Package bengaltiger

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Title bengaltiger

Version 0.0.24.9000

Description Streamlines data analysis and manuscript writing for medical research, primarily on the Towards Improved Trauma Care Outcomes (TITCO) in India cohort.

Depends R (>= 3.3.0)

Imports RMySQL,
rmarkdown,
DBI,
tableone,
knitr

License LICENCE.md

Encoding UTF-8

LazyData true

RoxygenNote 6.1.0

R topics documented:

`Add24HourInHospitalMortality`
Add 24-hour in hospital mortality

Description

Adds the variable 24-hour in hospital mortality to the study sample

Usage

```
Add24HourInHospitalMortality(study.sample, from.date = "doar",
  from.time = "toar", to.date = "dodd", to.time = "todd",
  date.format = "%Y-%m-%d", time.format = "%H:%M",
  died.variable = "died", died.value = "Yes", levels = c("Yes",
  "No"), variable.name = "m24h", add.as.factor = TRUE,
  drop.used.variables = TRUE)
```

Arguments

`study.sample`	Data frame. The study sample. No default.
`from.date`	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "doar".
`from.time`	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "toar".
`to.date`	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "dodd".
`to.time`	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "todd".
`date.format`	Character vector of length 1. The date format. Defaults to "%Y-%m-%d".
`time.format`	Character vector of length 1. The date format. Defaults to "%H:%M".
`died.variable`	Character vector of length 1. The name of the variable indicating whether the patient was dead at the end of follow up. Defaults to "died".
`died.value`	Character vector of length 1. The value or level of the died variable that means that the patients died. Defaults to "Yes".

levels	Character vector of length 2. The levels to use to encode the resulting 24-hour in hospital mortality variable. The first item in the vector should be the level to be used to represent a death. Defaults to c("Yes", "No").
variable.name	Character vector of length 1. The name of the 24-hour in hospital mortality variable. Defaults to "m24h".
add.as.factor	Logical vector of length 1. If TRUE the 24-hour in hospital mortality variables is added to the study sample as a factor. If FALSE it is added as character. Defaults to TRUE.
drop.used.variables	Logical vector of length 1. If TRUE the date and time variables used to calculate 24-hour in hospital mortality is dropped from the sample. Defaults to TRUE.

`Add30DayInHospitalMortality`

Add 30-day in hospital mortality

Description

Adds the variable 30-day in hospital mortality to the study sample

Usage

```
Add30DayInHospitalMortality(study.sample, from.date = "doar",
  from.time = "toar", to.date = "dodd", to.time = "todd",
  date.format = "%Y-%m-%d", time.format = "%H:%M",
  died.variable = "died", died.value = "Yes", levels = c("Yes",
  "No"), variable.name = "m30d", add.as.factor = TRUE,
  drop.used.variables = TRUE)
```

Arguments

study.sample	Data frame. The study sample. No default.
from.date	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "doar".
from.time	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "toar".
to.date	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "dodd".
to.time	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "todd".
date.format	Character vector of length 1. The date format. Defaults to "%Y-%m-%d".
time.format	Character vector of length 1. The date format. Defaults to "%H:%M".
died.variable	Character vector of length 1. The name of the variable indicating whether the patient was dead at the end of follow up. Defaults to "died".
died.value	Character vector of length 1. The value or level of the died variable that means that the patients died. Defaults to "Yes".

levels	Character vector of length 2. The levels to use to encode the resulting 30-day in hospital mortality variable. The first item in the vector should be the level to be used to represent a death. Defaults to c("Yes", "No").
variable.name	Character vector of length 1. The name of the 30-day in hospital mortality variable. Defaults to "m30d".
add.as.factor	Logical vector of length 1. If TRUE the 30-day in hospital mortality variables is added to the study sample as a factor. If FALSE it is added as character. Defaults to TRUE.
drop.used.variables	Logical vector of length 1. If TRUE the date and time variables used to calculate 30-day in hospital mortality is dropped from the sample. Defaults to TRUE.

AddTimeBetweenInjuryAndArrival

Add time between injury and arrival

Description

Adds the variable time between injury and arrival to participating centre.

Usage

```
AddTimeBetweenInjuryAndArrival(study.sample, from.date = "doi",
  from.time = "toi", to.date = "doar", to.time = "toar",
  date.format = "%Y-%m-%d", time.format = "%H:%M",
  units = "hours", variable.name = "tbia",
  drop.used.variables = TRUE)
```

Arguments

study.sample	Data frame. The study sample. No default.
from.date	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "doi".
from.time	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "toi".
to.date	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "doar".
to.time	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "toar".
date.format	Character vector of length 1. The date format. Defaults to "%Y-%m-%d".
time.format	Character vector of length 1. The date format. Defaults to "%H:%M".
units	Character vector of length 1. Should be one of "days", "hours", "minutes", or "seconds". Defaults to "hours".
variable.name	Character vector of length 1. The name of the time between injury and arrival variable. Defaults to "tbia".
drop.used.variables	Logical vector of length 1. If TRUE the date and time variables used to calculate time between injury and arrival are dropped from the sample. Defaults to TRUE.

AddTimeToFirstVitals *Add time to first vitals*

Description

Adds the variable time to first vitals, defined as the difference in time between arrival to participating centre and time when first set of vitals was recorded.

