PSY5003

Homework Assignment 1

Due on Sep. 12

1. The data set of *salary* is a SPSS data set, including variables *gender, sex, years* (years of being a faculty member), *age, pubs* (number of publications), and *salary* (annual salary in dollars). Use **R** for the following questions. You need to copy and paste your R code to this assignment.

1. Compute the mean, median, and variance for the variable *salary*.
2. Create a histogram, a boxplot, and a QQ-plot for the variable *salary* and describe its distribution.
3. Create a scatter plot to show the relationship between *pubs* and *salary*.
4. Create scatter plots to show the relationship between *pubs* and *salary* by *gender*.

2. Suppose that scores on a cognitive ability test are normally distributed with a mean 25 and a standard deviation 5. Using the normal tables, answer the following (a diagram can also be helpful)

(a) The percent of individuals with scores > 22

(b) The percent of individuals with scores between 24 and 28

(c) The *z*-score corresponding to a percentile rank of 50?

(d) Which z-scores form the upper and lower limits of the middle 50% of cases? What are the corresponding raw scores?

(e) Which z-scores cut off a total of 5% of cases in the outlying regions of the distribution i.e., 2.5% in each tail of the distribution? What are the corresponding raw scores?