Homework #2
RPAD 316
Professor Stephen Holt

Instructions: You will be doing some problems by hand and some problems using Stata. For the problems by hand, show your work for each step. For the Stata section, when asked for graphs, save the graph as a .png file and paste the image into the appropriate section of the word document. Paste your code that produced the graph below the graph. For other statistics, for this assignment, copy the output from your logfile that contains the statistics asked for by a problem (including commands).

Dataset 1. NBA Team Spending Over the Salary Cap and Wins, Eastern Conference Teams

	season	team	wins	overcap
1	2017-18	Atlanta Hawks	24	1321.02
2	2017-18	Boston Celtics	55	15991.12
3	2017-18	Brooklyn Nets	28	-3053.23
4	2017-18	Charlotte Hornets	36	18135.16
5	2017-18	Chicago Bulls	27	-9667.96
6	2017-18	Cleveland Cavaliers	50	38269.71
7	2017-18	Detroit Pistons	39	20993.10
8	2017-18	Indiana Pacers	48	-4663.21
9	2017-18	Miami Heat	44	32129.62
10	2017-18	Milwaukee Bucks	44	21712.33
11	2017-18	New York Knicks	29	8762.41
12	2017-18	Orlando Magic	25	-2120.97
13	2017-18	Philadelphia 76ers	52	1701.28
14	2017-18	Toronto Raptors	59	17481.88
15	2017-18	Washington Wizards	43	24129.23

1. Using the information in dataset 1, find:
    a. the mean number of wins for an NBA team in the Eastern Conference.
    b. the mean of Eastern Conference spending over the cap.
    c. the standard deviation of the number of wins among NBA teams in the East.
    d. the standard deviation of spending over the salary cap in the Eastern Conference of NBA.
    e. calculate the Pearson's "r" of the correlation between spending over the salary cap and wins.

2. Using Stata and dataset2_hw2:
    a. Create a scatter plot of the relationship between average housing values and property taxes.

b. Using Stata, compute the R and paste the output here.

c. Create a scatter plot of the relationship between average housing values and proportion of commuters who carpool.

d. Using Stata, compute the R and paste the output here.

e. Create a scatter plot of the relationship between average time spent commuting and the proportion of commutes with green transit modes.

f. Using Stata, compute the R and paste the output here.

Extra credit:

1. Using dataset3_hw2, create a histogram of time spent commuting in cities larger than 100,000 people. HINT: you're going to need to find city population and use it in an if statement.
2. Using dataset3_hw2, create a bar chart showing the count of observations in each category of commuting type using the condensed categories.
3. Using dataset3_hw2, create a pie chart of the distribution of levels of education, using the condensed categories.