Usage

```
AddTimeToFirstVitals(study.sample, from.date = "doar",
  from.time = "toar", to.date = "dom_1", to.time = "tom_1",
  date.format = "%Y-%m-%d", time.format = "%H:%M",
  units = "hours", variable.name = "tt1v",
  drop.used.variables = TRUE)
```

Arguments

study.sample	Data frame. The study sample. No default.
from.date	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "doar".
from.time	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "toar".
to.date	Character or POSIXt vector of length 1. The name of the variable with the date from which to start counting. Defaults to "dom_1".
to.time	Character or POSIXt vector of length 1. The name of the variable with the time from which to start counting. Defaults to "tom_1".
date.format	Character vector of length 1. The date format. Defaults to "%Y-%m-%d".
time.format	Character vector of length 1. The date format. Defaults to "%H:%M".
units	Character vector of length 1. Should be one of "days", "hours", "minutes", or "seconds". Defaults to "hours".
variable.name	Character vector of length 1. The name of the time between injury and arrival variable. Defaults to "tt1v".
drop.used.variables	Logical vector of length 1. If TRUE the date and time variables used to calculate time between injury and arrival are dropped from the sample. Defaults to TRUE.

AddTraumaticBrainInjury *Add traumatic brain injury*

Description

Adds a new indicator variable to the study sample, defining what patients had a traumatic brain injury (TBI).

Usage

```
AddTraumaticBrainInjury(study.sample, icd.codes = c("s02.0", "s02.1",
  "s02.7", "s02.8", "s02.9", "s04.0", "s04.1", "s04.2", "s04.3", "s04.4",
  "s04.5", "s04.6", "s04.7", "s04.8", "s04.9", "s06.0", "s06.1", "s06.2",
  "s06.3", "s06.4", "s06.5", "s06.6", "s06.7", "s06.8", "s06.9", "s07.0",
  "s07.1", "s07.8", "s07.9", "s09.7", "s09.8", "s09.9", "t02.0", "t04.0",
  "t06.0"), icd.variables = c("e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd",
  "e_5_icd", "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd",
  "e_11_icd", "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd",
  "xray_4_icd", "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd",
  "xray_9_icd", "xray_10_icd", "xray_11_icd", "fast_1_icd", "fast_2_icd",
  "fast_3_icd", "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd",
  "fast_8_icd", "fast_9_icd", "fast_10_icd", "fast_11_icd", "ct_1_icd",
  "ct_2_icd", "ct_3_icd", "ct_4_icd", "ct_5_icd",      "ct_6_icd",
  "ct_7_icd", "ct_8_icd", "ct_9_icd", "ct_10_icd", "ct_11_icd",
  "ct_12_icd", "ct_13_icd", "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd",
  "op_5_icd", "op_6_icd", "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd",
  "op_11_icd"), levels = c("Yes", "No"), variable.name = "tbi",
  add.as.factor = TRUE, drop.used.variables = TRUE)
```

Arguments

study.sample	Data frame. The study sample. No default.
icd.codes	Character vector. The codes to be used to define a TBI. If any of the codes is present in any of the variables listen in icd.variables an observation will be classified as having a TBI. Defaults to c("s02.0", "s02.1", "s02.7", "s02.8", "s02.9", "s04.0", "s04.1", "s04.2", "s04.3", "s04.4", "s04.5", "s04.6", "s04.7", "s04.8", "s04.9", "s06.0", "s06.1", "s06.2", "s06.3", "s06.4", "s06.5", "s06.6", "s06.7", "s06.8", "s06.9", "s07.0", "s07.1", "s07.8", "s07.9", "s09.7", "s09.8", "s09.9", "t02.0", "t04.0", "t06.0").
icd.variables	Character vector. The names of the variables with international classification of disease (ICD) codes. Defaults to c("e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd", "e_5_icd", "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd", "e_11_icd", "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd", "xray_4_icd", "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd", "xray_9_icd", "xray_10_icd", "xray_11_icd", "fast_1_icd", "fast_2_icd", "fast_3_icd", "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd", "fast_8_icd", "fast_9_icd", "fast_10_icd", "fast_11_icd", "ct_1_icd", "ct_2_icd", "ct_3_icd", "ct_4_icd", "ct_5_icd", "ct_6_icd", "ct_7_icd", "ct_8_icd", "ct_9_icd", "ct_10_icd", "ct_11_icd", "ct_12_icd", "ct_13_icd", "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd", "op_5_icd", "op_6_icd", "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd", "op_11_icd").
levels	Character vector of length 2. The levels to use to encode the resulting TBI variable. The first item in the vector should be the level to be used to represent a TBI. Defaults to c("Yes", "No").
variable.name	Character vector of length 1. The name of the TBI. Defaults to "tbi".
add.as.factor	Logical vector of length 1. If TRUE the TBI is added to the study sample as a factor. If FALSE it is added as character. Defaults to TRUE.
drop.used.variables	Logical vector of length 1. If TRUE the ICD variables used to calculate TBI is dropped from the sample. Defaults to TRUE.

AddTriageRevisedTraumaScore *Add Triage Revised Trauma Score*

Description

Add the Triage Revised Trauma Score to the sample

Usage

```
AddTriageRevisedTraumaScore(study.sample, gcs.name = "gcs_t_1",
  sbp.name = "sbp_1", rr.name = "rr_1", variable.name = "trts",
  drop.used.variables = FALSE)
```

Arguments

study.sample	Data frame. The study sample. No default.
gcs.name	Character vector of length 1. The name of the Glasgow coma scale variable. Defaults to "gcs_t_1".
sbp.name	Character vector of length 1. The name of the systolic blood pressure variable. Defaults to "sbp_1".
rr.name	Character vector of length 1. The name of the respiratory rate variable. Defaults to "rr_1".
variable.name	Character vector of length 1. The name of the triage revised trauma score variable. Defaults to "trts".
drop.used.variables	Logical vector of length 1. If TRUE the date and time variables used to calculate time between injury and arrival are dropped from the sample. Defaults to FALSE.

