frames and have a list of function calls returned that can be used to quickly access individual data sets/frames.

Usage

```
ru_libname(datapath)
```

Arguments

datapath Location of reporting data sets.

Value

List of function calls for use in quickly accessing individual data sets/frames.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
datadir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "datdir")
dir.create(datadir, showWarnings=FALSE)
repfun::copydata(datadir)
adamdata <- repfun::ru_libname(datadir)
adamdata$adae.rda() %>% dplyr::filter(TRTEMFL=='Y') -> teae
print(head(teae[,c(1:10)]), 10)
```

ru_list

R function to mimic the SAS macro %tu_list.

Description

Pass in a dataframe and reporting settings to have RTF output generated.

Usage

```
ru_list(
  dsetin,
  stackvar1 = NULL,
  stackvar2 = NULL,
  stackvar3 = NULL,
  stackvar4 = NULL,
  stackvar5 = NULL,
  stackvar6 = NULL,
  stackvar7 = NULL,
  stackvar8 = NULL,
  stackvar9 = NULL,
  stackvar10 = NULL,
  stackvar11 = NULL,
  stackvar12 = NULL,
  stackvar13 = NULL,
  stackvar14 = NULL,
```

```
stackvar15 = NULL,
display = "Y",
varlabelstyle = "NOT IMPLEMENTED",
dddatasetlabel = NULL,
splitchar = "\n",
getdatayn = "N",
labelvarsyn = NULL,
computebeforepagelines = NULL,
computebeforepagevars = NULL,
columns = NULL,
ordervars = NULL,
descending = NULL,
orderformatted = "NOT IMPLEMENTED",
orderfreq = "NOT IMPLEMENTED",
orderdata = NULL,
noprintvars = NULL,
byvars = NULL,
flowvars = "NOT IMPLEMENTED",
widths = NULL,
defaultwidths = "NOT IMPLEMENTED",
skipvars = NULL,
pagevars = NULL,
idvars = NULL,
linevars = NULL,
centrevars = NULL,
leftvars = NULL,
rightvars = NULL,
colspacing = 2,
varspacing = "NOT IMPLEMENTED",
formats = "NOT IMPLEMENTED",
labels = NULL,
break1 = "NOT IMPLEMENTED",
break2 = "NOT IMPLEMENTED",
break3 = "NOT IMPLEMENTED",
break4 = "NOT IMPLEMENTED",
break5 = "NOT IMPLEMENTED",
nowidowvar = NULL,
sharecolvars = NULL,
sharecolvarsindent = 2,
overallsummary = "n",
proptions = "HEADLINE",
denormyn = "N",
varsToDenorm = NULL,
groupByVars = NULL,
acrossVar = NULL,
acrossVarLabel = NULL,
acrossColVarPrefix = NULL,
acrossVarListName = NULL,
```

