The Effects of Mobile Payments on Financial Inclusion in Nairobi Metropolitan Region

Configuration Manual

MSc Research Project
Programme Name: MSC Fintech MSCFTD1

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MSc Project Submission Sheet

School of Computing

Student Name**:** Juliet Oluoch……

Student ID: 22209794……..……

Programme: MSCFTD1…… Year**:** 2024 ……..

Module: MSc Research Practicum ……..……

Lecturer: Victor Del Rosal ……..……

Submission Due Date**:** 12/08/2024 ……..……

Project Title**:** The Effects of Mobile Payments on Financial Inclusion in Nairobi Metropolitan Region ……..……

Word Count**:** 693 …… Page Count**:** ……7……..……..……

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.
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Signature: Juliet ……

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Configuration Manual

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1 Introduction

This document lists the programs used to conduct the research: The Effects of Mobile Payments on Financial Inclusion in Nairobi Metropolitan Region. A google form survey was used to collect data. SPSS. v28 for the data analysis and R for correlation matrix visualization.

2 Software Program

Google Form: To gather information from the study population, a Google Form survey was used. The link was shared via WhatsApp, participants could easily submit their answers. This approach made it easier to gather data in an effective manner, which made it possible to analyze it quickly and get input from responders.

Excel: The survey responses were extracted into an Excel sheet, allowing for organized data management and analysis.

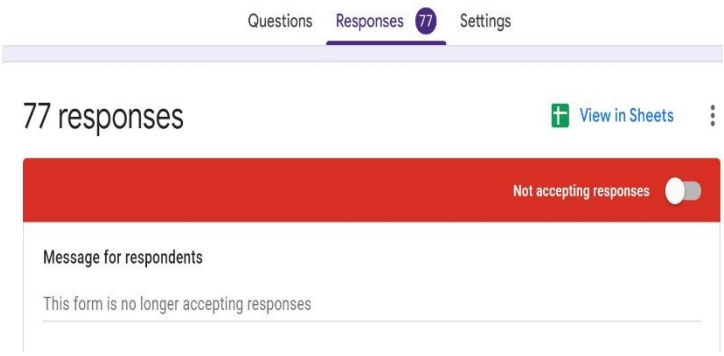
SPSS: This was used for analyzing the data that was extracted from Google Forms into Excel. Using advanced statistical analysis software, it was possible to identify the survey data's relationships, trends, and key findings could be found.

R-Studio: The correlation matrix was visualized using R-Studio, which produced understandable and informative graphical representations of the correlations between the variables. This improved the ability to analyze data correlations, simplifying the understanding and communication of complicated patterns.

