Part A (40 marks)

The dataset `mtcars` was extracted from the 1974 Motor Trend US magazine, and comprises fuel consumption and 10 aspects of automobile design and performance for 32 automobiles (1973–74 models).

a. Indicate the type of data (categorical or continuous) for each of the variables included in the dataset.
b. For each of the categorical variables in the survey, indicate whether you believe the variable is nominal or ordinal.
c. Create a histogram for each of the continuous variables.
d. Find the maximum and minimum of each column using apply().
e. Report the 25th, 50th, and 75th percentiles of all columns using apply().
f. Report and interpret the interquartile range for the mpg.

Name your file as A02a_Gwid.r. So if your GWID is G19860011 then you should name your submission file as A02a_G19860011.r. Please make sure that you comment your R code.

Part B (40 marks)

Using the same dataset `mtcars` that you used in Part A, complete the following using the slides (Basic plots.pdf)

a. Draw a scatterplot with mpg on the y axis and displacement on the x axis. What does the graph tell you (one or two sentences)?
b. Draw two histograms for mpg by am. One for am values of 0 and one for am values of 1. What do the graphs tell you (one or two sentences)?

Name your file as A02b_Gwid.r. So if your GWID is G19860011 then you should name your submission file as A02b_G19860011.r. Please make sure that you comment your R code.

Part C (20 marks)

Using the same dataset `mtcars` that you used in Part A, complete the following

a. Create a new data frame that only includes models with mpg higher than 20 and cyl higher than 4
b. Create a new data frame that only includes the model name, mpg values, and hp values of models with am equal to 1
c. Create a new data frame that is ordered by hp in descending order
d. Create a new list with all the data frames you just created in it
e. Access the third element of the list in two ways: (1) returning a data frame, (2) returning a list element. You can check the class of your object using *class()*. Hint: use the different properties of [and [[.

Name your file as A02c_Gwid.r. So if your GWID is G19860011 then you should name your submission file as A02c_G19860011.r. Please make sure that you comment your R code.