```

lpp = 24,
rpp = 50,
toprow = "single",
spanlbls = NULL,
spanwidths = NULL,
spanjust = NULL,
spanbbord = NULL,
spantbord = NULL,
span2lbls = NULL,
span2widths = NULL,
span2just = NULL,
span2bbord = NULL,
xptyn = "N"
)

```

Arguments

dsetin	Incoming data frame or list of data frames.
stackvar1	Create Stacked variables (e.g. stackvar1=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar2	Create Stacked variables (e.g. stackvar2=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar3	Create Stacked variables (e.g. stackvar3=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar4	Create Stacked variables (e.g. stackvar4=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar5	Create Stacked variables (e.g. stackvar5=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar6	Create Stacked variables (e.g. stackvar6=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar7	Create Stacked variables (e.g. stackvar7=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar8	Create Stacked variables (e.g. stackvar8=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar9	Create Stacked variables (e.g. stackvar9=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar10	Create Stacked variables (e.g. stackvar10=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar11	Create Stacked variables (e.g. stackvar11=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar12	Create Stacked variables (e.g. stackvar12=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar13	Create Stacked variables (e.g. stackvar13=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))

stackvar14	Create Stacked variables (e.g. stackvar14=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
stackvar15	Create Stacked variables (e.g. stackvar15=list(varsin=c('invid','subjid'), varout='st_inv_subj', sepc='/', splitc='\n'))
display	Specifies whether the report should be created
varlabelstyle	Specifies the label style for variables (SHORT or STD)
dddatasetlabel	Label to be applied to the DD dataset
splitchar	Split character
getdatayn	Control execution of tu_getdata
labelvarsyn	Control execution of tu_labelvars
computebeforepagelines	Specifies the text to be produced for the Compute Before Page lines (labelkey labelfmt colon labelvar)
computebeforepagevars	Names of variables that shall define the sort order for Compute Before Page lines
columns	Column parameter
ordervars	Order variables
descending	Descending ORDERVARS
orderformatted	ORDER=FORMATTED variables
orderfreq	ORDER=FREQ variables
orderdata	ORDER=DATA variables
noprintvars	No print vars (usually used to order the display)
byvars	By variables
flowvars	Variables with flow option
widths	Column widths
defaultwidths	List of default column widths
skipvars	similar to SAS statement skipvars Break after skip
pagevars	similar to SAS statement pagevars Break after page
idvars	ID variables
linevars	Order variable printed with line statements.
centrevars	Centre justify variables
leftvars	Left justify variables
rightvars	Right justify variables
colspacing	Overall spacing value.
varspacing	Spacing for individual variables.
formats	Format specification
labels	Label definitions.
break1	Break statements.

break2	Break statements.
break3	Break statements.
break4	Break statements.
break5	Break statements.
nowidowvar	Not in version 1
sharecolvars	Order variables that share print space.
sharecolvarsindent	Indentation factor
overallsummary	Overall summary line at top of tables
proptions	PROC REPORT statement options
denormyn	Controls whether denormalisation will occur
varsToDenorm	List of variables to be denormalised/transposed. Passed one at a time to the PROC TRANSPOSE VAR statement.
groupByVars	List of BY variables passed to PROC TRANSPOSE BY statement.
acrossVar	Variable used in the PROC TRANSPOSE ID statement.
acrossVarLabel	Variable used in the PROC TRANSPOSE IDLABEL statement.
acrossColVarPrefix	Text passed to the PROC TRANSPOSE PREFIX statement.
acrossVarListName	Macro variable name to contain the list of columns created by the transpose of the first variable in VARSTODENORM.
lpp	Lines within body of report (only used with manual paging).
rpp	Total lines per page, when there is no wrapping and excluding titles and footnotes - passed directly to r2rtf().
toprow	Control lines above first column header.
spanlbls	List of level 1 column spanning header labels.
spanwidths	List of level 1 column spanning header widths.
spanjust	List of level 1 column spanning header justifications.
spanbbord	List of level 1 column spanning bottom border values.
spantbord	List of level 1 column spanning top border values.
span2lbls	List of level 2 column spanning header labels (above Level 1).
span2widths	List of level 2 column spanning header widths (above Level 1).
span2just	List of level 2 column spanning header justifications (above Level 1).
span2bbord	List of level 2 column spanning bottom border values (above Level 1).
xptyn	Write DDDATA data frame as XPT file in addition to RDS?

Value

'NULL' because a formatted RTF report is generated to the specified file.

Author(s)

Chris Rook, <cr883296@gmail.com>
 Yongwei Wang, <yongwei.x.wang@vivhealthcare.com>

Examples

```

library(repfun)
library(dplyr)
library(tibble)
datadir <- file.path(gsub("\\\\", "/", tempdir()), fixed=TRUE), "datadir")
dir.create(datadir, showWarnings=FALSE)
repfun::copydata(datadir)
outdir <- file.path(gsub("\\\\", "/", tempdir()), fixed=TRUE), "outdir")
dir.create(outdir, showWarnings=FALSE)
#=====
# Set up the reporting environment.
#=====
setup <- function(tlfid){
  myenv <- repfun::rs_setup(
    D_DATADATE=Sys.Date(),
    D_DSPLYNUM=tlfid,
    D_FOOT1='1.) Only treatment emergent events related to lipids are displayed.',
    D_FOOT2='2.) Subjects counted once in each body system & preferred term.',
    D_KEEPPOPVARS=c('STUDYID', 'USUBJID', 'SAFFL'),
    D_STUDYID='ABCXYZPDQ',
    D_POP="SAFFL",
    D_POPDATA=repfun::adsl %>%
      dplyr::filter(SAFFL =='Y') %>%
      dplyr::mutate(TRT01AN=ifelse(TRT01A=='Placebo', 1,
                                    ifelse(TRT01A=='Xanomeline Low Dose', 2, 3))) %>%
      repfun::ru_labels(varlabels=
        list('TRT01AN'='Actual Treatment for Period 01 (n)'),),
    D_POPLBL="Safety",
    D_SUBJID=c("STUDYID", "USUBJID"),
    D_TITLE1=paste0('Table ', tlfid, ': Summary of Treatment Emergent Adverse Events'),
    D_OUTFILE=paste0(outdir, "/t_ru_list_", tlfid, ".rtf"),
    D_PGMPTH="/path/to/code/ru_list.R",
    R_DDDATA=paste0(outdir, '/t_ru_list_', tlfid, '.rds'),
    R_ADAMDATA=datadir,
    RetEnv=TRUE)
  return(myenv)
}