AISVariables *AIS variables*

Description

Returns the names of all AIS variables in the TITCO dataset

Usage

```
AISVariables()
```

Examples

```
AISVariables()
```

CompileResults *Compile results*

Description

Compiles the results saved to the results.Rds file and saves it to disk in the format of your choice.

Usage

```
CompileResults(file.format = "docx", delete.results.file = TRUE)
```

Arguments

file.format	Character vector of length 1. The file format in which to save the results. Must be one of "md", "pdf", or "docx". Defaults to "docx".
delete.results.file	Logical vector of length 1. If TRUE the results.Rds file is deleted once its content has been compiled and saved. Defaults to TRUE.

CreateBootstrapSamples *Create bootstrap samples*

Description

Creates bootstrap samples and save them to disk, to use in functions that rely on bootstraping to estimate uncertainty intervals or to come up with other estimators, for example a linear shrinkage factor.

Usage

```
CreateBootstrapSamples(study.sample, random.seed.already.set = FALSE,
  random.seed = NULL, number.of.bootstrap.samples = 1000)
```

Arguments

study.sample	Data frame. The study sample. No default.
random.seed.already.set	Logical vector of length 1. If TRUE random.seed does not need to be set within this function as it indicates that this has been done (which is good practice) earlier in the code. Defaults to FALSE.
random.seed	Numeric vector of length 1. Has to be an integer. The seed to use for random number generation. Only used if random.seed.already.set is FALSE. Defaults to NULL.
number.of.bootstrap.samples	Numeric vector of length 1. Has to be a positive integer. The number of bootstrap samples to create. Only used it bootstrap.confidence.interval is TRUE. Defaults to 1000.

CreateLogisticRegressionSubTable
Create logistic regression subtable

Description

Creates a subtable for reporting logistic regression results.

Usage

```
CreateLogisticRegressionSubTable(model.object, odds.ratio = TRUE,
  confidence.interval = 0.95, include.intercept = FALSE,
  include.p.value = FALSE, digits = 2, verbose = FALSE)
```

Arguments

model.object	List of class glm. The model object on which to base the table. No default.
odds.ratio	Logical vector of length 1. If TRUE odds ratios are reported in the table instead of coefficients. Defaults to TRUE.
confidence.interval	Numeric vector of length 1. Has to be greater than 0 and less than 1. The width of the confidence interval. Defaults to 0.95.
include.intercept	Logical vector of length 1. If TRUE the model intercept is reported. Defaults to FALSE.
include.p.value	Logical vector of length 1. If TRUE the p-value is reported. Defaults to FALSE.
digits	Numerical vector of length 1. Has to be an integer greater than 0. The number of digits when reporting results. Defaults to 2.
verbose	Logical vector of length 1. If TRUE progress is printed as the function runs. Useful for debugging. Defaults to FALSE.
save.table	Logical vector of length 1. If TRUE the table is saved to the results file. Defaults to TRUE.
table.name	Character vector of length 1 or NULL. The name of the table when saved. Only used if save.table is TRUE, in which case table.name cannot be NULL. Defaults to NULL.

CreateLogisticRegressionTable
Create logistic regression table

Description

Creates a table for reporting logistic regression results.

Usage

```
CreateLogisticRegressionTable(model.list, odds.ratio = TRUE,
  confidence.interval = 0.95, include.intercept = FALSE,
  include.p.value = FALSE, digits = 2, save.table = TRUE,
  table.name = NULL, verbose = FALSE)
```

Arguments

model.list	List. The model objects on which to base the table. No default.
odds.ratio	Logical vector of length 1. If TRUE odds ratios are reported in the table instead of coefficients. Defaults to TRUE.
confidence.interval	Numeric vector of length 1. Has to be greater than 0 and less than 1. The width of the confidence interval. Defaults to 0.95.
include.intercept	Logical vector of length 1. If TRUE the model intercept is reported. Defaults to FALSE.
include.p.value	Logical vector of length 1. If TRUE the p-value is reported. Defaults to FALSE.
digits	Numerical vector of length 1. Has to be an integer greater than 0. The number of digits when reporting results. Defaults to 2.
save.table	Logical vector of length 1. If TRUE the table is saved to the results file. Defaults to TRUE.
table.name	Character vector of length 1 or NULL. The name of the table when saved. Only used if save.table is TRUE, in which case table.name cannot be NULL. Defaults to NULL.
verbose	Logical vector of length 1. If TRUE progress is printed as the function runs. Useful for debugging. Defaults to FALSE.

CreateSampleCharacteristicsTable

Create sample characteristics table

Description

Creates the sample characteristics table. Wrapper of TableOne.