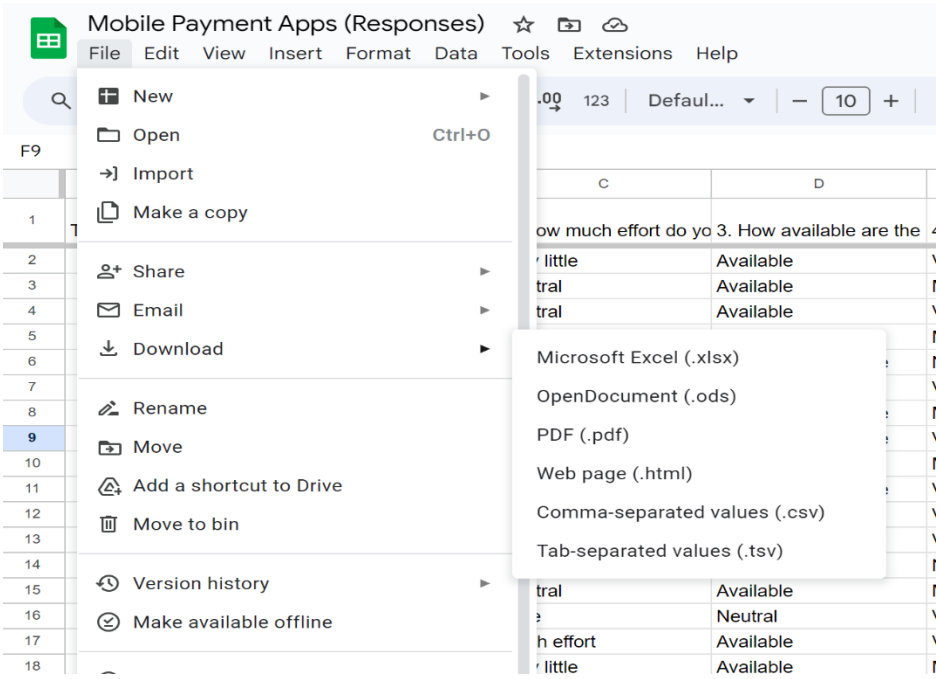
3 Implementation

3.1 Data collection and extraction

Google forms was used to collect responses, 77 participants submitted their completed questionnaire. Data was captured efficiently and organized for subsequent analysis.



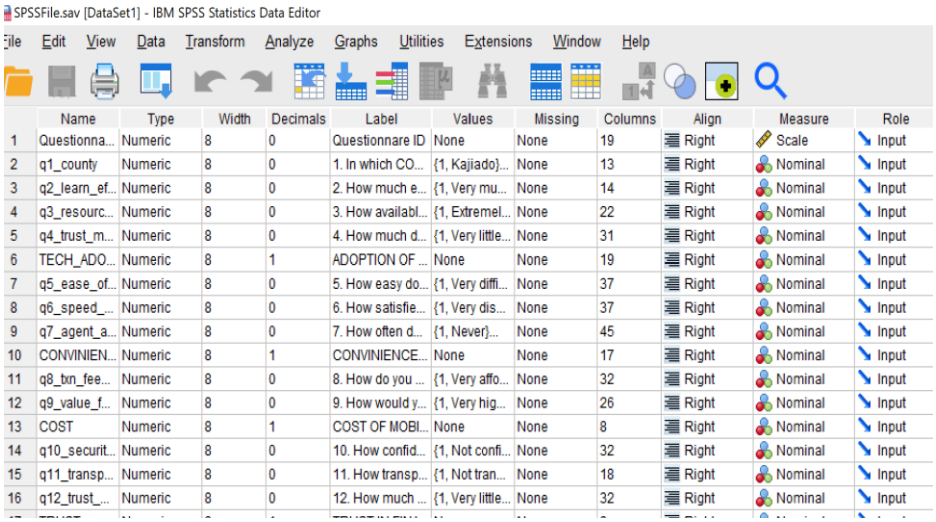
Downloading responses: Open the Excel file in Google Sheets before downloading it from Google Docs by pressing view in sheets above. Click "File" in the top menu, select "Download," and choose "Microsoft Excel (.xlsx)." The file will be converted to Excel format and downloaded to the computer.



4 Data Analysis

Data analysis using SPSS

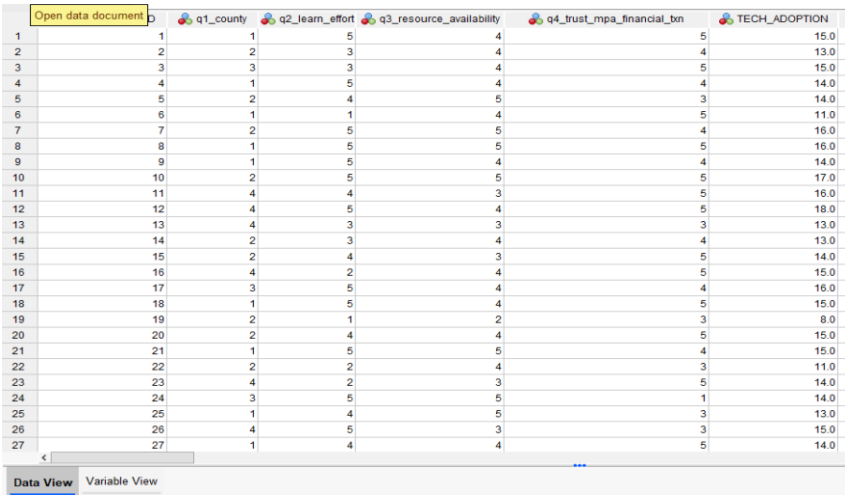
Raw data uploaded to SPSS: This overview in SPSS is a display of the structure and properties of the data set which is important for performing the analysis and ensuring correct result interpretation, also represents variables from the dataset.


