CMPE343 PROGRAMMING ASSIGNMENT

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```r
install.packages("ggplot2")
install.packages("gridExtra")

# Load required library
library(ggplot2)
library(gridExtra)

# Read the data from the file
data <- read.table("C:/Users/BATIKAN YILMAZ/Documents/Question_1.txt",dec = ",")

# Assign column names if needed
colnames(data) <- c("X1", "X2", "Y")

# Perform multiple regression
model <- lm(Y ~ X1 + X2, data = data)

# Display the summary of the regression
summary(model)

# Create a 2D scatter plot with regression lines for X1 and X2
plot_x1 <- ggplot(data, aes(x = X1, y = Y)) +
  geom_point() +
  geom_smooth(method = "lm", se = FALSE, color = "blue") +
  labs(title = "Regression Analysis for X1", x = "X1", y = "Y")

plot_x2 <- ggplot(data, aes(x = X2, y = Y)) +
  geom_point() +
  geom_smooth(method = "lm", se = FALSE, color = "red") +
  labs(title = "Regression Analysis for X2", x = "X2", y = "Y")

# Arrange the plots in a single grid
library(gridExtra)
grid.arrange(plot_x1, plot_x2, ncol = 2)

```

```
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 ***
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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
```

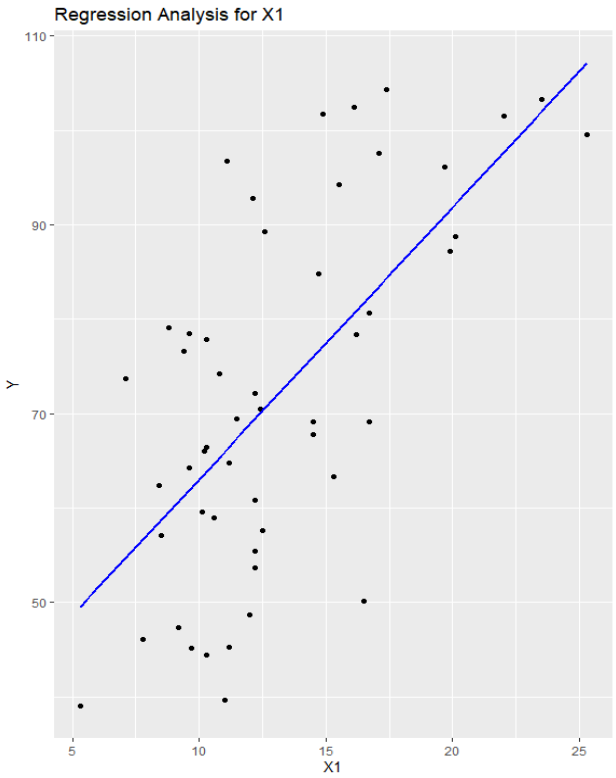

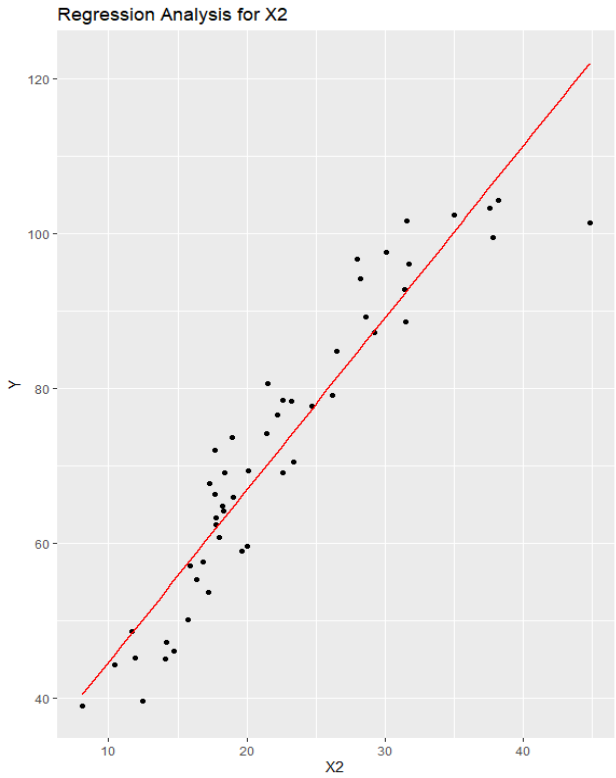

A multiple regression model is fitted using the lm() function with "Y" as the dependent variable and "X1" and "X2" as independent variables.

A summary of the multiple regression model is displayed, providing insights into the coefficients, standard errors, t-values, and p-values.

Two scatter plots are created, one for X1 and the other for X2, each with regression lines overlaying the data points.

The gridExtra package is utilized to arrange the individual scatter plots in a single grid with two columns.