Usage

```
CreateSampleCharacteristicsTable(study.sample, data.dictionary = NULL,
  group = NULL, variables = NULL, exclude.variables = NULL,
  include.overall = TRUE, include.missing = TRUE,
  include.complete.data = FALSE, digits = 1, save.to.results = TRUE,
  table.name = "sample.characteristics.table",
  table.caption = "Sample characteristics", save.to.disk = FALSE,
  file.format = "docx")
```

Arguments

study.sample	Data frame. The study sample. No default.
data.dictionary	Not currently used.
group	Character vector of length 1. The grouping variable. If NULL the table is not grouped. Defaults to NULL.
variables	Character vector. The names of variables to include in the table. If NULL all variables in data.dictionary is included. Defaults to NULL.
exclude.variables	Character vector. The names of variables to exclude from the table. If NULL no variables are excluded. Defaults to NULL.
include.overall	Logical vector of length 1. If TRUE an overall column is included in the tables. Used only if group is not NULL. Defaults to TRUE.
include.missing	Not currently used. Logical vector of length 1. If TRUE a column with the number (included. Defaults to TRUE.
include.complete.data	Logical vector of length 1. If TRUE the final table has two columns, one with complete cases only and one with multiple imputed data. Only used if the data is detected as multiple imputed, i.e. includes the variables ".imp" AND ".id". Overrides group and include.overall.
digits	Numeric vector of length 1 greater than or equal to 0. Number of digits to use when rounding table entries. Defaults to 1.
save.to.results	Logical vector of length 1. If TRUE the table object is saved to a results file on disk using SaveToResults. Defaults to TRUE.
table.name	Character vector of length 1. The name of the table when passed to SaveToResults. Deafults to "sample.characteristics.table".
table.caption	Character vector of length 1. The table caption. Deafults to "Sample characteristics".
save.to.disk	Logical vector of length 1. If TRUE the table object is saved to disk. Defaults to FALSE.
file.format	Character vector of length 1. The format in which to save the table to disk. Has to be one of c("pdf", "rmd", "docx"). Defaults to "docx".

CreateStudySample *Create study sample*

Description

Creates the study sample using a list of inclusion criteria. Note that the selection process is stepwise in the order given by the inclusion criteria.

Usage

```
CreateStudySample(study.data, inclusion.criteria, complete.cases = TRUE,
  relevant.variables = c("hos", "sex", "tran", "doi", "toi", "doar",
  "toar", "dodd", "todd", "moi", "age", "sbp_1", "hr_1", "rr_1", "gcs_t_1",
  "iss", "died", "head_and_neck", "face", "chest", "extremities",
  "external", "e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd", "e_5_icd",
  "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd", "e_11_icd",
  "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd", "xray_4_icd",
  "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd", "xray_9_icd",
  "xray_10_icd", "xray_11_icd", "fast_1_icd",      "fast_2_icd",
  "fast_3_icd", "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd",
  "fast_8_icd", "fast_9_icd", "fast_10_icd", "fast_11_icd", "ct_1_icd",
  "ct_2_icd", "ct_3_icd", "ct_4_icd", "ct_5_icd", "ct_6_icd", "ct_7_icd",
  "ct_8_icd", "ct_9_icd", "ct_10_icd", "ct_11_icd", "ct_12_icd",
  "ct_13_icd", "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd", "op_5_icd",
  "op_6_icd", "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd",
  "op_11_icd"), add.to.relevant.variables = NULL,
  remove.from.relevant.variables = NULL,
  ignore.variables = c("head_and_neck", "face", "chest", "extremities",
  "external", "e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd", "e_5_icd",
  "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd", "e_11_icd",
  "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd", "xray_4_icd",
  "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd", "xray_9_icd",
  "xray_10_icd", "xray_11_icd", "fast_1_icd", "fast_2_icd", "fast_3_icd",
  "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd", "fast_8_icd",
  "fast_9_icd", "fast_10_icd", "fast_11_icd",      "ct_1_icd", "ct_2_icd",
  "ct_3_icd", "ct_4_icd", "ct_5_icd", "ct_6_icd", "ct_7_icd", "ct_8_icd",
  "ct_9_icd", "ct_10_icd", "ct_11_icd", "ct_12_icd", "ct_13_icd",
  "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd", "op_5_icd", "op_6_icd",
  "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd", "op_11_icd"),
  save.to.results = TRUE, save.to.disk = FALSE, file.format = "docx",
  override = TRUE)
```

Arguments

study.data	Data frame. The study data. No defaults.
inclusion.criteria	A list of functions. Each function should represent an inclusion criterion. No default.
complete.cases	Logical vector of length 1. If TRUE only complete cases will be returned. If FALSE all cases are returned. Defaults to TRUE.
relevant.variables	Character vector. The names of variables to keep in the study sample. Defaults to c("hos", "sex", "tran", "doi", "toi", "doar", "toar", "dodd", "todd", "moi", "age", "sbp_1", "hr_1", "rr_1", "gcs_t_1", "iss", "died", "head_and_neck", "face", "chest", "extremities", "external", "e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd", "e_5_icd", "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd", "e_11_icd", "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd", "xray_4_icd", "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd", "xray_9_icd", "xray_10_icd", "xray_11_icd", "fast_1_icd", "fast_2_icd", "fast_3_icd", "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd", "fast_8_icd", "fast_9_icd", "fast_10_icd", "fast_11_icd", "ct_1_icd", "ct_2_icd", "ct_3_icd", "ct_4_icd", "ct_5_icd", "ct_6_icd", "ct_7_icd", "ct_8_icd",

"ct_9_icd", "ct_10_icd", "ct_11_icd", "ct_12_icd", "ct_13_icd", "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd", "op_5_icd", "op_6_icd", "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd", "op_11_icd").

