

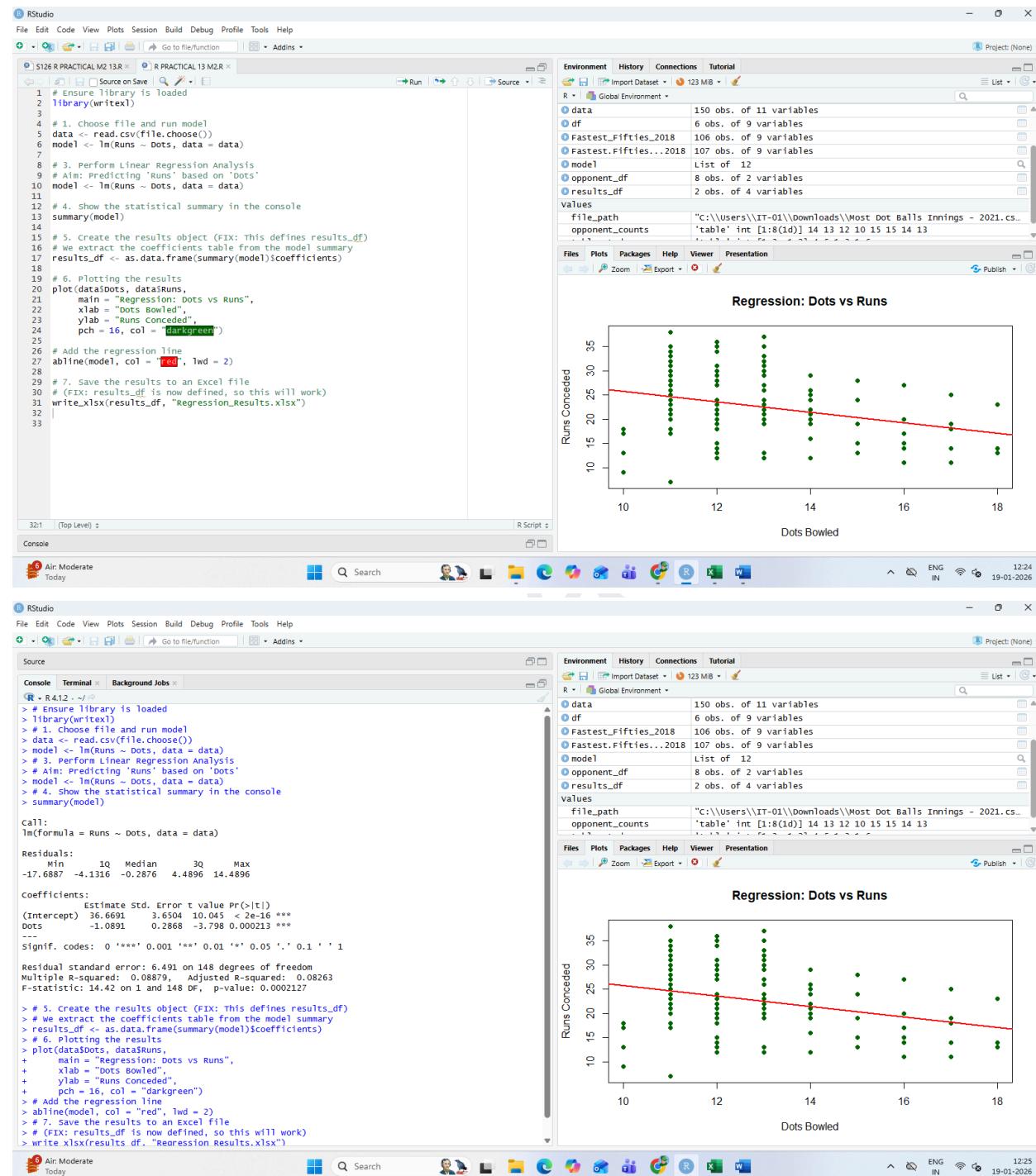
MVLU COLLEGE

R PRACTICAL 13 & 15

Aim: Performing linear regression analysis using `lm()` (R).

Exporting results into external files (Excel, CSV, PDF) using `write.csv()` and `writexl (R)`.

CODE :



The screenshot shows two instances of RStudio. The top instance displays the R script and its execution results. The bottom instance shows the R console and its output.

```

# Ensure library is loaded
library(writexl)

# 1. Choose file and run model
data <- read.csv(file.choose())
model <- lm(runs ~ dots, data = data)

# 3. Perform Linear Regression Analysis
# Aim: Predicting 'Runs' based on 'Dots'
model <- lm(runs ~ dots, data = data)

# 4. Show the statistical summary in the console
summary(model)

# 5. Create the results object (FIX: This defines results_df)
# we extract the coefficients table from the model summary
results_df <- as.data.frame(summary(model)$coefficients)

# 6. Plotting the results
plot(data$dots, data$runs,
      main = "Regression: Dots vs Runs",
      xlab = "Dots Bowled",
      ylab = "Runs Conceded",
      pch = 16, col = "darkgreen")

# Add the regression line
abline(model, col = "red", lwd = 2)

# 7. Save the results to an Excel file
# (FIX: results_df is now defined, so this will work)
write_xlsx(results_df, "Regression_Results.xlsx")

```

R Console Output (Bottom Window):

```

R > R 4.1.2 - ~/r
> # Ensure library is loaded
> library(writexl)
> # 1. Choose file and run model
> data <- read.csv(file.choose())
> model <- lm(runs ~ dots, data = data)
> # 3. Perform Linear Regression Analysis
> # Aim: Predicting 'Runs' based on 'Dots'
> model <- lm(runs ~ dots, data = data)
> # 4. Show the statistical summary in the console
> summary(model)

Call:
lm(formula = runs ~ dots, data = data)

Residuals:
    Min      1Q  Median      3Q     Max 
-17.6887 -4.1316 -0.2876  4.4896 14.4896 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) 36.6691   3.6504 10.045 < 2e-16 ***
Dots        -1.0891   0.2868 -3.798 0.000213 *** 
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 6.491 on 148 degrees of freedom
Multiple R-squared:  0.08879, Adjusted R-squared:  0.08263 
F-statistic: 14.42 on 1 and 148 DF,  p-value: 0.0002127

> # 5. Create the results object (FIX: This defines results_df)
> # we extract the coefficients table from the model summary
> results_df <- as.data.frame(summary(model)$coefficients)
> # 6. Plotting the results
> plot(data$dots, data$runs,
+       main = "Regression: Dots vs Runs",
+       xlab = "Dots Bowled",
+       ylab = "Runs Conceded",
+       pch = 16, col = "darkgreen")
> # Add the regression line
> abline(model, col = "red", lwd = 2)
> # 7. Save the results to an Excel file
> # (FIX: results_df is now defined, so this will work)
> write_xlsx(results_df, "Regression_Results.xlsx").

```

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A screenshot of Microsoft Excel showing a table titled "Regression_Results". The table has four columns: Estimate, Std. Error, t value, and Pr(>|t|). The data is as follows:

	Estimate	Std. Error	t value	Pr(> t)
2	36.66915	3.6504	10.04524	2E-18
3	-1.08913	0.286797	-3.79758	0.000213
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

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