SPSSFile.sav [DataSet1] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Questionna...	Numeric	8	0	Questionnare ID	None	None	19	Right	Scale	Input
2	q1_county	Numeric	8	0	1. In which CO...	{1, Kajiado}...	None	13	Right	Nominal	Input
3	q2_learn_ef...	Numeric	8	0	2. How much e...	{1, Very mu...	None	14	Right	Nominal	Input
4	q3_resourc...	Numeric	8	0	3. How availabl...	{1, Extremel...	None	22	Right	Nominal	Input
5	q4_trust_m...	Numeric	8	0	4. How much d...	{1, Very little...	None	31	Right	Nominal	Input
6	TECH_ADO...	Numeric	8	1	ADOPTION OF ...	None	None	19	Right	Nominal	Input
7	q5_ease_of...	Numeric	8	0	5. How easy do...	{1, Very diffi...	None	37	Right	Nominal	Input
8	q6_speed_...	Numeric	8	0	6. How satisfie...	{1, Very dis...	None	37	Right	Nominal	Input
9	q7_agent_a...	Numeric	8	0	7. How often d...	{1, Never}...	None	45	Right	Nominal	Input
10	CONVINIEN...	Numeric	8	1	CONVINIENCE...	None	None	17	Right	Nominal	Input
11	q8_txn_fee...	Numeric	8	0	8. How do you ...	{1, Very affo...	None	32	Right	Nominal	Input
12	q9_value_f...	Numeric	8	0	9. How would y...	{1, Very hig...	None	26	Right	Nominal	Input
13	COST	Numeric	8	1	COST OF MOBI...	None	None	8	Right	Nominal	Input
14	q10_securit...	Numeric	8	0	10. How confid...	{1, Not confi...	None	32	Right	Nominal	Input
15	q11_transp...	Numeric	8	0	11. How transp...	{1, Not tran...	None	18	Right	Nominal	Input
16	q12_trust_...	Numeric	8	0	12. How much ...	{1, Very little...	None	32	Right	Nominal	Input

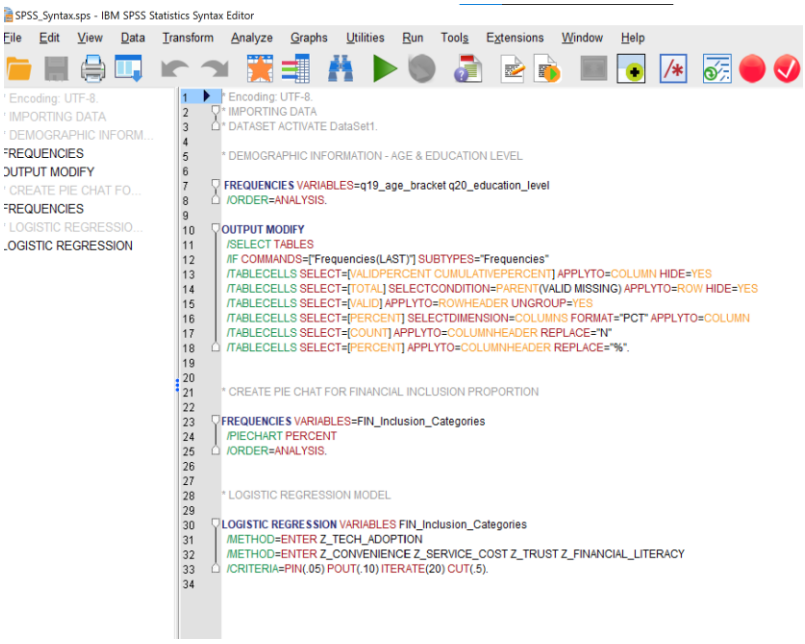
The Variables above assigned numbers: Numerical coding of survey questions in SPSS ensures quick, consistent, and simple data entry and analysis. It makes using statistical procedures that need numerical input easier, enabling data management and referencing simpler, and facilitates analysis automationr. This method improves the accuracy, organisation, and processing/interpretation efficiency of the survey data.


