

Homework 1

Vineet Rai

Due date (New): Thursday, January 31

Rmarkdown produces documents where you can keep your codes, notes, and relevant links all in one place. As a result, **R**markdown documents are preferred by many data scientists because it ensures reproducibility and consistency. The purpose of this homework assignment is to illustrate some of its unique features.

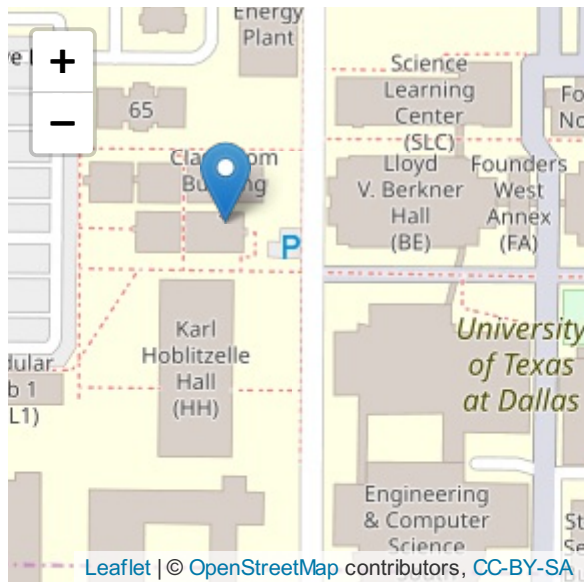
The following software are required for **R**Markdown.

- a. R:
 - Mac: <http://cran.rstudio.com/bin/macosx/>
 - Windows: <http://cran.rstudio.com/bin/windows/base/>
- b. Tex:
 - Mac: <http://tug.org/mactex/>
 - Windows: <http://miktex.org/download>
- c. RStudio: <http://www.rstudio.com/products/rstudio/download/>

Use the [Rmarkdown cheatsheet](#) to answer the following questions.

1. (2 pts) Create this document in **R**Studio and produce the output in pdf.
2. (2 pts) The following codes prints a map with our current location. Modify the **R**Markdown options to make the plot smaller.

```
> ## install.packages("leaflet")
> ## webshot::install_phantomjs()
> library(leaflet)
> leaflet() %>% addTiles() %>%
+   setView(lat = 32.987607, lng = -96.751466, zoom = 17) %>%
+   addMarkers(lat = 32.987607, lng = -96.751466, popup = "We are here")
```



3. (2 pts) The following codes produce a vector **x** of 1000 random integers between 0 and 1000 (inclusive). The summary statistics of the vector **x** is printed with **summary(x)** but the output is dis-enabled with an **R**Markdown option. Modify the **R**Markdown option and print both the **R** codes and the output.

```
> set.seed(1)
> x <- sample(0:1000, 1000, TRUE)
> summary(x)
```

```
Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 1.0   258.0   483.0   499.7   747.2   1000.0
```

4. (2 pts) Copy and paste the codes in #3, and modify the option so that only the output is printed.

```
Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 1.0   258.0   483.0   499.7   747.2   1000.0
```

5. (2 pts) The following codes gives a vector of 0s and 1s.

```
> c(0, 1, 0, 1, 0, 1, 0, 1, 0, 1)
[1] 0 1 0 1 0 1 0 1 0 1
> rep(0:1, 5)
[1] 0 1 0 1 0 1 0 1 0 1
```

Give two more approaches that return the same vector of 0s and 1s.

```
> seq(from = 0, to = 9) %% 2
[1] 0 1 0 1 0 1 0 1 0 1
> (1 + (-1)^(seq(from = 1, to = 10))) / 2
[1] 0 1 0 1 0 1 0 1 0 1
```