HUDM 5026 - Introduction to Data Analysis and Graphics in R
HW 02 – Vectors and Univariate Plots

Instructions.

- Use R Markdown to create an html document with the homework tasks.
- You are encouraged to discuss problems with classmates, but all work you submit must be your own.

1. Create a vector called `income` using the 3rd column of the `states` dataframe, which contains each state's 1974 per capita income. Use functions to determine the length of the vector, the class of the vector, and whether it has any names or not. Remember you should be doing this in R Markdown with `echo = TRUE` so that both your code and the output are printed. The only time you will not print the output is when it would print a very large object that would take up too much space to print. In that case, it is appropriate to use `echo = FALSE`.
2. Use indexing with square brackets to extract the 5th element and the 50th element. Then use indexing with square brackets to extract the 40th through the 50th elements.
3. Use base R and **ggplot2** to create an appropriately labeled boxplot of state incomes. Describe in words how to interpret the features of the boxplot and state the values of the major features in context of the problem.
4. Use base R and **ggplot2** to create an appropriately labeled histogram of state incomes. Explore different bin sequences and discuss which you prefer and why.
5. Use base R and **ggplot2** to create kernel density plots with labels. Discuss how the information visualized in the kernel density plot is aligned with that seen in the boxplot and histogram.
6. Use base R and **ggplot2** to create normal Q-Q plots with appropriate labels. Discuss what the plot indicates about the hypothesis that state incomes were generated from a normally distributed variable and why.