**Solve the following questions using socio demographic data**

1. Summarize the variable Marital Status and construct an appropriate statistical graph. Report your findings in less than three sentences. The graph should be presented in an interactive manner. Imagine your audience is not familiar with statistical terms.
2. Summarize the variables Homeowner and Purchased Bike in terms of relative frequency and construct an appropriate statistical graph. Report your findings in less than three sentences.
3. Summarize the variables Gender and Purchased Bike in terms of average Income and construct an appropriate statistical graph. Report your findings in less than three sentences.
4. Find numerical summary of the variable Age and examine the data distribution using appropriate statistical graph. Report your findings in less than five sentences.
5. Examine the association between Income (X) and Number of children (Y). Check the model assumptions discussed in class. Build a linear model and interpret the coefficients. Assess the usefulness of the model and comment on . What do you understand from residual sum of squares?
6. Run the regression analysis to examine the effect of Income on the number of cars. Interpret your findings. Now dichotomize the variable Income by it’s mean. Run the regression analysis again to examine whether categorized income predicts number of cars better or not. What do you see from the output table? Which model is better? Compare both models and report your findings.
7. Does Homeowners predict Income? Run appropriate analysis and report your findings.
8. Run the regression analysis to examine the effect of Age (X) on the Income (Y). Interpret your findings. Now dichotomize the variable Age by 30 years. Run the regression analysis again to examine whether categorized age predicts income better or not. What do you see from the output table? Which model is better? Compare both models and report your findings.