

CMPE343 PROGRAMMING ASSIGNMENT

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```
1
2 install.packages("ggplot2")
3
4 # Load required library
5 library(ggplot2)
6
7 # Read the data from the file
8 data <- read.table("C:/Users/BATIKAN YILMAZ/Documents/Question_1.txt",dec = ",")
9
10 # Assign column names if needed
11 colnames(data) <- c("X1", "X2", "Y")
12
13
14 # Perform linear regression
15 model <- lm(Y ~ X1 + X2, data = data)
16
17
18 # Display the summary of the regression
19 summary(model)
20
21 # Plot the data and the regression line
22 ggplot(data, aes(x = X1, y = Y)) +
23   geom_point() +
24   geom_smooth(method = "lm", se = FALSE, color = "blue") +
25   labs(title = "Linear Regression", x = "X1", y = "Y")
26
```

Call:

```
lm(formula = Y ~ X1 + X2, data = data)
```

Residuals:

Min	1Q	Median	3Q	Max
-20.5336	-3.4061	-0.5416	3.8025	11.8460

Coefficients:

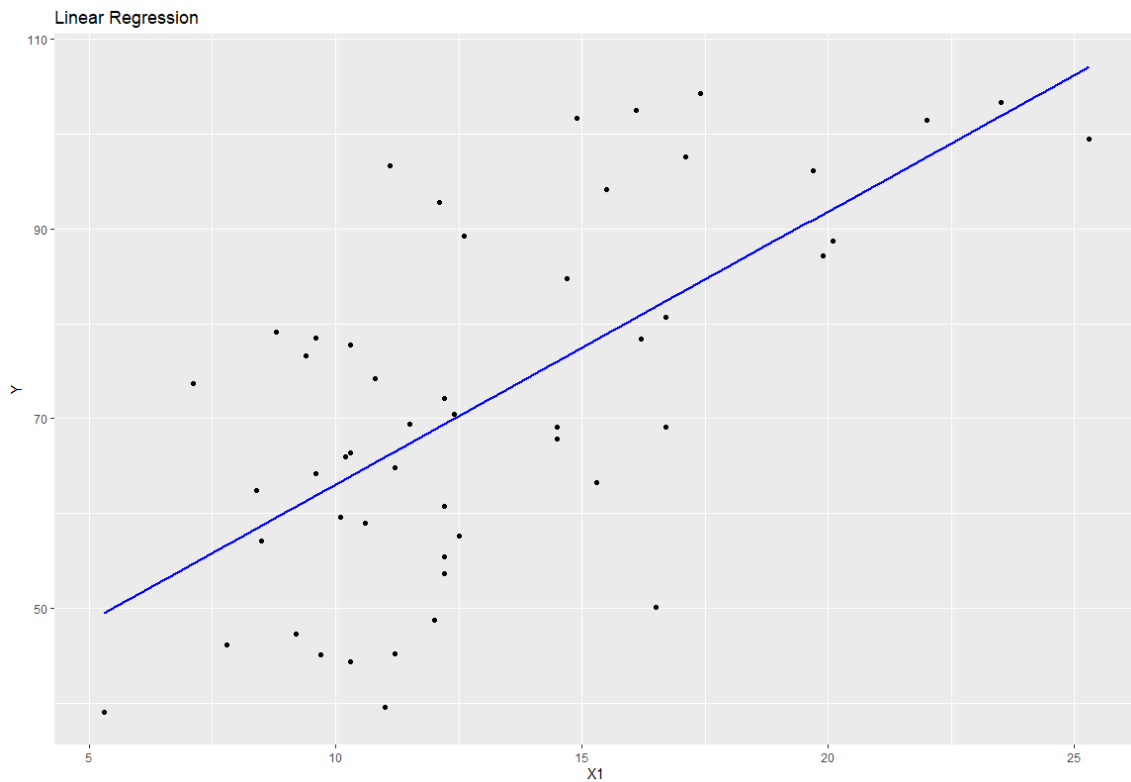
	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	24.1166	2.9920	8.060	1.79e-10	***
X1	-0.3670	0.3089	-1.188	0.241	
X2	2.3659	0.1643	14.403	< 2e-16	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 6.382 on 48 degrees of freedom

Multiple R-squared: 0.8914, Adjusted R-squared: 0.8869

F-statistic: 197 on 2 and 48 DF, p-value: < 2.2e-16



The goal of this analysis is to perform a linear regression on a dataset and visualize the results using the ggplot2 package in R.

A linear regression model is fitted using the `lm()` function with "Y" as the dependent variable and "X1" and "X2" as independent variables.

A summary of the linear regression model is displayed, providing information about coefficients, standard errors, t-values, and p-values.

Using ggplot2, a scatter plot is created with points representing the data and a blue regression line added for visualizing the linear relationship.