#=====
# Process ADAE - derive counts and percents.
#=====
rfenv <- setup(1)
aesum <- repfun::ru_freq(rfenv$adadata$adae.rda() %>% dplyr::select(-SAFFL) %>%
  repfun::ru_getdata(rfenv$G_POPDATA, c("STUDYID", "USUBJID"),
  keeppopvars=c("TRT01AN", "TRT01A")),
  dsetindenom=rfenv$G_POPDATA,
  countdistinctvars=c('STUDYID', 'USUBJID'),
```

```

groupbyvarsnumer=c('TRT01AN', 'TRT01A', 'AEBODSYS', 'AEDECOD'),
anyeventvars = c('AEBODSYS', 'AEDECOD'),
anyeventvalues = c('ANY EVENT', 'ANY EVENT'),
groupbyvarsdenom=c('TRT01AN'),
resultstyle="NUMERPCT",
totalforvar=c('TRT01AN'),
totalid=99,
totaldecode='Total',
codedecodevarpairs=c("TRT01AN", "TRT01A"),
varcodelistpairs=c(""),
codelistnames=list(),
resultpctdps=0) %>%
dplyr::arrange(TRT01AN, TRT01A, AEBODSYS, tt_summarylevel, AEDECOD, NUMERCNT, DENOMCNT) %>%
repfun::ru_align("tt_result")

#=====
# Table 2: Summary of Adverse Events using NOWIDOWVAR (remove SOCs that
# will not fit on 1 page with 10pt font)
#=====

rfenv <- setup(2)
SOCterms <- aesum %>% dplyr::distinct(AEBODSYS, AEDECOD)
SOCcnts <- table(SOCterms$AEBODSYS)
repfun::ru_list(aesum %>% dplyr::filter(!(AEBODSYS %in% names(SOCcnts[SOCcnts>=20]))),
                columns=c('AEBODSYS', 'AEDECOD', 'tt_01', 'tt_02', 'tt_03', 'tt_99'),
                nowidowvar='AEBODSYS',
                widths=c(5.5, 4.5, 1.75, 1.9, 1.9, 1.75),
                skipvars=c('AEBODSYS'),
                centrevars=c('tt_01', 'tt_02', 'tt_03', 'tt_99'),
                ordervars=c('AEBODSYS', 'tt_summarylevel', 'AEDECOD'),
                noprintvars=c('tt_summarylevel'),
                denormyn='Y',
                varsToDenorm=c('tt_result'),
                groupByVars=c('AEBODSYS', 'tt_summarylevel', 'AEDECOD'),
                acrossVar="TRT01AN",
                acrossVarLabel="TRT01A",
                acrossColVarPrefix='tt_',
                dddatasetlabel=paste0('DD Dataframe for AE Table ', rfenv$G_DSPLYNUM),
                lpp=24)

```

ru_load_library *Load a list of libraries*

Description

Given a list of packages, check if installed and generate message, otherwise load package.

Usage

`ru_load_library(pkgs)`

Arguments

pkgs A list of packages to check if installed and then load.

Value

'NULL' because packages are loaded.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
repfun::ru_load_library(c("dplyr", "haven", "magrittr", "r2rtf"))
```

ru_setdata

Append data sets even when variables do not match

Description

Pass in a collection of data frames separated by commas and they will be appended.

Usage

```
ru_setdata(..., keeprownames = TRUE)
```

Arguments

... A collection of data frames.

keeprownames Convert row names on data frame to columns and keep the column.

Value

The incoming data frames combined (stacked).

