# AS1---ODAY-BANI-AHMAD

Regression

there are 4 codes. the first question has 2 code files, which is the linear regression and the polynomial regression. the second and the third questions have one code file for each.

in all the codes I used the following packages (pandas, NumPy, matplotlib, math)

Q1

1. in the Q1 code file I plotted this relationship using matplotlib. after visualizing the test data and I noticed that the relationship is. not linear between variables.

2. Use your knowledge gleaned from the previous step to answer the following questions:

a. Is the relationship linear? NO, it is not linear

b. Do you need feature engineering to add any non-linearity? yes, we need to add basis function

I. If so, how can you engineer these features? polynomial with 2 degrees

ii. What are some functions that you can try? furor, polynomial (2 - 7) degree. guossin

1. Plot each of them individually to verify! I attached my try of polynomial

Q2

What is the average least squares error for the given data using your simple linear regression

model?

calculated and plotted at the code.

2. Which factor has the most effect on the final value? How do you know this? Can you use only

this feature to predict the price?

LOCAL PRICE, that based on the change I noticed when I plotted the relationships between this feature and the target and see the effect of any change at data of the feature and its effect of the target. this is not enough indication to judge the level of effect.

3. Which factor has the least effect on the final value? How do you know this? What effect does

removing this feature have on the performance?

#Rooms, based on the plot in the code I noticed that the change of this feature not led to significant change of the target.

Question 3]

1. Do you need any basis functions when using the locally weighted approach? NO

2. What is the difference between this implementation and the one for Question 1? There is no deference, but I guess that depends on the dataset. any change of the dataset can make any method harder than the other. but in in this assignment and by using the same data set I noticed that there was no difference.