`add.to.relevant.variables`
: Character vector. The names of variables to add to the default variables in relevant.variables. If NULL no variables are added. Defaults to NULL.

`remove.from.relevant.variables`
: Character vector. The names of variables to remove from the default variables in relevant.variables. If NULL no variables are removed. Defaults to NULL.

`ignore.variables`
: Character vector. The names of variables to ignore when complete cases are determined. The variables included in this vector must also be in relevant.variables. If NULL no variables are ignored. Defaults to c("head_and_neck", "face", "chest", "extremities", "external", "e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd", "e_5_icd", "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd", "e_11_icd", "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd", "xray_4_icd", "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd", "xray_9_icd", "xray_10_icd", "xray_11_icd", "fast_1_icd", "fast_2_icd", "fast_3_icd", "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd", "fast_8_icd", "fast_9_icd", "fast_10_icd", "fast_11_icd", "ct_1_icd", "ct_2_icd", "ct_3_icd", "ct_4_icd", "ct_5_icd", "ct_6_icd", "ct_7_icd", "ct_8_icd", "ct_9_icd", "ct_10_icd", "ct_11_icd", "ct_12_icd", "ct_13_icd", "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd", "op_5_icd", "op_6_icd", "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd", "op_11_icd").

`save.to.results`
: Logical vector of length 1. If TRUE the output is saved to a results file on disk. Defaults to TRUE.

`save.to.disk`
: Logical vector of length 1. If TRUE a file named "exclusions_and_missingness" is saved to disk where the exclusions and missingness are described. Defaults to FALSE.

`file.format`
: Character vector of length 1. Has to be either "docx" or "rmd". The format in which the file detailing the exclusions and missingness is saved. Defaults to "docx".

`override`
: Logical vector of length 1. If TRUE the file "exclusions_and_missingness" is replaced if it exists. If FALSE the function aborts if the file exists. Defaults to TRUE.

`CreateStudyTemplate` *Create study template*

Description

Creates a .R file with a custom name where all study steps are documented and run.

Usage

```
CreateStudyTemplate(study.name = "My bengaltiger study",
  authors = "Firstname Lastname",
  description = "This is a bengaltiger study.", file.name = "RunStudy",
  path = ".", create.directory = FALSE,
  functions.to.include = c("ImportStudyData"), save.as.function = TRUE,
  function.name = file.name, open = TRUE)
```

Arguments

study.name	Character vector of length 1. The name of the study. Defaults to "My bengaltiger study".
authors	Character vector. The names of the study authors. Defaults to c("Firstname Lastname").
description	Character vector of length 1. Short description of the study. Defaults to "This is a bengaltiger study.".
file.name	Character vector of length 1. The file name. Defaults to "RunStudy".
path	Character vector of length 1. The path where the study template is saved. Defaults to ".", i.e. the current working directory.
create.directory	Logical vector of length 1. If TRUE the directory to which path is pointing is created using dir.create(path) if it does not already exist. Defaults to FALSE.
functions.to.include	Character vector. The names of the functions to include in the template. Defaults to c("ImportsStudyData").
save.as.function	Logical vector of length 1. If TRUE the study template is structured as a R function. Defaults to TRUE.
function.name	Character vector of length 1. The name of the study function. Is used only if as.functions = TRUE. Defaults to file.name.
open	Logical vector of length 1. If TRUE the study template file is opened using R's file.edit(). Defaults to TRUE.

EstimateInHospitalMortality

Estimate in hospital mortality

Description

Estimates the proportion of patients who died in hospital with a bootstrap confidence interval if requested.

Usage

```
EstimateInHospitalMortality(study.sample, variable.name = "m24h",
  died.level = "Yes", digits = 3,
  bootstrap.confidence.interval = TRUE,
  bootstrap.samples.exist = FALSE, random.seed.already.set = FALSE,
  random.seed = NULL, number.of.bootstrap.samples = 1000,
  save.to.results = TRUE, print.result = TRUE, return.result = FALSE)
```

Arguments

study.sample	Data frame. The study sample. No default.
variable.name	Character vector of length 1. The name of the in hospital mortality variable. Defaults to "m24h".

`died.level` Character vector of length 1. The level of the in hospital mortality variable that indicates in hospital mortality. Defaults to "Yes".

`digits` Numeric vector of length 1. Must be a positive integer. The number of digits to use when rounding the proportion, and if applicable, the lower and upper bounds of the confidence interval. Defaults to 3.

`bootstrap.confidence.interval`
Logical vector of length 1. If TRUE a confidence interval is estimated using an emperical bootstrap. Deafults to TRUE.

`bootstrap.samples.exist`
Logical vector of length 1. If TRUE bootstrap samples are assumed to have been created using CreateBootstrapSamples, and are therefore read from the file bootstrap.samples.Rds. Defaults to FALSE.

`random.seed.already.set`
Logical vector of length 1. If TRUE random.seed does not need to be set within this function as it indicates that this has been done (which is good practice) earlier in the code. Defaults to FALSE.

`random.seed` Numeric vector of length 1. Has to be an integer. The seed to use for random number generation. Only used if bootstrap.conficence.interval is TRUE and random.seed.already.set is FALSE. Defaults to NULL.

`number.of.bootstrap.samples`
Numeric vector of length 1. Has to be a positive integer. The number of bootstrap samples to use. Only used it bootstrap.confidence.interval is TRUE. Defaults to 1000.

