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Subject: Project 1
Class: DSCI 502
Section: 01W
Instructor: Sean Yang
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1. Read the dataset in CarInsurances.xlsx into R. Call the loaded data Insurance. Make sure that you have the directory set to the correct location for the data.

```
> # 1. Read the dataset in CarInsurances.xlsx into R. Call the loaded data
> #    Insurance. Make sure that you have the directory set to the correct
> #    location for the data.
>
> # Set the working directory
> setwd("C:/Projects/DSCI 502/Week 1")
>
> # Import necessary libraries
> library(readxl)
>
> # Import the data set
> Insurance <- read_excel("CarInsurances.xlsx")
>
> # Display the dimension of the data frame
> dim(Insurance)
[1] 52  4
>
```

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> # Insurance. Make sure that you have the directory set to the correct

> # location for the data.

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> # Import the data set

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> # Display the dimension of the data frame
> dim(Insurance)
[1] 52  4
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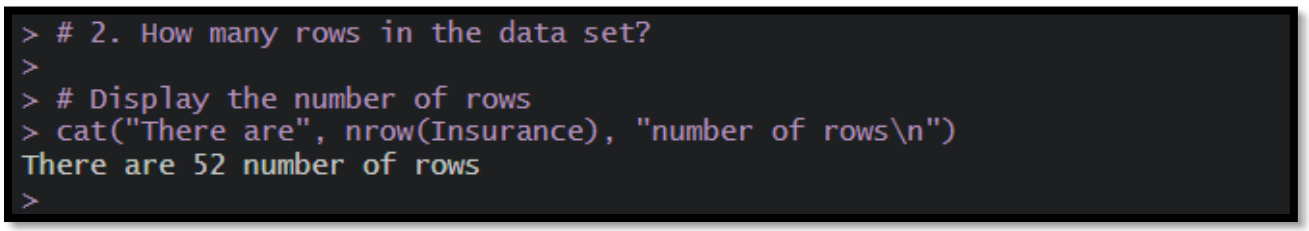
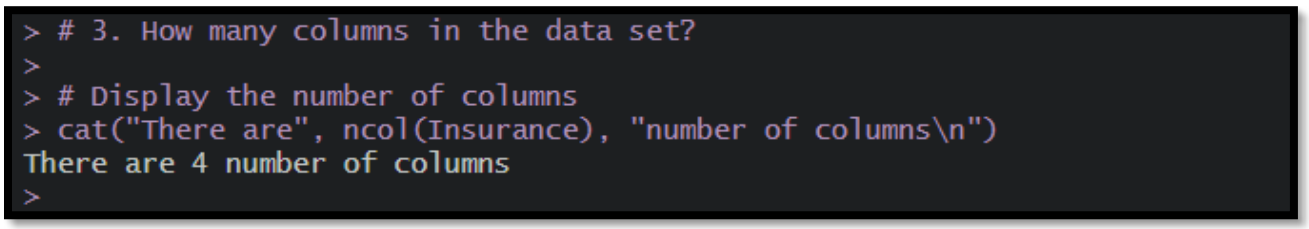
2. How many rows in the data set?



