

MVLU COLLEGE

R PRACTICAL 14 & 15

Aim: Performing logistic regression using `glm()` (R).

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

CODE :

R Studio

```

1 # 1. Load the required library for Excel export
2 library(writexl)
3 
4 # 2. Select and read your 'Most Sixes' csv file
5 file_path <- file.choose()
6 data <- read.csv(file_path)
7 # 3. Create a binary outcome (This is necessary for Logistic Regression)
8 # 1 = Success (Runs > 80), 0 = Failure (Runs <= 80)
9 data$high_Score <- ifelse(data$Runs > 80, 1, 0)
10 # 4. Perform Logistic Regression Analysis
11 # We predict the probability of a High_Score based on 6s hit
12 logit_model <- glm(High_Score ~ x6s, data = data, family = "binomial")
13 # 5. Show summary in your console for viva answers
14 summary(logit_model)
15 # 6. Plot the results (This shows the graph in RStudio)
16 plot(data$x6s, data$high_Score,
17       main = "Logistic Regression: Sixes vs High Score",
18       xlab = "Number of Sixes",
19       ylab = "Probability of High Score (0 to 1)",
20       pch = 16, col = "darkblue")
21 
22 # Add the Logistic sigmoid curve
23 curve(predict(logit_model, data.frame(x6s = x), type = "response"),
24        add = TRUE, col = "#FF0000", lwd = 2)
25 
26 # 7. Exporting results into external files
27 # Save the Graph as a PDF (This captures what is on your screen)
28 dev.copy(pdf, "Logistic_Sixes_Plot.pdf")
29 dev.off()
30 
31 # Extract coefficients and save to Excel
32 # Ensure the Excel file is CLOSED before running this!
33 results_df <- as.data.frame(summary(logit_model)$coefficients)
34 write.xlsx(results_df, "Logistic_Results.xlsx")
35 
36 # Save results to CSV
37 write.csv(results_df, "Logistic_Results.csv")
38 
39 print("Logistic Regression Complete! PDF, Excel, and CSV files have been saved.")
40 
41

```

Console

```

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RStudio 26°C Sunny 12:40 19-01-2026
File Edit Code View Plots Session Build Debug Profile Tools Help
Source Environment History Connections Tutorial
Import Dataset 181 MB
R Global Environment
anova_two_way List of 13
chi_data 20 obs. of 2 variables
coffee2 20 obs. of 4 variables
data 150 obs. of 11 variables
df 6 obs. of 9 variables
Fastest_Fifties_2018 106 obs. of 9 variables
Fastest.Fifties...2018 107 obs. of 9 variables
logit_model List of 30
opponent_df 8 obs. of 2 variables
results_df 2 obs. of 4 variables
Files Plots Packages Help Viewer Presentation
Zoom Export Publish

```

Logistic Regression: Sixes vs High Score

Probability of High Score (0 to 1)

Number of Sixes

R Script

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R Studio

```

Console Terminal Background Jobs
R 4.12.~>
> # 1. Load the required library for Excel export
> library(writexl)
warning message:
package 'writexl' was built under R version 4.1.3

> # 2. Select and read your 'Most Sixes' CSV file
> file_path <- file.choose()
> data <- read.csv(file_path)
> # 3. Create a binary outcome (This is necessary for Logistic Regression)
> # 1 = Success (Runs > 80), 0 = Failure (Runs <= 80)
> data$high_Score <- ifelse(data$Runs > 80, 1, 0)
> # 4. Perform Logistic Regression Analysis
> # We predict the probability of a High_Score based on 6s hit
> logit_model <- glm(High_Score ~ x6s, data = data, family = "binomial")
> # 5. Show the summary in your console for viva answers
> summary(logit_model)

Call:
glm(formula = High_Score ~ x6s, family = "binomial", data = data)

Deviance Residuals:
    Min      1Q      Median      3Q      Max
-1.5149 -0.4547 -0.3174 -0.2201  2.7323

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept) -5.1999    0.8180 -6.357 2.06e-10 ***
x6s          0.7457    0.1548  4.819 1.45e-06 ***
---
Signif. codes:  0 '****' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Dispersion parameter for binomial family taken to be 1

Null deviance: 121.489 on 149 degrees of freedom
Residual deviance: 85.713 on 148 degrees of freedom
AIC: 89.713

Number of Fisher Scoring iterations: 5

> # 6. Plot the results (This shows the graph in RStudio)
> plot(data$x6s, data$high_Score, ...

