Package ‘blaise’

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Type Package

Title Read and Write FWF Files in the 'Blaise' Format

Version 1.3.8

Description Can be used to read and write a fwf with an accompanying 'Blaise' datamodel. Blaise is the software suite built by Statistics Netherlands (CBS). It is essentially a way to write and collect surveys and perform statistical analysis on the data. It stores its data in fixed width format with an accompanying metadata file, this is the Blaise format. The package automatically interprets this metadata and reads the file into an R dataframe. When supplying a datamodel for writing, the dataframe will be automatically converted to that format and checked for compatibility. Supports dataframes, tibbles and LaF objects. For more information about 'Blaise', see <https://blaise.com/products/general-information>.

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Encoding UTF-8

Imports dplyr (>= 0.7.2), readr (>= 1.1.1), stringr (>= 1.2.0), utils (>= 3.4.1), tibble (>= 1.3.3), tools (>= 3.4.1), methods (>= 3.4.1), stats (>= 3.4.1)

Suggests testthat, LaF (>= 0.6.3), knitr, rmarkdown

RoxygenNote 7.1.1

Collate 'clean_model.R' 'generics.R' 'utils.R' 'variable.R' 'model.R' 'convert_df.R' 'convert_type.R' 'get_model.R' 'read_custom_types.R' 'read_data.R' 'read_data_laf.R' 'read_fwf_blaise.R' 'read_model.R' 'variable_custom.R' 'variable_date.R' 'variable_dummy.R' 'variable_enum.R' 'variable_integer.R' 'variable_real.R' 'variable_string.R' 'write_data.R' 'write_datamodel.R' 'write_fwf_blaise.R' 'write_fwf_blaise_with_model.R'

VignetteBuilder knitr

NeedsCompilation no

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read_fwf_blaise Read a fixed width datafile using a blaise datamodel

Description

Use this function to read a fwf that is described by a blaise datamodel. If this function throws a warning, try using readr::problems() on the result, this will for instance show an error in the used locale.

Usage

read_fwf_blaise(
  datafile,
  modelfile,
  locale = readr::locale(),
  numbered_enum = TRUE,
  output = "data.frame"
)

Arguments

datafile the fwf file containing the data
modelfile the datamodel describing the data
locale locale as specified with readr::locale(). Uses "." as default decimal separator. Can be used to change decimal separator, date_format, timezone, encoding, etc.
numbered_enum use actual labels instead of numbers for enums that use non-standard numbering in the datamodel. With the default (TRUE) (Male (1), Female (2), Unknown (9)) will be read as a factor with labels (1, 2, 9). With FALSE it will be read as a factor (Male, Female, Unknown). beware that writing a dataframe read with FALSE will result in an enum with levels (1, 2, 3) unless overruled by an existing model, since R does not support custom numbering for factors.
Define which output to use. Either "data.frame" (default) or "LaF". LaF does not support Datetypes, so these are converted to character vectors. Using LaF, DUMMY variables also can’t be ignored, these are read as empty character vectors. Using LaF basically takes over the parsing of the datamodel from LaF, since this is more robust and accepts more types of input.

Details
Handles the following types:

- STRING
- INTEGER
- REAL
- DATATYPE
- ENUM (if numbered it will be converted to a factor with the numbers as labels)
- custom types (same as a numbered ENUM)

If you want the numbered enums to be converted to their labels, this is possible by changing the "numbered_enum" parameter

Examples

```r
model = "
DATAMODEL Test
FIELDS
A : STRING[1]
B : INTEGER[1]
C : REAL[3,1]
D : REAL[3]
E : (Male, Female)
F : 1..20
G : 1.00..100.00
ENDMODEL"
data = "A12.3121 1 1.00
B23.41.2210 20.20
C34.512120100.00"

blafile = tempfile('testbla', fileext = '.bla')
writeLines(model, con = blafile)
datafile = tempfile('testdata', fileext = '.asc')
writeLines(data, con = datafile)

df = read_fwf_blaise(datafile, blafile)
unlink(blafile)
unlink(datafile)
```
**write_fwf_blaise**

Write a fixed width ascii datafile and accompanying blaise datamodel

### Description

Write a datafile in the blaise format (fwf ascii without separators) will always write out a blaise datamodel describing the datafile as well.