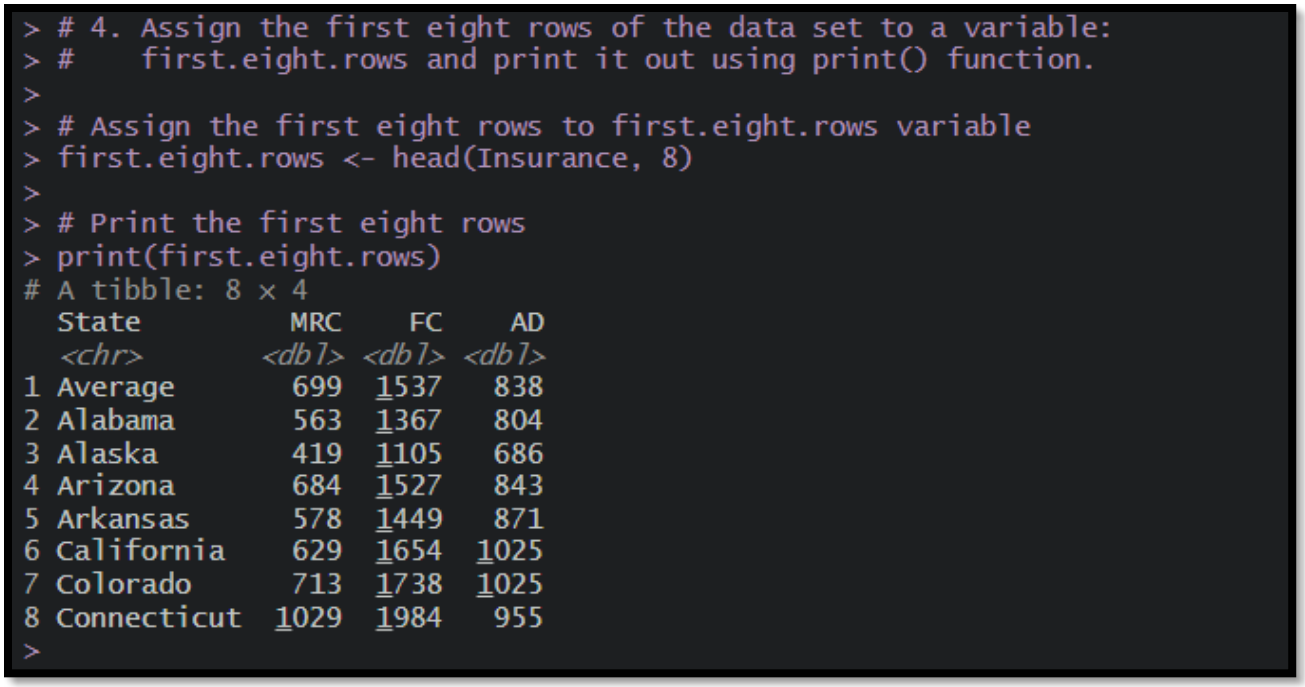

```
> # 2. How many rows in the data set?
>
> # Display the number of rows
> cat("There are", nrow(Insurance), "number of rows\n")
There are 52 number of rows
```

3. How many columns in the data set?




```
> # 3. How many columns in the data set?
>
> # Display the number of columns
> cat("There are", ncol(Insurance), "number of columns\n")
There are 4 number of columns
```

