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# ------------------------------------------------------------------------------
# R programming statements for h220IF1 data
#
# This file contains programming statements needed to import the ASCII data
# file (.dat) into R. The R programming language has the capability to produce
# appropriate standard errors for estimates from a survey with a complex sample
# design such as the Medical Expenditure Panel Survey (MEPS).
#
# The input file is the ASCII data file (h220IF1.dat) supplied in this PUF
# release, which can be extracted from the .zip file supplied at the MEPS
# website: https://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp
#
# This code imports the MEPS data into R as a data frame called 'h220IF1'.
#
# Note that additional packages are needed to successfully run this code. To
# install these packages, run the 'install.packages' function (shown below).
# Once installed, the packages can be called using the 'library' function.
# Packages only need to be installed once, but they must be called using the
# 'library' function every time a new R session is started.
#
# Two options are available to run this code:
#
#  1. Copy and paste the code into an interactive R session.
#
#     The user must first download the ASCII (.dat) file from the MEPS website
#     and save it to a local directory, which must be defined in the
#     'meps_path' variable below. In this example, the local directory is
#     called 'C:/MEPS'. Note that the path structure will differ on Mac and PC.
#
#
#  2. Call this code directly from an interactive R session.
#
#  (a) If the ASCII (.dat) file has already been downloaded from the MEPS
#        website and saved to a local directory, the following code can be run
#        (after re-defining the 'meps_path' variable to point to the location
#        of the h220IF1.dat file.)
#
#     meps_path <- "C:/MEPS/h220IF1.dat"
#     source("https://meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h220IF1/h220IF1ru.txt")
#     head(h220IF1) # view data
#
#  (b) Alternatively, the ASCII (.dat) file can be downloaded directly from
#        the MEPS website. The following code can be used to download and
#        import the h220IF1 data into R without having to manually download,
#        unzip, and store the file on your local computer.
#
#          url <- "https://meps.ahrq.gov/mepsweb/data_files/pufs/h220IF1dat.zip"
#          download.file(url, temp <- tempfile())
#
#     meps_path <- unzip(temp, exdir = tempdir())
#     source("https://meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h220IF1/h220IF1ru.txt")
#
#          unlink(temp)  # Unlink to delete temporary file
#
#          head(h220IF1) # view data
#
# ------------------------------------------------------------------------------

# DEFINE 'meps_path' -----------------------------------------------------------
# 'meps_path' should point to the file path of the ASCII file (h220IF1.dat)
# Here, the 'exists' function checks whether meps_path is already defined. This
# feature is useful if calling this file from an external source.
if(!exists("meps_path"))  meps_path = "C:/MEPS/h220IF1.dat"

# INSTALL PACKAGES -------------------------------------------------------------
# Uncomment and run this portion if packages are not yet installed
#
# install.packages("readr")

# ***********************************
# LOAD PACKAGES ----------------------------------------------------------------

# Run this for every new R session

library(readr)

# DATA FILE INFO ---------------------------------------

# Define start and end positions to read fixed-width file


pos_start <- c(
1, 11, 24, 40, 69, 70)


pos_end <- c(
10, 23, 39, 68, 69, 71)


var_names <- c(
"DUPERSID", "CONDIDX", "EVNTIDX", "CLNKIDX", "EVENTYPE", "PANEL")


var_types <- c(
"c", "c", "c", "c", "n", "n")


var_types <- setNames(var_types, var_names)

# IMPORT ASCII file ------------------------

h220IF1 <- read_fwf(
meps_path,
     col_positions =
         fwf_positions(
             start = pos_start,
                 end   = pos_end,
                 col_names = var_names),
         col_types = var_types)


# OPTIONAL: save as .Rdata file for easier loading -----------------------------
# Run this to save a permanent .Rdata file in the local working directory
#
# save(h220IF1, file ="h220IF1.Rdata")

# ------------------------------------------------------------------------------
# NOTES:
#
#  1. This program has been tested on R version 3.6.0
#
#  2. This program will create a temporary data frame in R called 'h220IF1'.
#     You must run the 'save' command to permanently save the data to a local
#     folder
# ------------------------------------------------------------------------------
```