```

Console Terminal Background Jobs

R 4.12.~>

Environment History Connections Tutorial

Import Dataset 181 MB

R Global Environment

anova_two_way List of 13

chi_data 20 obs. of 2 variables

coffee2 20 obs. of 4 variables

data 150 obs. of 11 variables

df 6 obs. of 9 variables

Fastest_Fifties_2018 106 obs. of 9 variables

Fastest.Fifties...2018 107 obs. of 9 variables

logit_model List of 30

opponent_df 8 obs. of 2 variables

results_df 2 obs. of 4 variables

Files Plots Packages Help Viewer Presentation

Zoom Export Publish

Logistic Regression: Sixes vs High Score

Probability of High Score (0 to 1)

Number of Sixes

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R PRACTICAL 14 & 15

RStudio

```

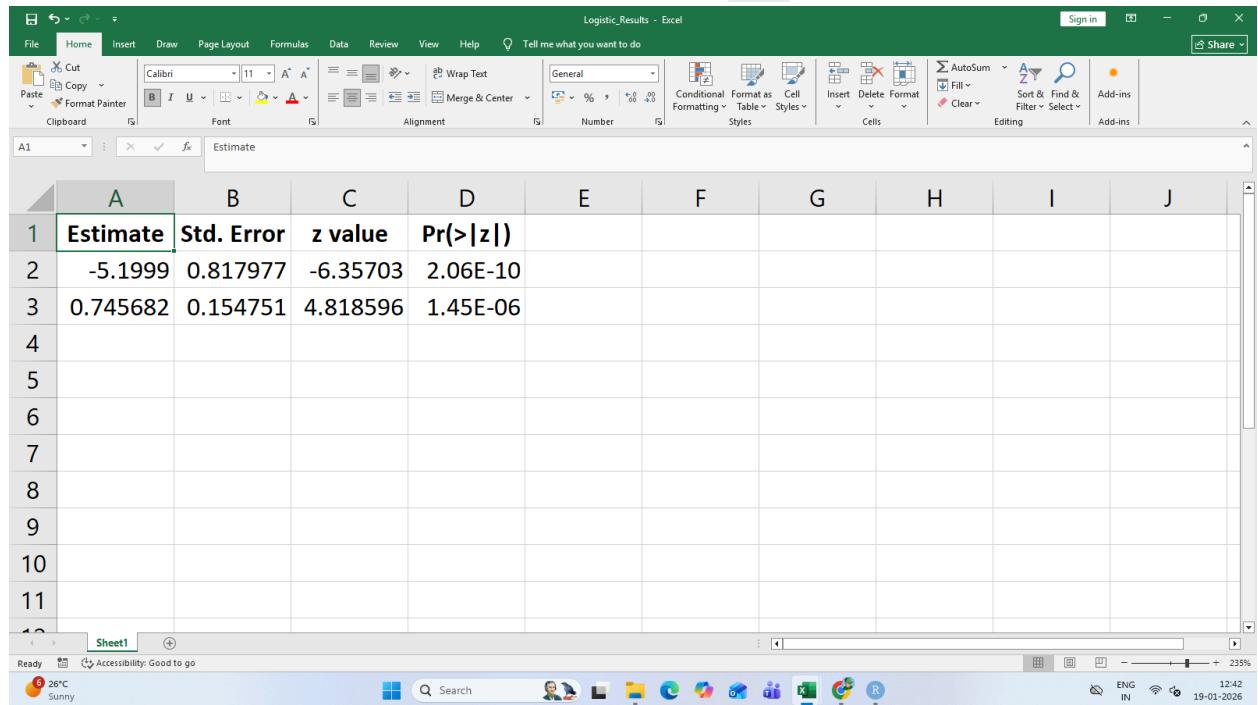
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins
Source Console Terminal Background Jobs
R 4.1.2 - ~
Coefficients:
Estimate Std. Error z value Pr(>|z|)
(Intercept) -5.1999 0.8180 -6.357 2.06e-10 ***
x6s 0.7457 0.1548 4.819 1.45e-06 ***
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' '
Dispersion parameter for binomial family taken to be 1
Null deviance: 121.489 on 149 degrees of freedom
Residual deviance: 85.713 on 148 degrees of freedom
AIC: 89.713

Number of Fisher Scoring iterations: 5

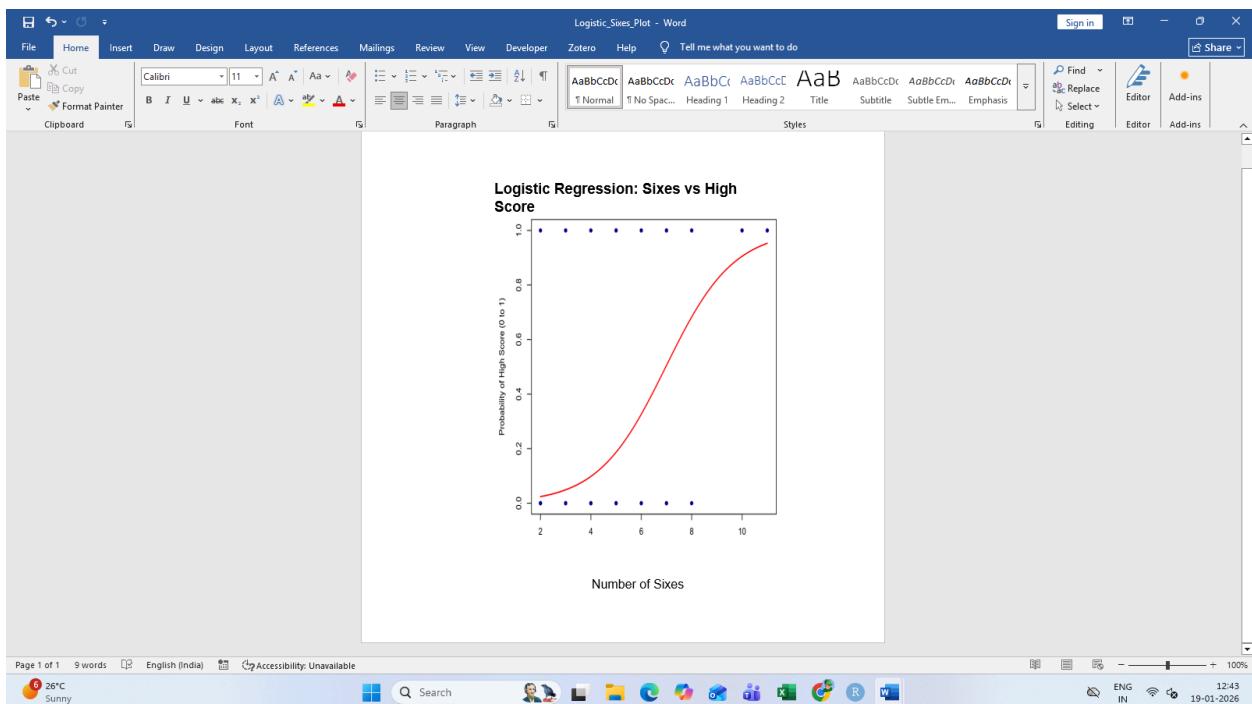
> # 6. Plot the results (This shows the graph in RStudio)
> plot(data$x6s, data$high_score,