### Usage

```r
write_fwf_blaise(
  df,
  output_data,
  output_model = NULL,
  decimal.mark = ".",
  digits = getOption("digits"),
  justify = "right",
  write_model = TRUE,
  model_name = NULL
)
```

### Arguments

- **df**: dataframe to write
- **output_data**: path and name to output datafile. Will add .asc if no extension
- **output_model**: path and name to output datamodel. If NULL will use the same name as output_data with .bla extension unless and input_model is given.
- **decimal.mark**: decimal mark to use. Default is ".".
- **digits**: how many significant digits are to be used for numeric and complex x. The default uses getOption("digits"). This is a suggestion: enough decimal places will be used so that the smallest (in magnitude) number has this many significant digits.
- **justify**: direction of padding for STRING type when data is smaller than the width. Defaults to right-justified (padded on the left), can be "left", "right" or "centre".
- **write_model**: logical that can be used to disable the automatic writing of a datamodel
- **model_name**: Custom name that can be given to the datamodel. Default is the name of the dataframe

### Details

Currently supports the following dataformats:

- **character** => STRING,
- **integer** => INTEGER,
- **numeric** => REAL,
write_fwf_blaise_with_model

- Date => DATETYPE,
- factor => ENUM (will convert factor with numbers as labels to STRING)
- logical => INTEGER

Value

output as it is written to file as a character vector. Does so invisibly, will not print but can be assigned.

Examples

datafilename = tempfile('testdata', fileext = '.asc')
blafilename = tempfile('testbla', fileext = '.bla')
data = data.frame(1, 1:10, sample(LETTERS[1:3], 10, replace = TRUE), runif(10, 1, 10))
write_fwf_blaise(data, datafilename)
unlink(c(datafilename, blafilename))

write_fwf_blaise_with_model

Write a fixed width ascii datafile based on a given blaise datamodel

Description

Write a datafile in the blaise format (fwf ascii without separators) using an existing datamodel. will not write out a datamodel unless explicitly asked to. Tries to automatically match columns by name using Levenshtein distance and will change types if required and possible.

Usage

write_fwf_blaise_with_model(
  df,
  output_data,
  input_model,
  output_model = NULL,
  decimal.mark = ".",
  digits = getOption("digits"),
  justify = "right",
  max.distance = 0L
)

Arguments

df data frame to write
output_data path and name to output datafile. Will add .asc if no extension
input_model the datamodel used to convert the dataframe and write the output
output_model path and name to output datamodel. If NULL will not write anything. default is NULL

decimal.mark decimal mark to use. Default is ".".

digits how many significant digits are to be used for numeric vectors. The default uses
getOption("digits"). This is a suggestion: enough decimal places will be used
so that the smallest (in magnitude) number has this many significant digits.

justify direction of padding for STRING type when data is smaller than the width.
Defaults to right-justified (padded on the left), can be "left", "right" or "centre".

max.distance maximum Levenshtein distance to match columns. ignores case changes. Set to
0 (default) to only accept exact matches ignoring case. 4 appears to be a good
number in general. Will prevent double matches and will pick the best match for
each variable in the datamodel.

Value

output as it is written to file as a character vector. Does so invisibly, will not print but can be
assigned.

Examples

datafilename = tempfile('testdata', fileext = '.asc')
blafilename = tempfile('testbla', fileext = '.bla')

model = "
DATAMODEL Test
FIELDS
A : STRING[1]
B : INTEGER[1]
C : REAL[3,1]
D : REAL[3]
E : (Male, Female)
F : 1..20
G : 1.00..100.00
H : DATETYPE
ENDMODEL
"
writeLines(model, con = blafilename)

df = data.frame(
list(  
A = rep('t',3),
B = 1:3,
C = 1.1:3.3,
D = 1.0:3.0,
E = factor(c(1,2,1), labels = c('Male', 'Female')),
F = 1:3,
G = c(1., 99.9, 78.5),
H = as.Date(rep('2001-01-01', 3))
)
)
)
write_fwf_blaise_with_model

write_fwf_blaise_with_model(df, datafilename, blafilename)

model = " DATAMODEL Test
FIELDS
A : STRING[1]
B : STRING[1]
C : STRING[3]
E : STRING[1]
H : STRING[8]
ENDMODEL"
writeLines(model, con = blafilename)

df = data.frame(
    list(
        A = rep("t",3),
        E = factor(c(1,2,1), labels = c("Male", "Female"),
        B = 1:3,
        C = 1.1:3.3,
        H = as.Date(rep("2001-01-01", 3))
    ),
    stringsAsFactors = FALSE
)
write_fwf_blaise_with_model(df, datafilename, blafilename)
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