USE R! HAVE FUN!

This is a brief introduction about R tools that might be useful in the Statistics course instructed by assistant professor Chen Wang.
Lots of the materials come from the **Data Science Specialities** offered by **Coursera**, which is a good MOOC paltform.
In every chapter, you will have some exercises, I strongly hope that you can solve the questions for your own good.

And let's get down to business!
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Chapter1 What is R

- R is a dialect of S, a language to do statistical analysis. And the most widely used tools in data science nowadays.
- R has lots of packages available, but you can also program your own scripts. In my point of view, it is somehow a mixture of object-oriented language and procedure-oriented language.
- Runs on almost any standard computing platform.(e.g. Windows, OS X)
- Frequent releases; active development.
- R has a good ecosystem.

Exercises

1. Along with R, there a lot of other tools used in data science. Can you list **3** other tools? What are their advantages and disadvantages? And in which industries are the tools used?
2. Install R on your computer.Click here to download R (https://www.r-project.org/)
3. Along with R, RStudio is also a very handy tool, so I highly recommend you to install RStudio.Click here to download RStudio (https://www.rstudio.com/products/rstudio/download/)
4. You can also download the R manual from R-bloggers (http://www.r-bloggers.com/)
5. Please find out how many data types are legal in R. List all of them along with their features. **There are at least 10 of them.**
6. Study the control structures of R(If else, For loops, While loops, Repeat, Next, Break)
7. Use the knowledge you've learned, program a function that can do the division. Remember that the denominator cannot be zero.
   I understand this is may be a little bit tough, so fill your code in the following example
   division<- function(nominator, denominator){
   # Use something to judge whether the demominator is zero, if so, return("Denominator is zero")#
   # Do the division here#
   # Return the result#
   }
   To test your function, type in "division(2,3)", "division(2,0)". The results will be 0.6667 and "Denominator is zero"

8. Use your **division** function to solve the following equations

- 10/2
- 6/5
- 9/0

9. Program a function called **innerproduct**, whose purpose is to calculate the interproduct of two vectors. **DO MAKE SURE THE TWO VECTORS ARE AT SAME LENGTH**
   Tips: you can generate a vector in R by typing "x <- c(1,2,3,4,5)".

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If you have questions with these exercises, feel free to contact via tianyuan12@hotmail.com (mailto:tianyuan12@hotmail.com).
And I will release an instruction about the exercises every **Sunday** on my Github (https://github.com/Tiany12/USE-R-HAVE-FUN-/tree/master). (P.S. Feel free to remind me,too.)