MG 222: Assignment I 2018

Due Date: **February 26, 2018**

The text file in `http://www.mgmt.iisc.ernet.in/CM/MG226/Data_Files/clock_prices.data` contains the selling `Price` (in pounds Stirling) of 32 antique grandfather clocks in different auctions, along with the `Age` of the clocks in years and the number of `Bidders` participating in that auction. Answer the following:

1. Graphically analyze the data and comment on how the age of the clock and the number of bidders are affecting the auctioned selling price. **[5]**

2. Fit a first order multiple regression model to the data and answer the following based on this model:

   a. Is the model useful? **[2]**

   b. Given the age of a clock, by what amount can one expect the selling price to go up for one more person participating in the auction? **[2]**

   c. An auction house has acquired several grandfather clocks each 100 years old paying an average price of £500 per clock. From the past experience it has found that such auctions (for antique grandfather clocks) typically attract about 10-12 bidders. What can be said about its expected profit per clock with 95% confidence? **[3]**

   d. You walk into an auction selling an antique 150 year old grandfather clock and find that there are 15 bidders (including yourself) participating in the auction. You are extremely keen in acquiring the clock. At least what amount should you bid for the clock, so that, you are 99% certain that nobody else can out-bid you? **[4]**

   e. Find the partial correlation coefficients, compare them with the corresponding marginal correlation coefficients, and comment on the nature of the relationships between the independent variables and the dependent variable. **[8]**

   f. In presence of the other, which of the two factors, age of the clock or the number of bidders, is more important in determining the selling price of a clock? **[2]**

3. Is the first order model acceptable? Fit as appropriate a model as possible for the auctioned selling price of grandfather clocks, based on the information on the age of the clock and the number of bidders, and then based on this model answer the same questions as in **2. b**, **c**, and **d** above. **[8+3×2=14]**