R Input/Output

Input

`R` is able to accept input from the keyboard or from files.

1. Keyboard input

a. readline():

this takes user input from the keyboard as a single string variable

Key arguments

- prompt: any text to prompt user for keyboard input

b. scan():

this function generates a vector of values entered using the keyboard

Key arguments

- what: mode of data expected from user entry; default is numeric

2. File input

a. scan():

this function can also read from files

Key arguments

- what: mode of data expected from user entry; default is numeric
- sep: delimiter for elements of vector; default is any whitespace

b. read.csv():

this function specializes in reading comma delimited files into `R`'s workspace as a data frame

Key arguments

- file: what file to read from
- header: are there column names; defaults to FALSE
- row.names: what column holds the row names; defaults to none
- stringsAsFactors: should strings be treated as factors; defaults to TRUE

c. read.table():

this function is very similar to `read.csv()`, but can read tabular data with any character as delimiter; to read a text file into `R` as a matrix you must use `read.table()` and then convert the data frame to a matrix with `as.matrix()`.

Key arguments

- file: what file to read from

- header: are there column names; defaults to FALSE

- row.names: what column holds the row names; defaults to none

- sep: specifies the file delimiter; defaults to space delimited

- stringsAsFactors: should strings be treated as factors; defaults to TRUE

Output

`R` is also capable of outputting information to the screen or file.

1. Screen output

a. print():

This is a general function that refers to a print function specific to whatever object type you include as an argument

- outside of a function, users can print an object simply by typing the variable name

- line numbers are printed along with the variable contents

b. cat():

this function prints to the screen, but without line numbers

- this function only prints the variable contents and therefore requires the inclusion of a newline character in the function call   `cat("4,5,6","\n")`

Key arguments

- sep: what should each argument be separated by when printing; default is a space

2. File output

a. cat():

this function can also write to files

Key arguments

- sep: what should each argument be separated by when printing; default is a space

- file: specifies file name to write to

b. write.table():

this function writes a matrix or data frame to a delimited text file

Key arguments

- row.names: include row names in file; defaults to TRUE

- col.names: include column names in file; defaults to TRUE

- sep: delimiter for text file; defaults to space delimited

- append: append to the file if it exists or overwrite; defaults to FALSE

File directory navigation

A number of functions in R allow for interaction with the operating system's file directories.

- `dir()` or `list.files()`: lists files present in working directory

- `file.info()`: provides information about a file, including file size

- `getwd()`: provides path of working directory

- `setwd()`: sets path for working directory

- `file.exists()`: logical test for the presence of a given file in the working directory

- `file.choose()` OR `choose.files()`: opens a graphical user interface file dialogue box

    - this allows for visual navigation of the file system and selection of a file

    - `file.choose()` works for Macs and `choose.files()` is R in Windows command