`save.to.results`
Logical vector of length 1. If TRUE the table object is saved to a results file on disk using SaveToResults. Defaults to TRUE.

`print.result` Logical vector of length 1. If TRUE the result is printed so that you see what is saved to results. Defaults to TRUE.

`return.result` Logical vector of length 1. If TRUE the result is returned to the parent environment. Default to FALSE.

`EstimateTraumaticBrainInjuryProportion`
Estimate traumatic brain injury proportion

Description

Estimates the proportion of patients with traumatic brain injury.

Usage

```
EstimateTraumaticBrainInjuryProportion(study.sample,
  variable.name = "tbi", tbi.level = "Yes", digits = 3,
  bootstrap.confidence.interval = TRUE, random.seed = NULL,
  number.of.bootstrap.samples = 1000, save.to.disk = TRUE,
  return.result = FALSE)
```

Arguments

study.sample	Data frame. The study sample. No default.
variable.name	Character vector of length 1. The name of the traumatic brain injury variable. Defaults to "tbi".
tbi.level	Character vector of length 1. The level of the traumatic brain injury variable that indicates a traumatic brain injury. Defaults to "Yes".
digits	Numeric vector of length 1. Must be a positive integer. The number of digits to use when rounding the proportion, and if applicable, the lower and upper bounds of the confidence interval. Defaults to 3.
bootstrap.confidence.interval	Logical vector of length 1. If TRUE a confidence interval is estimated using an emperical bootstrap. Deafults to TRUE.
random.seed	Numeric vector of length 1. Has to be an integer. The seed to use for random number generation. Only used if bootstrap.conficence.interval is TRUE. Defaults to NULL.
number.of.bootstrap.samples	Numeric vector of length 1. Has to be a positive integer. The number of bootstrap samples to use. Only used it bootstrap.confidence.interval is TRUE. Defaults to 1000.
save.to.disk	Logical vector of length 1. If TRUE the result is saved to disk in "results.rmd". Defaults to TRUE.
return.result	Logical vector of length 1. If TRUE the result is returned to the parent environment. Default to FALSE.

GetRevisedTraumaScoreComponents

Get revised trauma score components

Description

Gets revised trauma score components

Usage

```
GetRevisedTraumaScoreComponents(study.sample, gcs.name = "gcs_t_1",
  sbp.name = "sbp_1", rr.name = "rr_1")
```

Arguments

study.sample	Data frame. The study sample. No default.
gcs.name	Character vector of length 1. The name of the Glasgow coma scale variable. Defaults to "gcs_t_1".
sbp.name	Character vector of length 1. The name of the systolic blood pressure variable. Defaults to "sbp_1".
rr.name	Character vector of length 1. The name of the respiratory rate variable. Defaults to "rr_1".

ICDVariables *ICD variables*

Description

Returns the names of ICD 10 variables in the TITCO dataset

Usage

```
ICDVariables(subset = "all")
```

Arguments

subset	Character vector. Must be one or more of "all", "external", "xray", "fast", "ct", "intraoperative". Defaults "all", which is equal to c("external", "xray", "fast", "ct", "intraoperative").

Examples

```
ICDVariables()
ICDVariables("external")
ICDVariables(c("xray", "ct"))
```

ImportStudyData *Import study data*

Description

Imports the study data from a csv file.

Usage

```
ImportStudyData(data.file.name = NULL, data.path = "./data/")
```

Arguments

data.file.name	Character vector of length 1. The name of the study data file. Defaults to NULL.
data.path	Character vector of length 1. The path to the data directory. Defaults to "./data/"

ImportTitcoMySQL *Import titco study data from mysql server*

Description

Imports the titco study data from a mysql server, if no arguments are set, defaults to mangrove SSH tunnel-configuration.

Usage

```
ImportTitcoMySQL(mysql.server.name = "127.0.0.1",
  mysql.server.port = 3307, mysql.database = "TITCO",
  mysql.username = "titco", mysql.password = "mangrovetitco",
  mysql.titco.table = "titco")
```

Arguments

mysql.server.name	Character vector of length 1. The hostname or IP of the mysql-server, defaults to 127.0.0.1.
mysql.server.port	Integer. The port of mysql-server, defaults is 3307.
mysql.database	Character vector of length 1. The name of the database, defaults to TITCO
mysql.username	Character vector of length 1. The username for the database, defaults to titco.
mysql.password	Character vector of length 1. Password for db access, defaults to mangrovetitco
mysql.titco.table	Character vector of length 1. The mysql table name, defaults to titco. To use the smaller sample data set, set this to titco_sample

Init *Initiate a bengaltiger study*

Description

Initiates a bengeltiger study by creating a standard directory structure and study template.

