# Assignment 16

1. Use the below given data set

Data Set

2. Perform the below given activities:

a. Predict the no of comments in next H hrs

Note:-

1. Use LASSO, Elastic Net and Ridge and other regression techniques that are covered in the module.

2. Report the training accuracy and test accuracy

3. compare with linear models and report the accuracy

4. create a graph displaying the accuracy of all models

***SOLUTION:***

setwd("C:/Users/acer/Desktop/Data Analytics/assignment\_16.1")

unzip("Dataset.zip")

model1 <- lm(medv~.,data = BostonHousing)

mean(model1$residuals)

round(mean(model1$residuals),1)

#par(mfrow=c(2,2)) # set 2 rows and 2 column plot layout

plot(model1)

acf(model1$residuals)

write.csv(model1$residuals,'error.csv')

getwd()

library(lmtest)

dwtest(model1)

#since the p-value < 0.05, we can reject the null hypothesis

head(BostonHousing)

cor.test(BostonHousing$crim,model1$residuals)

# p-value > 0.05 do not reject Null Hypothesis

# correlation zero

cor.test(BostonHousing$indus,model1$residuals)

cor.test(BostonHousing$nox,model1$residuals)

cor.test(BostonHousing$rm,model1$residuals)

#VIF test

library(car)

vif(model1)

plot(model1)

plot(density(model1$residuals))

coefficients(model1) # model coefficients

confint(model1, level=0.95) # CIs for model parameters

anova(model1) # anova table

vcov(model1) # covariance matrix for model parameters

#influence(model1)# regression diagnostics

# Stepwise Regression

library(MASS)

fit <- lm(medv~.,data=BostonHousing)

step <- stepAIC(fit, direction="both")

step$anova # display results

# All Subsets Regression

library(leaps)

attach(BostonHousing)

leaps<-

regsubsets(medv~.,data=BostonHousing,nbest=10)

# view results

summary(leaps)

# plot a table of models showing variables in each

# models are ordered by the selection statistic.

plot(leaps,scale="r2")

# plot statistic by subset size

library(car)

subsets(leaps, statistic="rsq")

#variable importance:

library(caret)

varImp(model1)

#dummy variable regression

head(BostonHousing)

table(BostonHousing$chas)

table(BostonHousing$rad)