Open data document

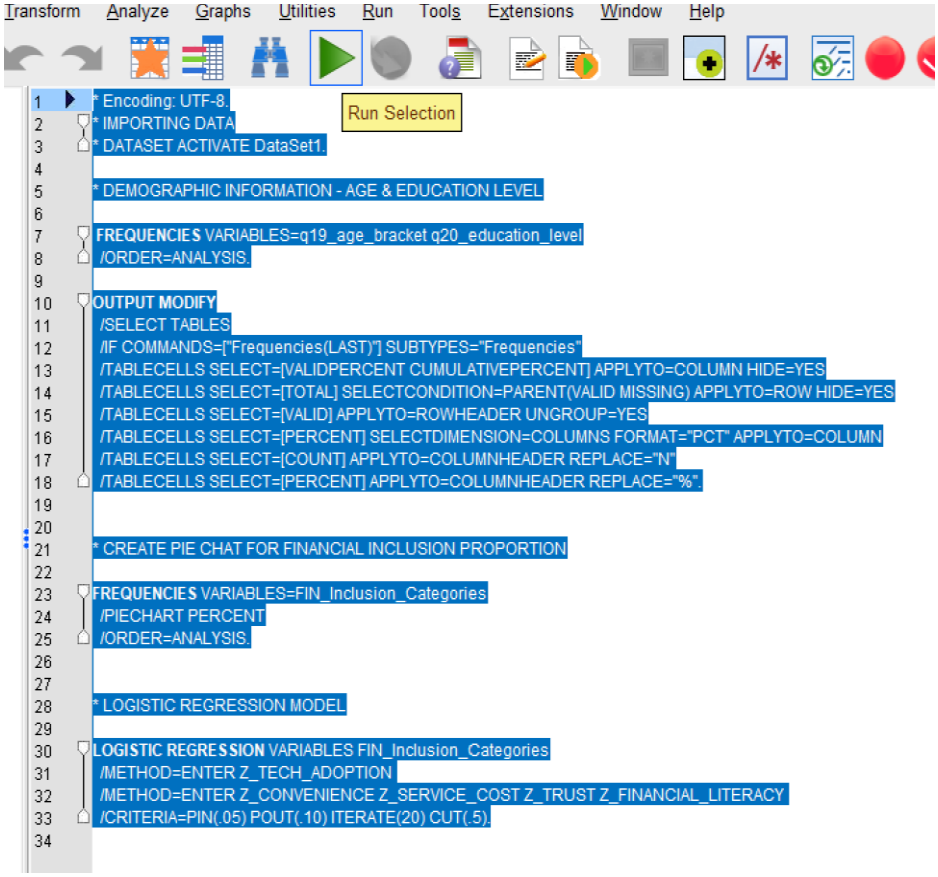
	ID	q1_county	q2_learn_effort	q3_resource_availability	q4_trust_mpa_financial_txn	TECH_ADOPTION
1	1	1	5	4	5	15.0
2	2	2	3	4	4	13.0
3	3	3	3	4	5	15.0
4	4	1	5	4	4	14.0
5	5	2	4	5	3	14.0
6	6	1	1	4	5	11.0
7	7	2	5	5	4	16.0
8	8	1	5	5	5	16.0
9	9	1	5	4	4	14.0
10	10	2	5	5	5	17.0
11	11	4	4	3	5	16.0
12	12	4	5	4	5	18.0
13	13	4	3	3	3	13.0
14	14	2	3	4	4	13.0
15	15	2	4	3	5	14.0
16	16	4	2	4	5	15.0
17	17	3	5	4	4	16.0
18	18	1	5	4	5	15.0
19	19	2	1	2	3	8.0
20	20	2	4	4	5	15.0
21	21	1	5	5	4	15.0
22	22	2	2	4	3	11.0
23	23	4	2	3	5	14.0
24	24	3	5	5	1	14.0
25	25	1	4	5	3	13.0
26	26	4	5	3	3	15.0
27	27	1	4	4	5	14.0