Usage

```
Init(create.study.template = TRUE, study.name = "My bengaltiger study",
  authors = "Firstname Lastname",
  description = "This is a bengaltiger study.", file.name = "RunStudy",
  path = ".", create.directory = FALSE,
  functions.to.include = c("ImportStudyData"), save.as.function = TRUE,
  function.name = file.name, open = TRUE)
```

Arguments

create.study.template	Logical vector of length 1. If TRUE a study template will be created in the current working directory. Defaults to TRUE.
study.name	Character vector of length 1. The name of the study. Defaults to "My bengaltiger study".
authors	Character vector. The names of the study authors. Defaults to c("Firstname Lastname").
description	Character vector of length 1. Short description of the study. Defaults to "This is a bengaltiger study.".
file.name	Character vector of length 1. The file name. Defaults to "RunStudy".
path	Character vector of length 1. The path where the study template is saved. Defaults to ".", i.e. the current working directory.
create.directory	Logical vector of length 1. If TRUE the directory to which path is pointing is created using dir.create(path) if it does not already exist. Defaults to FALSE.
functions.to.include	Character vector. The names of the functions to include in the template. Defaults to c("ImportsStudyData").
save.as.function	Logical vector of length 1. If TRUE the study template is structured as a R function. Defaults to TRUE.
function.name	Character vector of length 1. The name of the study function. Is used only if as.functions = TRUE. Defaults to file.name.
open	Logical vector of length 1. If TRUE the study template file is opened using R's file.edit(). Defaults to TRUE.

IsLength1 *Is length 1*

Description

Checks if a given object is a non-list vector of length 1

Usage

```
IsLength1(x)
```

Arguments

x	A vector. The object to be checked. No default.

LogisticRegression *Logistic regression*

Description

Runs a logistic regression.

Usage

```
LogisticRegression(study.sample, outcome.name, covariate.names,
  run.bivariable.analyses = FALSE, stop.if.missing = TRUE,
  create.table = TRUE, table.options = list(odds.ratio = TRUE,
  confidence.interval = 0.95, include.p.value = FALSE, digits = 2,
  save.table = TRUE, table.name = NULL, verbose = FALSE),
  verbose = FALSE)
```

Arguments

study.sample	Data frame. The study sample. No default.
outcome.name	Character vector of length 1. The name of the outcome variable. No default.
covariate.names	Character vector. The names of the covariates. No default.
run.bivariable.analyses	Logical vector of length 1. If TRUE bivariable analyses are run before the full model is run and these results are included in the final table as unadjusted estimates. Defaults to FALSE.
stop.if.missing	Logical vector of length 1. If TRUE the execution stops if there is missing data in the outcome or covariates. Defaults to TRUE.
create.table	Logical vector of length 1. If TRUE a table with the regression results is created and returned. The apperance of this table can be modified using table.options. If FALSE the model object is returned. Defaults to TRUE.
table.options	List. Can only include "odds.ratio", "confidence.interval", "include.intercept", "include.p.value", "digits", "save.table", "table.name", and "verbose". See ?CreateLogisticRegressionTable for details.
verbose	Logical vector of length 1. If TRUE progress is printed as the function runs. Useful for debugging. Defaults to FALSE.

MergeRoadTrafficInjuryCategories *Merge road traffic injury categories*

Description

Merges road traffic injury categories into one

Usage

```
MergeRoadTrafficInjuryCategories(study.sample, variable.name = "moi")
```

Arguments

study.sample	Data frame. The study sample. No default.
variable.name	Character vector of length 1. The name of the mechanism of injury variable. Defaults to "moi".

OnlyAdolescentsAndYoungAdults

Only adolescents and young adults

Description

Keeps only the adolescents and young adults.

Usage

```
OnlyAdolescentsAndYoungAdults(study.sample, age.variable.name = "age",
  lower.age.cutoff = 10, upper.age.cutoff = 24,
  remove.missing = TRUE)
```

Arguments

study.sample	Data frame. The study sample. No default.
age.variable.name	Character vector of length 1. The name of the age variable. Defaults to "age".
lower.age.cutoff	Numeric vector of length 1. The lower age cutoff. Defaults to 10, i.e. only observations with an age of at least ten and at most upper.age.cutoff are kept in the sample.
upper.age.cutoff	Numeric vector of length 1. The upper age cutoff. Defaults to 24, i.e. only observations with an age of at least lower.age.cutoff and at most 24 are kept in the sample.
remove.missing	Logical vector of length 1. If TRUE all observations with missing age, as detected by is.na, are removed from the sample. Defaults to TRUE.

OnlyIsolatedTraumaticBrainInjuryPatients

Only isolated traumatic brain injury patients

Description

Keeps only the isolated traumatic brain injury (TBI) patients. Isolated traumatic brain injury is here defined as having any of the international classification of disease (ICD) codes listed in the parameter icd.codes below and no abbreviated injury scale (AIS) score >1 in any other body region.

Usage

```
OnlyIsolatedTraumaticBrainInjuryPatients(study.sample,
  icd.codes = c("s02.0", "s02.1", "s02.7", "s02.8", "s02.9", "s04.0",
  "s04.1", "s04.2", "s04.3", "s04.4", "s04.5", "s04.6", "s04.7", "s04.8",
  "s04.9", "s06.0", "s06.1", "s06.2", "s06.3", "s06.4", "s06.5", "s06.6",
  "s06.7", "s06.8", "s06.9", "s07.0", "s07.1", "s07.8", "s07.9", "s09.7",
  "s09.8", "s09.9", "t02.0", "t04.0", "t06.0"),
  icd.variables = c("e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd",
  "e_5_icd", "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd",
  "e_11_icd", "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd",
  "xray_4_icd", "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd",
  "xray_9_icd", "xray_10_icd", "xray_11_icd", "fast_1_icd", "fast_2_icd",
  "fast_3_icd", "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd",
  "fast_8_icd", "fast_9_icd", "fast_10_icd", "fast_11_icd", "ct_1_icd",
  "ct_2_icd", "ct_3_icd", "ct_4_icd", "ct_5_icd",      "ct_6_icd",
  "ct_7_icd", "ct_8_icd", "ct_9_icd", "ct_10_icd", "ct_11_icd",
  "ct_12_icd", "ct_13_icd", "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd",
  "op_5_icd", "op_6_icd", "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd",
  "op_11_icd"), ais.variables = c("face", "chest", "extremities",
  "external"), ais.cutoff = 1, remove.missing = FALSE)
```

