Introduction to R

Session 2 exercises

Statistical Consulting Center

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1 Write your own function

(i) A simple function calculate the standard error of the mean is given in the Session 2 slide, i.e.

```
mystder <- function(x){
     mysd <- sd(x, na.rm = T)
     n <- length(x)
     mysd/sqrt(n)
}
```

Copy this code and paste it into your R script, submit it to the R console.

(ii) Modify the function in 1(i) so that the output will have only 2 decimal places.

(iii) Calculate the standard error of mean `age` using the function you've created in 1(ii).

2 Installing an R package

R packages are collections of user-defined functions. The function `std.error`, for example, is contained in the `plotrix` package.

(i) Let's look at what happens when we try to use a function before actually installing the package in which it is contained. E.g. Calculate the standard error of the mean age using `std.error`.

(ii) Install the package `plotrix` into your R session by following the instructions below:

  (a) Select `Packages` from the bottom right panel of your Rstudio interface.

  (b) Click on `Install Packages` icon just below `Packages`.

  (c) Type `plotrix` in the blank space provided below "`Packages (separate multiple with space or comma):`"

  (d) Click on `No` if it asks you to restart R

  (e) Submit the code `library(plotrix)` to R Console to complete this installation.

(iii) Now, use `std.error` to calculate the standard error of the mean age.

(iv) Try writing your own code to calculate the standard error of the mean age. Hint: This only requires one line of code. Use online resources if you cannot remember how the standard error is calculated.

3 Subsetting datasets

(i) Produce a one-way frequency table for `q1a`.

(ii) Find out which participants have chosen "Can't choose" for this questions.

(iii) Now produce the frequency table in 3(i), excluding those participants in 3(ii).

(iv) Calculate the mean age for male participants.

(v) Calculate the mean age for male participants who make less than $10000 a year.

(vi) Calculate the mean age for European male participants who make less than $10000 a year.

4 Challenge

Modify the function given in 1, so that the function will return a 95% confidence interval. Hint: A 95% confidence interval of a variable `x` is given by the mean of `x` $\pm$ 1.96 $\times$ the standard error of `x`. You might find the `paste()` function useful.