Data View Variable View

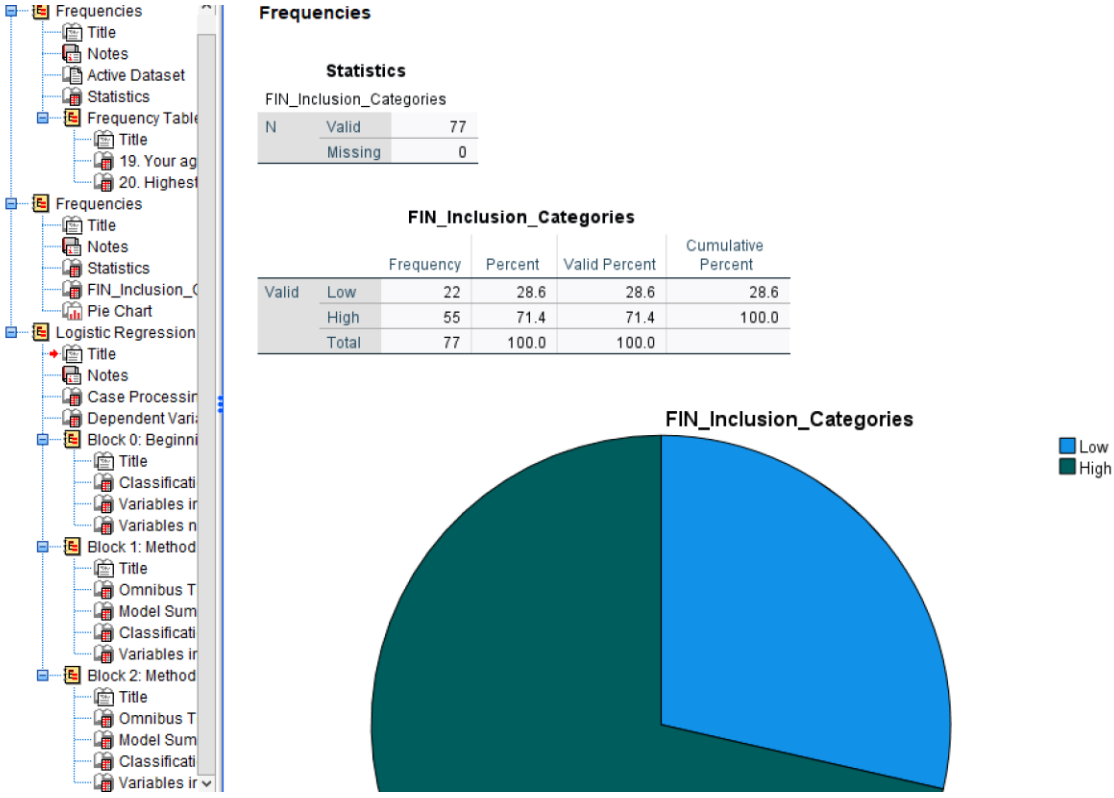
SPSS syntax file displays the syntax that was used for analysis: below is a brief description: The syntax starts by specifying the data set to be analysed, It then creates a frequency table giving a summary of the distribution of respondents according to education and age. A pie chart is created to represent financial Inclusion category and finally a logic regression analysis command.



Running the Syntax: Highlight the syntax and press the green button which has a yellow banner under it written run selection.

