MAX-503 Assignment 1

1. Create a text vector called Months with names of the 12 months of the year.

```
Months<-c("January","February","March","April","May","June","July","August","September",
          "October","November","December")
Months
```

```
## [1] "January"   "February"  "March"     "April"     "May"       "June"
## [7] "July"      "August"    "September" "October"   "November"  "December"
```

2. Create a numeric vector Summer, with Calendar month index positions for the summer months (inclusive, with 4 elements in all).

```
Summer<-c(6,7,8,9)
```

3. Use vector indexing to extract the text values of Months, indexed by Summer.

```
Months[c(Summer)]
```

```
## [1] "June"      "July"      "August"    "September"
```

4. Multiply Summer by 3. What are the values of Months, when indexed by Summer multiplied by 3? Why do you get that answer?

```
Months[Summer*3]
```

```
## [1] NA NA NA NA
```

We get this output because Summer*3 changes the vector summer to (18,21,24,27) and the vector Months has values only till 12. Hence, returning null values.

5. What is the mean(average)summer month, as an integer value? Which value of Months corresponds to it? Why do you get that answer?

```
Summer_mean<-mean(Summer)
Summer_mean
```

```
## [1] 7.5
```

```
Months[Summer_mean]
```

```
## [1] "July"
```

The mean of summer returns 7.5 and by default the index rounds the function down to 0 decimal. So RStudio only considers 7 as the index.

6. Use the floor() and ceiling() functions to return the upper and lower limits of Months for the average Summer month. (Hint: to find out how a function works, use R help if needed.)

```
Months[floor(Summer_mean)]
```

```
## [1] "July"
```

```
Months[ceiling(Summer_mean)]
```

```
## [1] "August"
```

7. Using the store.df data from Week 2 lecture, how many visits did Bert's store have?

```
store.num <- factor(c(3, 14, 21, 32, 54))    # store id
store.rev <- c(543, 654, 345, 678, 234)   # store revenue, $K
store.visits <- c(45, 78, 32, 56, 34)    # visits, 1000s
store.manager <- c("Annie", "Bert", "Carla", "Dave", "Ella")
(store.df <- data.frame(store.num, store.rev, store.visits, store.manager, stringsAsFactors=F))
```

```
##   store.num store.rev store.visits store.manager
## 1         3       543           45         Annie
## 2        14       654           78          Bert
## 3        21       345           32         Carla
## 4        32       678           56          Dave
## 5        54       234           34          Ella
```

```
store.df
```

```
##   store.num store.rev store.visits store.manager
## 1         3       543           45         Annie
## 2        14       654           78          Bert
## 3        21       345           32         Carla
## 4        32       678           56          Dave
## 5        54       234           34          Ella
```

```
summary(store.df)
```

```
##  store.num    store.rev       store.visits store.manager
##  3 :1      Min.   :234.0   Min.   :32   Length:5
##  14:1      1st Qu.:345.0   1st Qu.:34   Class :character
##  21:1      Median :543.0   Median :45   Mode  :character
##  32:1      Mean   :490.8   Mean   :49
##  54:1      3rd Qu.:654.0   3rd Qu.:56
##            Max.   :678.0   Max.   :78
```

```r
store.df[2 , 3]
```

```
## [1] 78
```

Bert's store had 78 visits.

8. It is easy to make mistakes in indexing. How can you confirm that the previous answer is actually from Bert's store? Show this with a command that produces no more than 1 row of console output.

```r
store.df[store.df$store.manager=="Bert","store.visits"]
```

```
## [1] 78
```

Installing package to convert to PDF

```r
tinytex::install_tinytex()
```