Arguments

study.sample	Data frame. The study sample. No default.
icd.codes	Character vector. The codes to be used to define a TBI. If any of the codes is present in any of the variables listen in icd.variables an observation will be classified as having a TBI. Defaults to c("s02.0", "s02.1", "s02.7", "s02.8", "s02.9", "s04.0", "s04.1", "s04.2", "s04.3", "s04.4", "s04.5", "s04.6", "s04.7", "s04.8", "s04.9", "s06.0", "s06.1", "s06.2", "s06.3", "s06.4", "s06.5", "s06.6", "s06.7", "s06.8", "s06.9", "s07.0", "s07.1", "s07.8", "s07.9", "s09.7", "s09.8", "s09.9", "t02.0", "t04.0", "t06.0").
icd.variables	Character vector. The names of the variables with international classification of disease (ICD) codes. Defaults to c("e_1_icd", "e_2_icd", "e_3_icd", "e_4_icd", "e_5_icd", "e_6_icd", "e_7_icd", "e_8_icd", "e_9_icd", "e_10_icd", "e_11_icd", "e_12_icd", "xray_1_icd", "xray_2_icd", "xray_3_icd", "xray_4_icd", "xray_5_icd", "xray_6_icd", "xray_7_icd", "xray_8_icd", "xray_9_icd", "xray_10_icd", "xray_11_icd", "fast_1_icd", "fast_2_icd", "fast_3_icd", "fast_4_icd", "fast_5_icd", "fast_6_icd", "fast_7_icd", "fast_8_icd", "fast_9_icd", "fast_10_icd", "fast_11_icd", "ct_1_icd", "ct_2_icd", "ct_3_icd", "ct_4_icd", "ct_5_icd", "ct_6_icd", "ct_7_icd", "ct_8_icd", "ct_9_icd", "ct_10_icd", "ct_11_icd", "ct_12_icd", "ct_13_icd", "op_1_icd", "op_2_icd", "op_3_icd", "op_4_icd", "op_5_icd", "op_6_icd", "op_7_icd", "op_8_icd", "op_9_icd", "op_10_icd", "op_11_icd").
ais.variables	Character vector. The names of the variables with AIS scores for each body region. Defaults to c("head_and_neck", "face", "chest", "extremities", "external").
ais.cutoff	Integer vector of length 1 between 1 and 6. The cutoff above which an injury should not be included as isolated TBI. Defaults to 1.
remove.missing	Logical vector of length 1. If TRUE all observations with missing AIS, as detected by is.na, are removed from the sample. Defaults to FALSE.

OnlyPediatricPatients *Only pediatric patients*

Description

Keeps only the pediatric patients in the sample.

Usage

```
OnlyPediatricPatients(study.sample, age.variable.name = "age",
  age.cutoff = 18, remove.missing = TRUE)
```

Arguments

study.sample	Data frame. The study sample. No default.
age.variable.name	Character vector of length 1. The name of the age variable. Defaults to "age".
age.cutoff	Numeric vector of length 1. The age cutoff. Defaults to 18, i.e. only observations with an age less than 18 are kept in the sample.
remove.missing	Logical vector of length 1. If TRUE all observations with missing age, as detected by is.na, are removed from the sample. Defaults to TRUE.

OnlyPolytraumaPatients *Only polytrauma patients*

Description

Keeps only the polytrauma patients. Polytrauma is here defined as at least two injuries scored above a certain abbreviated injury scale (AIS) score cutoff in at least two different body regions.

Usage

```
OnlyPolytraumaPatients(sample, ais.variables = c("head_and_neck", "face",
  "chest", "extremities", "external"), ais.cutoff = 2,
  remove.missing = FALSE)
```

Arguments

sample	Data frame. The study sample. No default.
ais.variables	Character vector. The names of the variables with AIS scores for each body region. Defaults to c("head_and_neck", "face", "chest", "extremities", "external").
ais.cutoff	Integer vector of length 1 between 1 and 6. The cutoff above which an injury is counted for polytrauma. Defaults to 2.
remove.missing	Logical vector of length 1. If TRUE all observations with missing AIS, as detected by is.na, are removed from the sample. Defaults to FALSE.

SaveToResults *Save to results*

Description

Saves the desired output to a results file in the current working directory. Output saved in this file can later be compiled as a document.

Usage

```
SaveToResults(output.object, object.name, overwrite = TRUE)
```

Arguments

output.object	Any object. The output to be saved. Most often you want this to be a character vector of length 1, why you will see a warning if it is something else. No default.
object.name	Character vector of length 1. The name of the output object in the results object. No default.
overwrite	Logical vector of length 1. If TRUE any entry in the results object with the same name as object.name is overwritten. Defaults to TRUE.

SourceAdditionalFunctions *Source additional functions*

Description

Sources additional functions for use within the project. These functions may be user written and intended only for this specific projects, or they may be functions that are yet to be added to the package.

Usage

```
SourceAdditionalFunctions(path = "./misc/R/")
```

Arguments

path	Character vector of length 1. The path to the directory that holds the additional functions. Defaults to "./misc/R/".

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