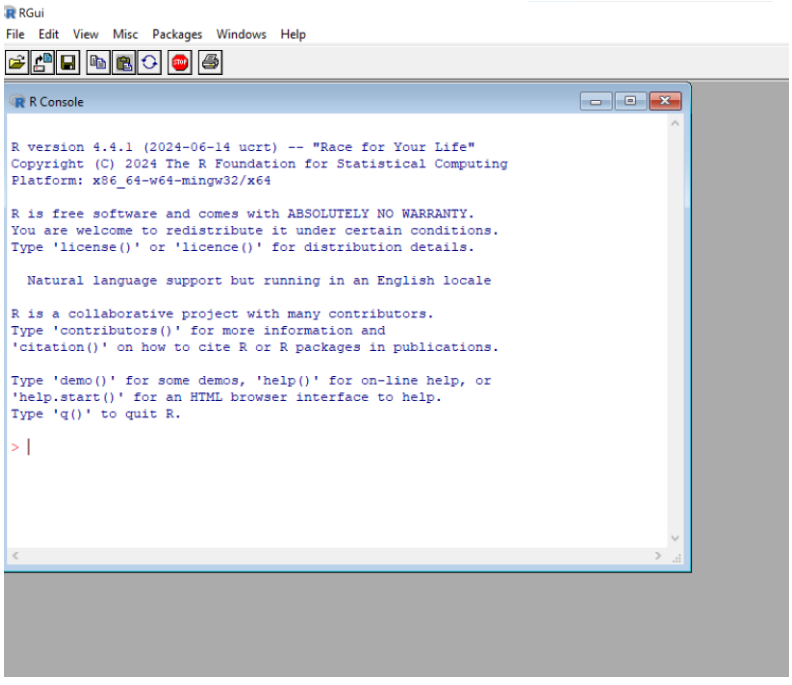


Analysed data: The syntax above when run will give a comprehensive analysis of the dataset complete with data visualization distribution, demographic characteristics and perform a logistic regression analysis to understand the factors that influence financial inclusion.



