**Statistical Analysis (I): Estimation & Testing**

**Homework Assignment 2**

**Due Date: 23rd June, 11:55 pm**

**PART A**

1. a) Your friend claims that the average house price in this area is above $150K. Do you agree? Briefly explain what the *p-values* in these cases mean?(1mark)
2. He also claims that the average living area is more than 1800 Sq. Ft. Do you agree with this? (Use a 5% significance level for both.). Briefly explain what the *p-values* in these cases mean? (1mark)
3. Are the home prices higher for houses with fireplaces as compared to those without?

a) Create side-by-side box plots of the house prices of the two groups and comment them. (2marks)

b) Formulate an appropriate hypothesis and test it in order to check the above claim. Assume that the population standard deviations of house prices in the two groups are equal. (1mark)

1. Any house aged more than 30 years is considered an “old” house. Your friend claims that old houses have larger lot sizes than new houses. Do you agree? Explain. Use a significance level of 5% for your test. Historical data suggests that old houses include some very large and some very small lot sizes but new houses are more homogeneous in their lot sizes. (2marks)
2. Based on the evidence available here, would you be willing to claim that fireplaces have become more fashionable? For simplicity, it is OK to compare only “new” houses and “old” houses. Use a significance level of 5% for your test. Use a significance level of 5% for your test. (1mark)
3. Suppose that houses with 1-2 bedrooms are considered to be “Small Houses”, those with 3-4 are “Medium Houses” and 5-6 as “Big Houses”. Can we conclude that the prices of Small, Medium and Big houses are not the same, at 1% level of significance? (2marks)