FIN 740 – Fall AP1 2020

Homework 2

Due: Sunday, September 13, 11:59 PM CST

※ Using the R script, answer the following questions. Please show all works for full credit.

Chapter 2

1. **Assign** the name **TODAY** to today's date using `Sys.Date()` in the following format: 01/25/2020.
   a) [4 points] Print **TODAY** (You need to type `TODAY`. Then, your result should be of the desired format, which is Month as a number/Day as a number/4-digit year). What is the class of `TODAY` ?
   b) [4 points] The class of **TODAY** in a) is NOT `"Date"`. Please convert it to the class `"Date"` and assign the name **TODAY.DATE**. Then, show the class of **TODAY.DATE**.

2. [10 points] You are reviewing the performance of your investment in stocks. This leaves you with two different stock returns: 3% for Apple and 1% for Microsoft. You want to run the following commends.

   If mystock is Apple, print `"My return is 3%."`
   If mystock is Microsoft, print `"My return is 1%."`
   If mystock is neither Apple nor Microsoft, print `"This is not in your portfolio."`

   You entered the following code in the first line

   ```
   mystock <- "Microsoft"
   ```

   and have to complete the following lines.

   ```
   if (          ) {
       print (             )
   } else {

     [Multiple lines here]

   }
   ```

   The `if...else` statement above should include all three possibilities.

3. [7 points] You start with the following code and then complete the next lines:

   ```
   n <- 10
   ```

   Print odd numbers from 10 to 24 using `repeat` loop. **Hint**. You can use modulo (%%) in Chapter 1.

4. [7 points] You start with the following code and then complete the next lines:

```
n <- 6
```

Print even numbers from 6 to 19 using `while` loop. **Hint**. You can use modulo (%%) in Chapter 1.

5. [7 points] You start with the following code and then complete the next lines:

```
n <- seq(from = 13, to = 28)
```

Print even numbers from 13 to 28 using `for` loop. **Hint**. You can use modulo (%%) in Chapter 1.

Chapter 3

6. [7 points] Please follow the following instructions. The instructions indicate how to download daily stock price of Amazon, Inc. from 2020-03-01 to 2020-04-30 from Yahoo! Finance.

```
install.packages("quantmod")
library(quantmod)
getSymbols("AMZN", src = "yahoo", from='2020-03-01', to='2020-04-30')
```

Then, with the following code, you can take the last column in `AMZN`, which is `AMZN.Adjusted` only, and assign the name `AMZNAdj` to the object.

```
AMZNAdj <- AMZN$AMZN.Adjusted
```

Using `AMZNAdj`, calculate daily log returns and assign the name `log_AMZNAdj`.

Chapter 4

7. Please follow the following instructions. The instructions indicate how to download daily stock price of Apple, Inc. from 2019-01-01 to 2019-12-31 from Yahoo! Finance.

```
library(quantmod)
getSymbols("AAPL", src = "yahoo", from='2019-01-01', to='2019-12-31')
AAPLAdj <- AAPL$AAPL.Adj
```

a) [7 points] Show whether the series `AAPLAdj` evolves with time. If it does, show how to remove the evolution with time and comment on the result.

b) [7 points] The following code will convert `AAPLAdj` to monthly log return.

```
monthly.AAPL <- monthlyReturn(AAPLAdj, subset=NULL, type='log', leading=TRUE)
```

Find sample autocorrelation and partial autocorrelation estimates for `monthly.AAPL` up to lag 10.