Data analysis using R

R version

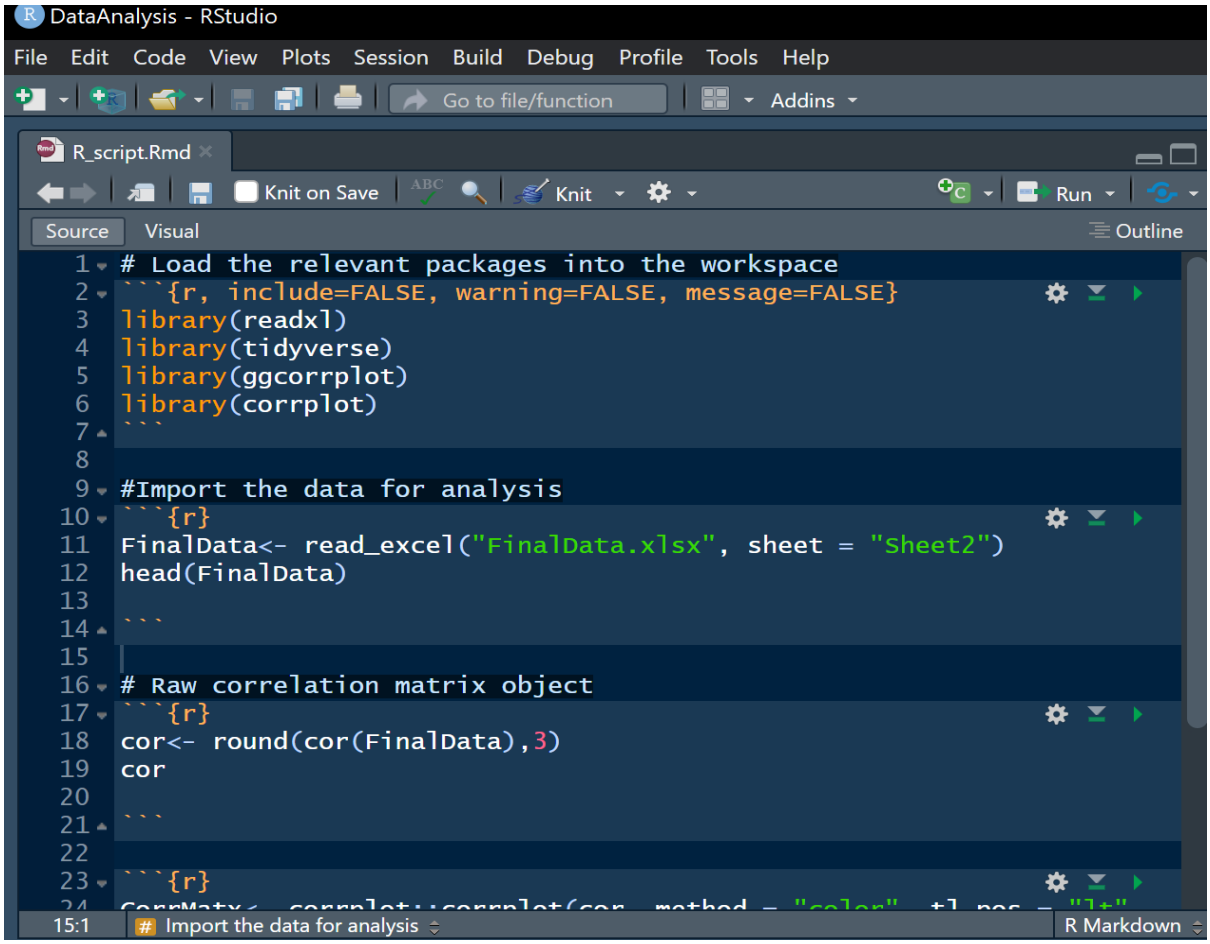


The steps for a script in RStudio used to plot the correlation matrix are as follows:

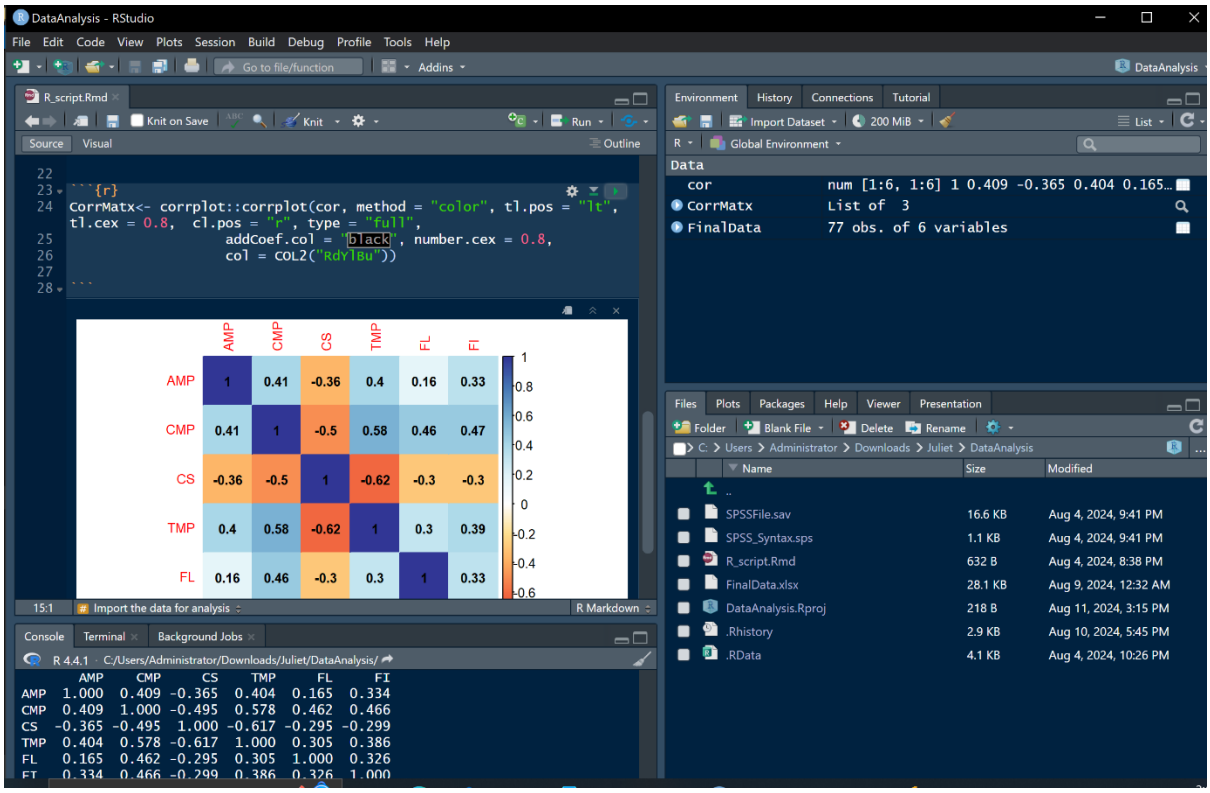
1. Loading Relevant R packages:

