**Homework Part 1**

Please capture all your work in an Orange file (with extension .ows) a Word file and an Excel file (you will need to have all three). Please copy the images and reports that you generate in Orange into the Word file to illustrate your answers as needed.

The dataset for this assignment is called “PortlandHousing.xls” and is available on GitHub at the following URL:

<https://github.com/jsub10/Machine-Learning-Course-2018/blob/master/DataSets/PortlandHousingPrices.xlsx>

For the assignment, carry out the following steps:

1. Using Orange, build a pipeline for visualizing the data and visualize it using a scatter plot and a distribution plot. Briefly (1-2 sentences) explain your observations for each plot. Make sure you capture the images and paste them into your Word file.
2. Create a model for predicting the house price based on the number of bedrooms and the area of houses. Specifically, write down the expression for this model (using addition, multiplication, etc.). Write this down in your Word file.
3. In the expression you wrote for step 2, clearly identify (a) the target, (b) the features, and (c) the parameters. Do this in your Word file.
4. Based on the expression for the model, expand the datasheet by adding the new columns. Clearly label the columns. Do this in your Excel file.
5. Pick two penalty functions. Is one of your penalty functions better than the other? Explain why or why not. Answer this question in your Word file.
6. Create columns for the parameters and calculate the cost for the following values of w0, w1, and w2: w0 = -10, w1 = 400, w2 = 600. Calculate the cost for each penalty function you chose in question (5). Do this in your Excel file.