+       main = "Logistic Regression: sixes vs High Score",
+       xlab = "Number of sixes",
+       ylab = "Probability of High Score (0 to 1)",
+       col = "red", lwd = 2)
> # Add the logistic sigmoid curve
> curve(predict(logit_model, data.frame(x6s = x), type = "response"),
+        add = TRUE, col = "red", lwd = 2)
> # Exporting results into external files
> # Save the Graph as a PDF (this captures what is on your screen)
> dev.copy(pdf, "Logistic_Sixes_Plot.pdf")
pdf
4
dev.off()
RStudioGD
2
> # Extract coefficients and save to Excel
> # Ensure the Excel file is CLOSED before running this!
> results_df <- as.data.frame(summary(logit_model)$coefficients)
> write_xlsx(results_df, "Logistic_Results.xlsx")
> # Save results to CSV
> write.csv(results_df, "Logistic_Results.csv")
> print("Logistic Regression Complete! PDF, Excel, and CSV files have been saved.")
[1] "Logistic Regression Complete! PDF, Excel, and CSV files have been saved."
>
>

```

The RStudio interface shows the R console output for a logistic regression model. The plot pane displays a scatter plot of 'Number of sixes' (X-axis, 2 to 10) versus 'Probability of High Score (0 to 1)' (Y-axis, 0.0 to 1.0). A red sigmoid curve represents the fitted logistic regression model. The environment pane lists various datasets and objects available in the global environment.



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