- readx1 – For reading excel files
- tidyverse – R package collection for data manipulation
- ggcorrplot – This package is for visualizing the correlation matrix
- corrplot – another package for plotting the correlation matrix

2. Import data for analysis: The script imports data from the Excel file containing the survey summary data. The read_excel() function is used to read the data into an R object called. The head() command displays the first few rows of the data, allowing you to inspect the contents.
3. Computation of raw correlation matrix: The cor() function is used to generate a correlation matrix by determining the correlation coefficients between the variables from the data. Using the round() function, the results are rounded to three decimal places and saved in an object called cor.
4. Plotting of correlation matrix: The script was used to setup up to visualize the correlation matrix using corrplot to create a graphical representation of the correlation between variables



The final result is as below when the green button is run from the first to the last block of code (they are 4 blocks of code).


DataAnalysis - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
R_script.Rmd
Knit on Save
Knit
Run
Source
Visual
Outline
```{r}
CorrMatx<- corrplot::corrplot(cor, method = "color", tl.pos = "lt",
tl.cex = 0.8, cl.pos = "r", type = "full",
addCoef.col = "black", number.cex = 0.8,
col = COL2("RdYlBu"))
```
AMP CMP CS TMP FL FI
AMP 1 0.41 -0.36 0.4 0.16 0.33
CMP 0.41 1 -0.5 0.58 0.46 0.47
CS -0.36 -0.5 1 -0.62 -0.3 -0.3
TMP 0.4 0.58 -0.62 1 0.3 0.39
FL 0.16 0.46 -0.3 0.3 1 0.33
1 0.8 0.6 0.4 0.2 0 -0.2 -0.4 -0.6
15:1
Import the data for analysis
R Markdown
Console
Terminal
Background Jobs
R 4.4.1 · C:/Users/Administrator/Downloads/Juliet/DataAnalysis/
AMP CMP CS TMP FL FI
AMP 1.000 0.409 -0.365 0.404 0.165 0.334
CMP 0.409 1.000 -0.495 0.578 0.462 0.466
CS -0.365 -0.495 1.000 -0.617 -0.295 -0.299
TMP 0.404 0.578 -0.617 1.000 0.305 0.386
FL 0.165 0.462 -0.295 0.305 1.000 0.326
Environment
History
Connections
Tutorial
Import Dataset
200 MiB
List
R
Global Environment
Data
cor num [1:6, 1:6] 1 0.409 -0.365 0.404 0.165...
CorrMatx List of 3
FinalData 77 obs. of 6 variables
Files
Plots
Packages
Help
Viewer
Presentation
Folder
Blank File
Delete
Rename
C: > Users > Administrator > Downloads > Juliet > DataAnalysis
Name
Size
Modified
SPSSFile.sav 16.6 KB Aug 4, 2024, 9:41 PM
SPSS_Syntax.sps 1.1 KB Aug 4, 2024, 9:41 PM
R_script.Rmd 632 B Aug 4, 2024, 8:38 PM
FinalData.xlsx 28.1 KB Aug 9, 2024, 12:32 AM
DataAnalysis.Rproj 218 B Aug 11, 2024, 3:15 PM
.Rhistory 2.9 KB Aug 10, 2024, 5:45 PM
.RData 4.1 KB Aug 4, 2024, 10:26 PM