Report for PA03

Group DA-02

Assumptions :

- The ratio for training set to test set is kept at 9:1 currently . It can be changed on the line $dt = sort(sample(nrow(MyData), nrow(MyData) * .9))$
- We have processed the data using a csv file by Sir's permission.

1. Most of the code is self-explanatory. The output for one of the runs is stored in train.out, with test and train set in their respective csvs.Note that the output may vary slightly each time since train and test sets are chosen arbitrarily.

2. Once the data has been classified into training and test sets, we apply a multiple regression linear model considering MEDV as response .

3. Predictions are made based on training set and observed and actual values of test data is subsequently printed. Test R^2 is computed .

4. We then construct a correlation matrix to determine which repressor to downsize.Our approach for this is to determine which element in the matrix has mod closest to 1, since the contribution of that element's row and column is almost equal , one of them can be removed.That is displayed accordingly.

5. The response (y)is still MEDV. As in the last part, say in one of the runs, corrtable[RAD][TAX] was found to be maximum , one of RAD or TAX has to be removed .To decide which one of these to be removed, we will remove RAD first and compute test R^2 for this data say x1 ,and then replace RAD and remove only TAX from the original data. And compute test R^2 for this data say x2. We will see in which case R^2 has increased and remove the corresponding repressor. For this task, we will have to define a *neighborhood* t, which will be a fraction of test R^2 value ; such that if computed R^2 is within t of R^2 , the difference is ignored and it is considered to be the same value. We shall do this until computed R^2 is within the neighborhood of R^2 . This will give us a right set of repressor variables.

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