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
repfun::ru_setdata(head(mtcars, 5), head(airquality, 5))
```

ru_stackvar*Stack Columns of a Dataframe into New Column***Description**

Pass in a dataframe and columns to stack and have new dataframe returned that contains the stacked columns.

Usage

```
ru_stackvar(
  dsetin,
  sepc = "/",
  splitc = "\\line",
  varsin = NULL,
  varout = NULL,
  varlabel = NULL
)
```

Arguments

dsetin	Name of incoming dataframe with columns to have stacked.
sepc	Separator character between the stacked columns.
splitc	Split character between stacked columns.
varsin	List of variables to be stacked.
varout	Name of stacked column in dataframe.
varlabel	Label for new stacked column.

Value

The incoming dataframe with columns stacked as requested.

Author(s)

Chris Rook, <cr883296@gmail.com>
 Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>

Examples

```
library(repfun)
library(dplyr)
datadir <- file.path(gsub("\\\\", "/", tempdir()), fixed=TRUE), "datdir")
dir.create(datadir, showWarnings=FALSE)
repfun::copydata(datadir)
rfenv <- repfun::rs_setup(D_POPDATA=repfun::ads1 %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID", "USUBJID"),
                           R_DICTION=NULL,
```

```

R_OTHERDATA=NULL,
R_INPUTDATA=NULL,
R_RAWDATA=NULL,
R_SDMDATA=NULL,
R_ADAMDATA=datdir,
RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>%
  dplyr::mutate(TRT01AN=ifelse(TRT01A=='Placebo',1,
                               ifelse(TRT01A=='Xanomeline Low Dose',2,3))) %>%
  repfun::ru_labels(varlabels=list('TRT01AN'='Actual Treatment for Period 01 (n)'))
adae <- rfenv$adamdata$adae.rda() %>%
  dplyr::inner_join(G_POPDATA, by=c('STUDYID','USUBJID','SAFFL','TRT01A'))
aesum_p <- repfun::ru_freq(adae,
                           dsetindenom=G_POPDATA,
                           countdistinctvars=c('STUDYID','USUBJID'),
                           groupbyvarsnum=c('TRT01AN','TRT01A','AEBODSYS','AEDECOD'),
                           anyeventvars = c('AEBODSYS','AEDECOD'),
                           anyeventvalues = c('ANY EVENT','ANY EVENT'),
                           groupbyvarsdenom=c('TRT01AN'),
                           resultstyle="NUMERPCT",
                           totalforvar=c('TRT01AN'),
                           totalid=99,
                           totaldecode='Total',
                           codedecodevarpairs=c("TRT01AN", "TRT01A"),
                           varcodelistpairs=c(""),
                           codelistnames=list(),
                           resultpctdps=0) %>%
repfun::ru_denorm(varstodenorm=c("tt_result", "PERCENT"),
                   groupbyvars=c("tt_summarylevel", "AEBODSYS", "AEDECOD"),
                   acrossvar="TRT01AN", acrossvarlabel="TRT01A",
                   acrossvarprefix=c("tt_ac", "tt_p")) %>%
dplyr::mutate(ord1=ifelse(tt_summarylevel==0,0,1)) %>%
dplyr::rename(ord2=tt_summarylevel) %>%
dplyr::arrange(ord1,AEBODSYS,ord2,AEDECOD) %>%
dplyr::select(-c(starts_with('tt_p'),starts_with('ord'))) %>%
repfun::ru_stackvar(varsin=c('AEBODSYS','AEDECOD'),varout='SYSPREF',
                     varlabel='Body System/Preferred Term')

```

ru_sumstats*Calculate Descriptive Statistics***Description**

Pass in a data frame along with identification options and have descriptive statistics derived.

Usage

