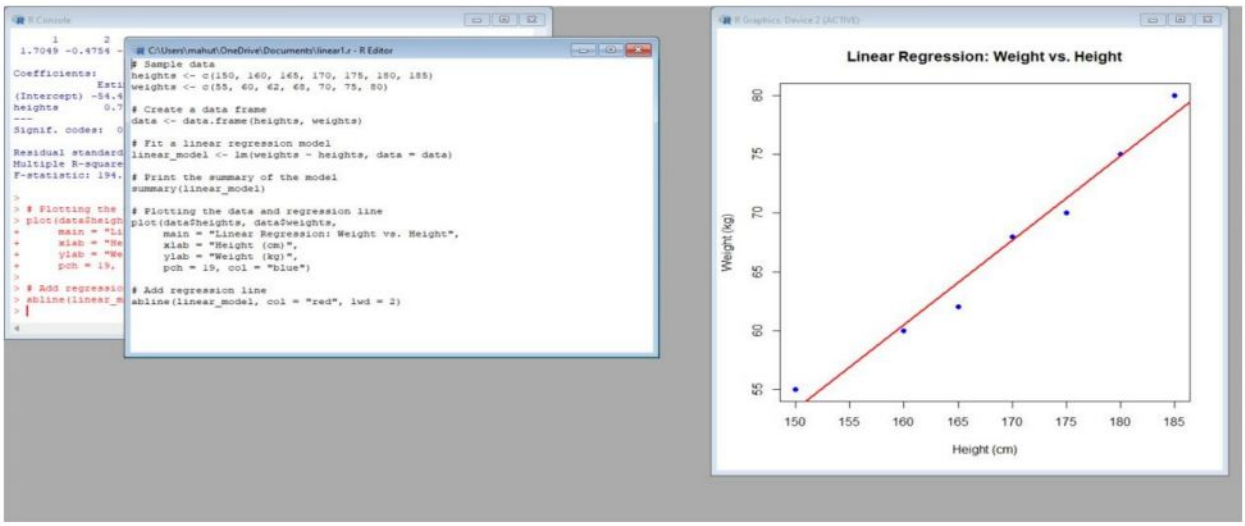
EX .NO:7a IMPLEMENT LINEAR AND LOGISTIC REGRESSION

AIM :

To implement Linear and Logistic regression using R language.

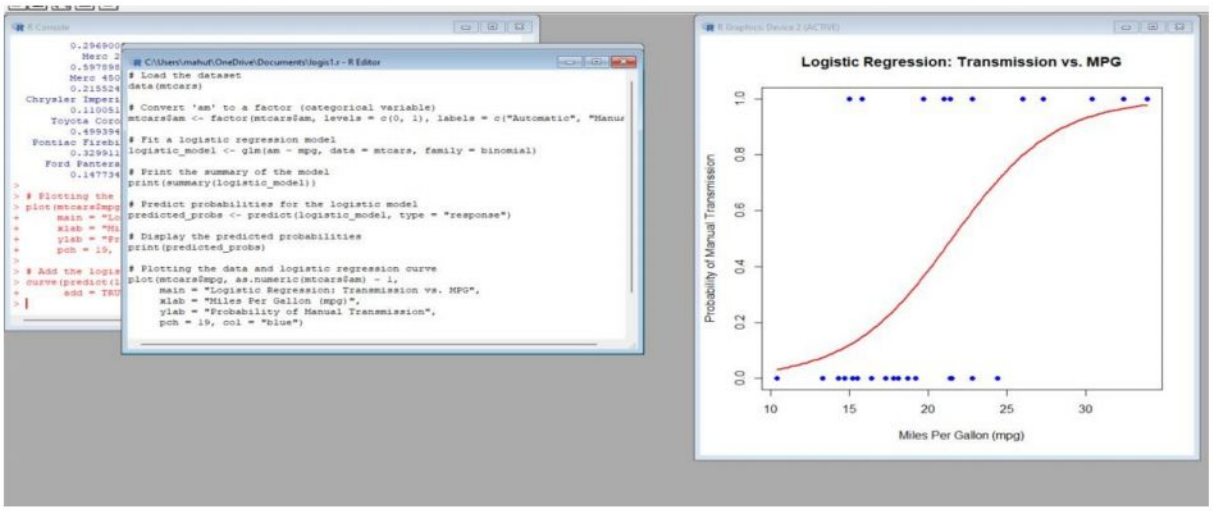
a)Linear regression

```
# Sample data
heights <- c(150, 160, 165, 170, 175, 180, 185) weights
<- c(55, 60, 62, 68, 70, 75, 80)

# Create a data frame data <-
data.frame(heights, weights)

# Fit a linear regression model linear_model <-
lm(weights ~ heights, data = data)

# Print the summary of the model
print(summary(linear_model))

# Plotting the data and regression line plot(data$heights,
data$weights,
    main = "Linear Regression: Weight vs.
Height",      xlab = "Height (cm)",      ylab =
"Weight (kg)",
    pch = 19, col = "blue")

# Add regression line
abline(linear_model, col = "red", lwd = 2)
```



b) Logistic regression

```
# Load the dataset
data(mtcars)

# Convert 'am' to a factor (categorical variable) mtcars$am <- factor(mtcars$am,
levels = c(0, 1), labels = c("Automatic", "Manual"))

# Fit a logistic regression model logistic_model <- glm(am ~ mpg,
data = mtcars, family = binomial)

# Print the summary of the model
print(summary(logistic_model))

# Predict probabilities for the logistic model predicted_probs
<- predict(logistic_model, type = "response")

# Display the predicted probabilities print(predicted_probs)

# Plotting the data and logistic regression curve
plot(mtcars$mpg, as.numeric(mtcars$am) - 1,      main =
"Logistic Regression: Transmission vs. MPG",      xlab =
"Miles Per Gallon (mpg)",      ylab = "Probability of
Manual Transmission",      pch = 19, col = "blue")

# Add the logistic regression curve
curve(predict(logistic_model, data.frame(mpg = x), type = "response"),
add = TRUE, col = "red", lwd = 2)
```



RESULT:_ Thus to implement linear and logistic regression using R language is sucessfully done.