

## Shiny Application Supporting Documentation: Developing Data Products, Coursera

This application analyzes the fitting of regression models on variation of miles per gallon (mpg) as a function of number of cylinders and transmission type. It predicts the mileage (mpg) for a given number of cylinders.

### ***Model: mpg Vs cyl***

```
mpg_variation<-lm(mtcars$mpg~mtcars$cyl,data=mtcars)
summary(mpg_variation)$coef
```

```
##              Estimate Std. Error   t value    Pr(>|t|)
## (Intercept)  37.88458   2.0738436  18.267808 8.369155e-18
## mtcars$cyl   -2.87579   0.3224089  -8.919699 6.112687e-10
```

A basic regression model  $Y=b_0+b*X$  is fitted to find the model and predict the output for given cylinder type.

### ***Auto Vs manual Transmission***

```
mpgTr<-lm(mtcars$mpg~am,data=mtcars)
summary(mpgTr)$coef
```

```
##              Estimate Std. Error   t value    Pr(>|t|)
## (Intercept)  17.147368   1.124603  15.247492 1.133983e-15
## am           7.244939   1.764422   4.106127 2.850207e-04
```

```
trAuto<-subset(mtcars,am==0)
trMan<-subset(mtcars,am==1)
mpg_diff<-mean(trAuto$mpg)-mean(trMan$mpg)
```

### ***Predict for a given number of cylinders***

```
model_fit<-lm(mtcars$mpg~mtcars$cyl,data=mtcars)
mean_predict<-predict(model_fit,newdata=cylr)
```