```
ru_sumstats(
  dsetin,
```

```

analysisvars = NULL,
analysisvarlabels = "",
groupbyvars = NULL,
statslist = c("n", "mean", "median", "min", "max", "sd", "q1", "q3"),
statsinrowsyn = "N",
analysisvardps = 0,
statsdps = list(mean = 1, median = 1, sd = 2, se = 2),
codedecodevarpairs = c(""),
varcodelistpairs = c(""),
codelistnames = list(),
totalforvar = NULL,
totalid = NULL,
totaldecode = c("Total")
)

```

Arguments

dsetin	The data set that will be counted to generate descriptive statistics.
analysisvars	The variables to be analysed.
analysisvarlabels	Specify a label statement which will be used to define labels for statistics analysis variables defined in parameter ANALYSISVARS.
groupbyvars	Specifies the variables whose values define the subgroup combinations for the analysis. The variables can be divided by statements inside of (and) to represent different levels of subgroup.
statslist	Specifies a list of summary statistics to be produced.
statsinrowsyn	Place resulting descriptive statistics in rows or columns.
analysisvardps	Base precision of descriptive statistics prior to incorporating STATSDPS details.
statsdps	List of additional statistic-specific precision values to add to ANALYSISVARDPS.
codedecodevarpairs	Specifies code and decode variable pairs. Those variables should be in parameter GROUPBYVARSNUMER. One variable in the pair will contain the code, which is used in counting and ordering, and the other will contain decode, which is used for presentation.
varcodelistpairs	List of code/decode pairs of variables.
codelistnames	List of decodes for use with decoding code/decode pairs.
totalforvar	Variable for which overall totals are required within all other grouped class variables.
totalid	Value(s) used to populate the variable(s) specified in totalforvar.
totaldecode	Value(s) used to populate the variable(s) of the decode variable(s) of the totalforvar.

Value

A data frame based on the incoming data frame but collapsed by groups with descriptive statistics added.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
library(dplyr)
datdir <- file.path(gsub("\\\\", "/", tempdir(), fixed=TRUE), "datdir");
dir.create(datdir, showWarnings=FALSE)
repfun::copydata(datdir)
rfenv <- repfun::rs_setup(D_POPDATA=repfun::ads1 %>% dplyr::filter(SAFFL =='Y'),
                           D_SUBJID=c("STUDYID","USUBJID"),
                           R_DICTION=NULL,
                           R_OTHERDATA=NULL,
                           R_INPUTDATA=NULL,
                           R_RAWDATA=NULL,
                           R_SDTRMDATA=NULL,
                           R_ADAMDATA=datdir,
                           RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>% dplyr::mutate(
  TRT01AN=ifelse(TRT01A=='Placebo',1,
                  ifelse(TRT01A=='Xanomeline Low Dose',2,3))) %>%
  ru_labels(varlabels=list('TRT01AN'='Actual Treatment for Period 01 (n)'))
ru_sumstats(G_POPDATA,
            analysisvars=c("AGE", "TRTDURD"),
            groupbyvars=c("STUDYID", "TRT01AN"),
            codedecodevarpairs=c("TRT01AN", "TRT01A"),
            totalforvar="TRT01AN", totalid=99,
            totaldecode="Total",
            statsinrowsyn = "Y",
            analysisvardps=list("AGE"=1,"TRTDURD"=2),
            statslist=c("n", "mean", "median", "sd", "min", "max")) %>% head(10)
```

Description

Pass in a data set and identify the columns for reporting to have estimated relative column width returned.

Usage

```
ru_width_rtf(dsetin, varsin = list(), widths = list(), type = "PCT")
```

Arguments

<code>dsetin</code>	A dataframe containing columns for reporting.
<code>varsin</code>	A vector of variables on the reporting dataframe that will be displayed in the output.
<code>widths</code>	Provide a set of default widths for some or all variables as desired. (These will be used.)
<code>type</code>	Specify the type of width to be computed and returned. (Currently supports PCT, which refers to relative widths not percentages.)

Value

A list of widths of the same size as the list specified by `varsin`.

Author(s)

Yongwei Wang, <yongwei.x.wang@viivhealthcare.com>
 Chris Rook, <cr883296@gmail.com>

