1. Is there a statistically significant difference in median value of houses bounded by the Charles River or not?
   1. Hypothesis:
      1. H0: There is no statistically significant difference between the median value of houses bounded by the Charles River and the median value of houses not bounded by the Charles River.
      2. Ha: There is a statistically significant difference between the median value of houses bounded by the Charles River and the median value of houses not bounded by the Charles River.
   2. Conclusion:
      1. Based on the p-value for the t-test of 0.004, the data indicates a

statistically significant difference in the median value of houses bounded by the Charles River as opposed to those houses not bounded by the

Charles River.

1. Is there a statistically significant difference in Median values of houses (MEDV) for each proportion of owner- occupied units built prior to 1940 (AGE)? (ANOVA)
   1. Hypothesis:
      1. H0: There is no statistically significant difference in median values of houses for each proportion of owner-occupied units built prior to 1940.
      2. Ha: There is a statistically significant difference in median values of houses for each proportion of owner-occupied units built prior to 1940.
   2. Conclusion:
      1. Based on the p-value for Levene’s test of 0.032, the samples do not show homoscedasticity, or homogeneity of variances, therefore the ANOVA

testing is invalidated.

* 1. Alternative conclusion: (ignoring homoscedasticity)
     1. Based on the p-value from the f-distribution of 0.000 (to 3 decimal places), There is a statistically significant difference in the median values of

houses for each proportion of owner-occupied units built prior to 1940

1. Can we conclude that there is no relationship between nitric oxide concentrations and proportion of non-retail business acres per town?
   1. Hypothesis:
      1. H0: There is no statistically significant relationship between nitric oxide concentrations and proportion of non-retail business acres per town.
      2. Ha: There is a statistically significant relationship between nitric oxide concentrations and proportion of non-retail business acres per town.
   2. Conclusion:
      1. Based on the p-value from the f-distribution of 0.000 (to 3 decimal places), we can conclude that there is a statistically significant relationship

between nitric oxide concentrations and proportion of non-retail

business acres per town.

1. What is the impact of an additional weighted distance to the five Boston employment

centers on the median value of owner-occupied homes?

* 1. Hypothesis:
     1. H0: There is no statistically significant relationship between the weighted distances to the five Boston employment centers and the median value

of owner-occupied homes.

* + 1. Ha: There is a statistically significant relationship between the weighted

distances to the five Boston employment centers and the median value

of owner-occupied homes.

* 1. Conclusion:
     1. Based on the p-value of 0.000 (to 3 decimal places) and the coefficient

Value of 1.092, the average change in the median value is approximately $1092 per one unit change in the weighted distance to the 5 Boston

employment centers.