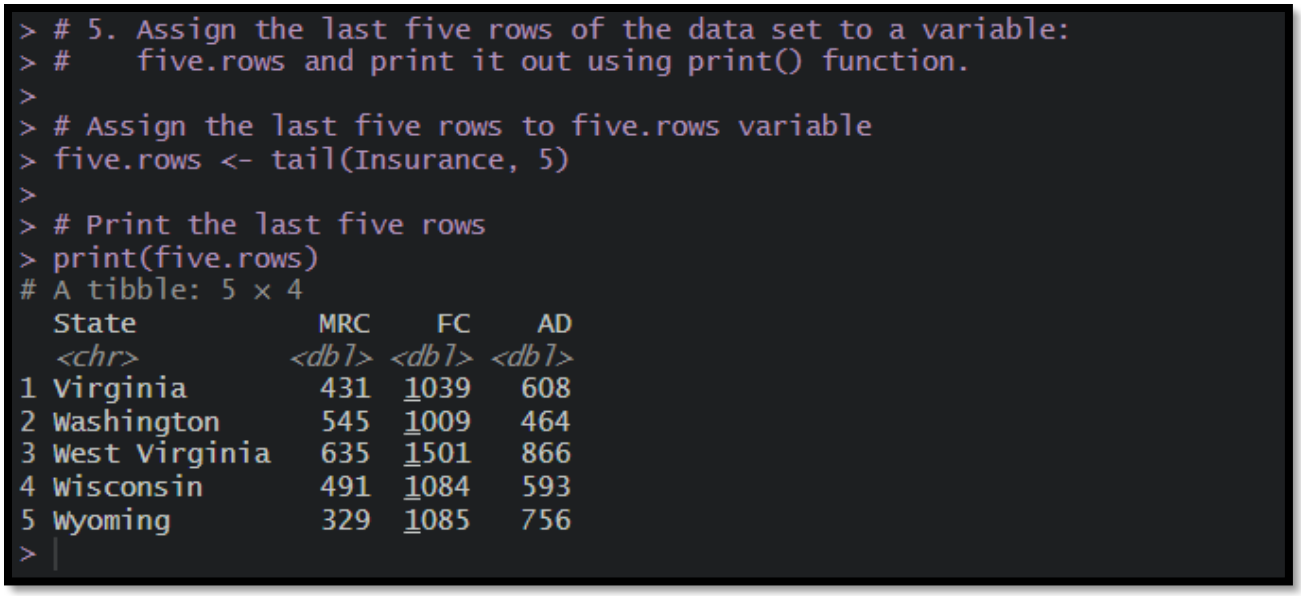
4. Assign the first eight rows of the data set to a variable: first.eight.rows and print it out using print() function.



```
> # 4. Assign the first eight rows of the data set to a variable:
> #    first.eight.rows and print it out using print() function.
>
> # Assign the first eight rows to first.eight.rows variable
> first.eight.rows <- head(Insurance, 8)
>
> # Print the first eight rows
> print(first.eight.rows)
# A tibble: 8 x 4
  State          MRC    FC    AD
  <chr>        <dbl> <dbl> <dbl>
1 Average        699  1537   838
2 Alabama        563  1367   804
3 Alaska         419  1105   686
4 Arizona        684  1527   843
5 Arkansas       578  1449   871
6 California     629  1654  1025
7 Colorado       713  1738  1025
8 Connecticut   1029  1984   955
>
```


> # 4. Assign the first eight rows of the data set to a variable:
> #   first.eight.rows and print it out using print() function.
>
> # Assign the first eight rows to first.eight.rows variable
> first.eight.rows <- head(Insurance, 8)
>
> # Print the first eight rows
> print(first.eight.rows)
A tibble: 8 × 4
  State   MRC   FC   AD
  <chr>   <dbl> <dbl> <dbl>
1 Average   699 1537   838
2 Alabama   563 1367   804
3 Alaska   419 1105   686
4 Arizona   684 1527   843
5 Arkansas   578 1449   871
6 California   629 1654 1025
7 Colorado   713 1738 1025
8 Connecticut 1029 1984   955
>

5. Assign the last five rows of the data set to a variable: five.rows and print it out using print() function.




```
> # 5. Assign the last five rows of the data set to a variable:
> #    five.rows and print it out using print() function.
>
> # Assign the last five rows to five.rows variable
> five.rows <- tail(Insurance, 5)
>
> # Print the last five rows
> print(five.rows)
# A tibble: 5 × 4
  State         MRC    FC    AD
  <chr>       <dbl> <dbl> <dbl>
1 Virginia      431  1039   608
2 Washington    545  1009   464
3 West Virginia 635  1501   866
4 Wisconsin     491  1084   593
5 Wyoming       329  1085   756
>
```

6. List all objects in the memory using two methods.

```
> # 6. List all objects in the memory using two methods.
>
> # Use ls() method to list all the objects
> ls()
[1] "first.eight.rows" "five.rows"        "Insurance"
>
> # Use objects() method to list all the objects
> objects()
[1] "first.eight.rows" "five.rows"        "Insurance"
>
```

> # 6. List all objects in the memory using two methods.
>
> # Use ls() method to list all the objects
> ls()
[1] "first.eight.rows" "five.rows" "Insurance"
>
> # Use objects() method to list all the objects
> objects()
[1] "first.eight.rows" "five.rows" "Insurance"
>