Examples

```
library(repfun)
library(dplyr)
datdir <- file.path(gsub("\\\\","/",tempdir(),fixed=TRUE),"datdir");
dir.create(datdir,showWarnings=FALSE)
repfun::copydata(datdir)
rfenv <- repfun::rs_setup(D_POPDATA=repfun::adsl %>% dplyr::filter(SAFFL =='Y'),
  D_SUBJID=c("STUDYID","USUBJID"),
  R_DICTION=NULL,
  R_OTHERDATA=NULL,
  R_INPUTDATA=NULL,
  R_RAWDATA=NULL,
  R_SDTMDATA=NULL,
  R_ADAMDATA=datdir,
  RetEnv=TRUE)
G_POPDATA <- rfenv$G_POPDATA %>%
  dplyr::mutate(
    TRT01AN=ifelse(TRT01A=='Placebo',1,
      ifelse(TRT01A=='Xanomeline Low Dose',2,3))) %>%
  repfun:::ru_labels(varlabels=list('TRT01AN'='Actual Treatment for Period 01 (n)'))
adae <- rfenv$adamdata$adae.rda() %>%
  dplyr::inner_join(G_POPDATA, by=c('STUDYID','USUBJID','SAFFL','TRT01A'))
aesum_p <- repfun:::ru_freq(adae,
  dsetindenom=G_POPDATA,
  countdistinctvars=c('STUDYID','USUBJID'),
  groupbyvarsnumer=c('TRT01AN','TRT01A','AEBODSYS','AEDECOD'),
  anyeventvars = c('AEBODSYS','AEDECOD'),
  anyeventvalues = c('ANY EVENT','ANY EVENT'),
  groupbyvarsdenom=c('TRT01AN'),
  resultstyle="NUMERPCT",
  totalforvar=c('TRT01AN'),
```

```

totalid=99,
totaldecode='Total',
codedecodevarpairs=c("TRT01AN", "TRT01A"),
varcodelistpairs=c(),
codelistnames=list(),
resultpctdps=0) %>%
  repfun::ru_denorm(varstodenorm=c("tt_result", "PERCENT"),
                     groupbyvars=c("tt_summarylevel", "AEBODSYS", "AEDECOD"),
                     acrossvar="TRT01AN", acrossvarlabel="TRT01A",
                     acrossvarprefix=c("tt_ac", "tt_p")) %>%
  dplyr::mutate(ord1=ifelse(tt_summarylevel==0,0,1)) %>%
  dplyr::rename(ord2=tt_summarylevel) %>%
  dplyr::arrange(ord1,AEBODSYS,ord2,AEDECOD) %>%
  dplyr::select(-c(starts_with('tt_p'),starts_with('ord'))) %>%
  repfun::ru_addpage(grpvars=c('AEBODSYS'),rowsprbdy=35,nosplitvars=TRUE)

widths1 <- repfun::ru_width_rtf(aesum_p,
                                 c('AEBODSYS','AEDECOD','tt_ac01','tt_ac02','tt_ac03','tt_ac99'))
print(widths1)
widths2 <- repfun::ru_width_rtf(aesum_p,
                                 c('AEBODSYS','AEDECOD','tt_ac01','tt_ac02','tt_ac03','tt_ac99'),
                                 list('AEBODSYS'=35, 'AEDECOD'=30))
print(widths2)

```

Description

A SDTM SUPPAE dataset from the CDISC pilot project

Usage

suppae

Format

A data frame with 10 columns:

STUDYID Study Identifier

RDOMAIN Related Domain Abbreviation

USUBJID Unique Subject Identifier

IDVAR Identifying Variable

IDVARVAL Identifying Variable Value

QNAM Qualifier Variable Name

QLABEL Qualifier Variable Label

QVAL Data Value
QORIG Origin
QEVAL Evaluator

Details

Supplemental Adverse Events
A SDTM SUPPAE dataset from the CDISC pilot project

Source

[Access the source of the Supplemental Adverse Events dataset.](#)

suppdm	<i>Supplemental Demography</i>
--------	--------------------------------

Description

A SDTM SUPPDM dataset from the CDISC pilot project

Usage

suppdm

Format

A data frame with 10 columns:

STUDYID Study Identifier
RDOMAIN Related Domain Abbreviation
USUBJID Unique Subject Identifier
IDVAR Identifying Variable
IDVARVAL Identifying Variable Value
QNAM Qualifier Variable Name
QLABEL Qualifier Variable Label
QVAL Data Value
QORIG Origin
QEVAL Evaluator

Details

Supplemental Demography
A SDTM SUPPDM dataset from the CDISC pilot project

Source

Generated dataset.

Index

* **datasets**
 adae, 3
 ads1, 6
 advs, 8
 airquality_4test, 14
 airquality_updated, 15
 formats, 18
 mtcars_w2lbls, 19

* **dataset**
 ae, 12
 dm, 16
 suppae, 59
 suppdm, 60

adae, 3
ads1, 6
advs, 8
ae, 12
airquality_4test, 14
airquality_updated, 15

copydata, 16

dm, 16

formats, 18

mtcars_w2lbls, 19

rem_pg_nums, 20
rs_setup, 20
ru_addbignvar, 24
ru_addpage, 26
ru_addsupp, 28
ru_align, 29
ru_contents, 31
ru_data2codelist, 32
ru_datacompare, 33
ru_datetime, 34
ru_denorm, 35
ru_expvarlist, 37

ru_fillcodedcode, 38
ru_fillna, 39
ru_freq, 40
ru_getdata, 42
ru_groupbyvars, 44
ru_labels, 45
ru_libname, 45
ru_list, 46
ru_load_library, 52
ru_setdata, 53
ru_stackvar, 54
ru_sumstats, 55
ru_width_rtf, 57

suppae, 59
suppdm, 60