1. Calories\_consumed-> predict weight gained using calories consumed.

Ans. Creating a regression Model for weight gained and calories consumed:

##reading the file##

library(readr)

calories\_consumed <- read\_csv("C:/Users/Adarsh Sambare/Desktop/ExcelR/Assignment/Simple Linear Regg/calories\_consumed.csv")

View(calories\_consumed)

attach(calories\_consumed)

Finding the correlation between them:

##corealation##

cor(`Weight gained (grams)`, `Calories Consumed`)

**0.946991**

So, they are strongly related.

Generating a regression model.

##generating a regresssion model##

reg <- lm(`Weight gained (grams)`~`Calories Consumed`)

summary(reg)

Estimate Std. Error t value Pr(>|t|)

(Intercept) -625.75236 100.82293 -6.206 4.54e-05 \*\*\*

`Calories Consumed` 0.42016 0.04115 10.211 2.86e-07 \*\*\*

R-squared: 0.8968

So, the equation becomes:

Y = -625.75236 + 0.42016(X)

1. Delivery\_time -> Predict delivery time using sorting time.

Ans. Generating a model,

For prediction of Delivery time from sorting time.

library(readr)

delivery\_time <- read\_csv("C:/Users/Adarsh Sambare/Desktop/ExcelR/Assignment/Simple Linear Regg/delivery\_time.csv")

View(delivery\_time)

attach(delivery\_time)

str(delivery\_time)

##y = delivery time, x= sorting time##

plot(`Sorting Time`, `Delivery Time`)

cor(`Sorting Time`,`Delivery Time`)

reg<- lm(`Delivery Time`~`Sorting Time`)

summary(reg)

##RMSE##

mean(reg$residuals)

sqrt(mean(reg$residuals^2))

so, the equation becomes.

Y = -15.9027 + 8.0688(x)

Where y = delivery time and x = sorting time.

1. Emp\_data -> Build a prediction model for Churn\_out\_rate

Ans. Generating a model,

For prediction of model for Churn\_out\_rate

library(readr)

emp\_data <- read\_csv("C:/Users/Adarsh Sambare/Desktop/ExcelR/Assignment/Simple Linear Regg/emp\_data.csv")

View(emp\_data)

attach(emp\_data)

## x=Salary y=Churn##

plot(Salary\_hike,Churn\_out\_rate)

cor(Salary\_hike,Churn\_out\_rate)

reg<- lm(Churn\_out\_rate~Salary\_hike)

summary(reg)

reg$residuals

##RMSE##

sqrt(mean((reg$residuals)^2))

As, R squared and RMSE are significant we can use this model directly,

Y = 244.36491 - 0.10154(X)

Y= Churn\_out\_rate

X = Salary\_hike

1. Salary\_hike -> Build a prediction model for Salary\_hike

Ans. Generating a model,

For prediction of model salary hike.

library(readr)

Salary\_Data <- read\_csv("C:/Users/Adarsh Sambare/Desktop/ExcelR/Assignment/Simple Linear Regg/Salary\_Data.csv")

View(Salary\_Data)

attach(Salary\_Data)

##y = Salary\_hike, x= Yearsexperience##

plot(YearsExperience,Salary)

cor(YearsExperience,Salary)

reg<- lm(Salary~YearsExperience)

summary(reg)

attach(reg)

reg$fitted.values

mean(residuals)

##RMSE##

sqrt(mean((reg$residuals)^2))

The R squared and RMSE value are significant,

So, our model becomes.

Y = 25792.2 + 9450(X)

Where y = Salary\_hike , x= Yearsexperience