7. We want to summarize the data. To do it, we may use the summary function. Before asking others for help, it's generally a good idea for you to try to help yourself either using help() function or google it. Please help yourself and summarize the data first. Then answer the following questions:

```
> # 7. We want to summarize the data. To do it, we may use the summary function.
> # Before asking others for help, it's generally a good idea for you to try to
> # help yourself either using help() function or Google it. Please help yourself
> # and summarize the data first. Then answer the following questions:
>
> # Remove the first row which represents the Averages
> Insurance <- Insurance[-1, ]
>
> # Display the statistical summary of the "Insurance" data frame
> summary(Insurance)
    State                MRC               FC              AD
 Length:51          Min.   : 309.0   Min.   : 961   Min.   : 464.0
 Class :character   1st Qu.: 492.0   1st Qu.:1106   1st Qu.: 651.0
 Mode  :character   Median : 585.0   Median :1449   Median : 795.0
                    Mean   : 700.2   Mean   :1539   Mean   : 838.6
                    3rd Qu.: 825.0   3rd Qu.:1695   3rd Qu.: 999.5
                    Max.   :2696.0   Max.   :3986   Max.   :1794.0
>
```

> # 7. We want to summarize the data. To do it, we may use the summary function.

```
> # Before asking others for help, it's generally a good idea for you to try to
> # help yourself either using help() function or Google it. Please help yourself
> # and summarize the data first. Then answer the following questions:
>
> # Remove the first row which represents the Averages
> Insurance <- Insurance[-1, ]
>
> # Display the statistical summary of the "Insurance" data frame
> summary(Insurance)
   State              MRC                FC               AD
 Length: 51         Min.   : 309.0      Min.   : 961     Min.   : 464.0
 Class : character  1st Qu.: 492.0      1st Qu.:1106     1st Qu.: 651.0
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                    Mean   : 700.2      Mean   :1539     Mean   : 838.6
                    3rd Qu.: 825.0      3rd Qu.:1695     3rd Qu.: 999.5
                    Max.   :2696.0      Max.   :3986     Max.
:1794.0
>
```
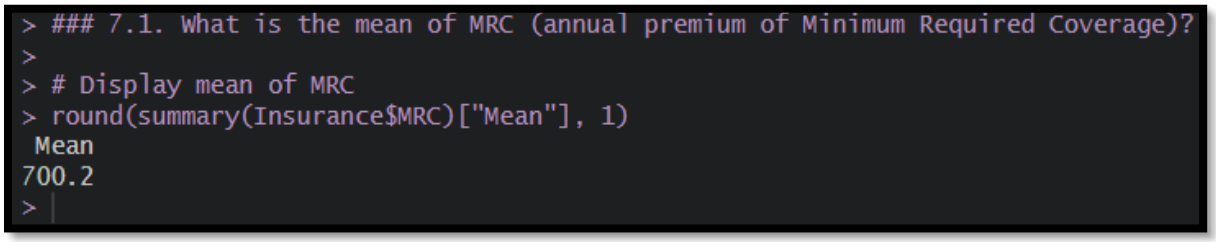

7.1 What is the mean of MRC (annual premium of Minimum Required Coverage)?



> ### 7.1. What is the mean of MRC (annual premium of Minimum Required Coverage)?

>

> # Display mean of MRC

> round(summary(Insurance$MRC)["Mean"], 1)

 Mean

700.2

>

7.2 What is the mean of FC (annual premium of Full Coverage)?

```
> ### 7.2. What is the mean of FC (annual premium of Full Coverage)?
>
> # Display mean of FC
> round(summary(Insurance$FC)["Mean"], 0)
Mean
1539
>
```

> ### 7.2. What is the mean of FC (annual premium of Full Coverage)?
>
> # Display mean of FC
> round(summary(Insurance$FC)["Mean"], 0)
Mean
1539
>

7.3 What is the mean of AD (annual premium differences between MRC and FC)?

```
> ### 7.3. What is the mean of AD (annual premium differences between MRC and FC)?
>
> # Display mean of AD
> round(summary(Insurance$AD)["Mean"], 1)
 Mean
838.6
>
```

> ### 7.3. What is the mean of AD (annual premium differences between MRC and FC)?
>
> # Display mean of AD
> round(summary(Insurance$AD)["Mean"], 1)
 Mean
838.6
>