

# STAT 5129 - FINAL GROUP COURSEWORK

## REFLEXIVE DIARY

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Project title: **Mauritius Case Study**

**Course:** MSc Data Analytics  
**Module:** STAT 5129 - Data Handling and Analysis  
**Group members:**

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<i>Homeswaree JOWAHEER</i>	<i>2522007</i>
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**Date:** 31 October 2025

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### 1. Roles & Task Breakdown (main roles)

- **Data Wrangler:** [Mavish GAJADHUR] — sources raw datasets, initial cleaning, provenance notes.
- **SQL Architect:** [Parvesh GHOORA] — schema design, queries, indexing decisions.
- **R Analyst:** [Homeswaree Jowaheer] — data pipelines, analysis code, visualisations.
- **Report Writer:** [Saveena Kowlessur] — draft, structure, method explanations.
- **Governance Lead:** [Shradha NUCCA GOVEDO] — licensing, privacy, ethics checks.

#### Role rotation table

	<i>Mavish GAJADHUR</i>	<i>Parvesh GHOORA</i>	<i>Homeswaree JOWAHEER</i>	<i>Saveena KOWLESSUR</i>	<i>Shradha NUCCA GOVEDO</i>
Week					
Week 1	Data Wrangler	Data Wrangler	Data Wrangler	Data Wrangler	Data Wrangler
Week 2	Data Wrangler	Data Wrangler	Data Wrangler	Data Wrangler	Data Wrangler
Week 3	Data Wrangler	Data Wrangler	Data Wrangler	Data Wrangler	Data Wrangler
Week 4	SQL Architect	SQL Architect	R Analyst	R Analyst	R Analyst

	<i>Mavish GAJADHUR</i>	<i>Parvesh GHOORA</i>	<i>Homeswaree JOWAHEER</i>	<i>Saveena KOWLESSUR</i>	<i>Shradha NUCCA GOVEDO</i>
Week					
Week 5	SQL Architect	SQL Architect	R Analyst	R Analyst	R Analyst
Week 6	R Analyst	SQL Architect	R Analyst	SQL Architect	SQL Architect
Week 7	R Analyst	R Analyst	SQL Architect	SQL Architect	R Analyst
Week 8	R Analyst	R Analyst	SQL Architect	R Analyst	R Analyst
Week 9	R Analyst	Report Writer	Governance Lead	R Analyst	R Analyst
Week 10	Report Writer	Governance Lead	Report Writer	Report Writer	SQL Architect
Week 11	Report Writer	Report Writer	Report Writer	Report Writer	Governanc e Lead
Week 12	Governance Lead	Report Writer	Report Writer	Governance Lead	Report Writer

## 2. Member Contributions & Learnings

Member	Key contributions	Key learnings (skills / tools)
<i>Mavish GAJADHUR</i>	<ul style="list-style-type: none"> <li>● Led the analysis of climate–energy relationships</li> <li>● Focused on predicting photovoltaic</li> <li>● Built linear regression models</li> </ul>	<ul style="list-style-type: none"> <li>● Simple models can perform better when data is limited.</li> <li>● checking and validating data quality</li> <li>● Visualizations</li> </ul>
<i>Parvesh GHOORA</i>	<ul style="list-style-type: none"> <li>● Data stage (ETL)</li> <li>● Database design</li> <li>● Report Writing</li> </ul>	<ul style="list-style-type: none"> <li>● Debugging in R</li> <li>● Source raw datasets</li> <li>● Pipelining</li> <li>● Imputation</li> <li>● Modeling results interpretation</li> </ul>
<i>Homeswaree JOWAHEER</i>	<ul style="list-style-type: none"> <li>● Built linear regression model for 2 stage modeling and R codes for data acquisition</li> </ul>	<ul style="list-style-type: none"> <li>● Regression model can do better in two stages when it concerns small sized dataset</li> <li>● The concept of ETL</li> </ul>

Member	Key contributions	Key learnings (skills / tools)
	<ul style="list-style-type: none"> <li>● Contributed in writing R codes for Part B of assignment</li> <li>● Report writing for part A / PowerPoint</li> </ul>	<ul style="list-style-type: none"> <li>● How to store big datasets</li> <li>● How to read and perform actions on parquet file</li> <li>● Debugging in R using AI Tools</li> </ul>
Saveena KOWLESSUR	<ul style="list-style-type: none"> <li>● Contributed in building the 2-stage regression model</li> <li>● Writing R codes for part B of assignment</li> <li>● Report writing for part A and B</li> </ul>	<ul style="list-style-type: none"> <li>● Regression model can be applied small datasets (size&lt;10)</li> <li>● retrieving, reading, filtering and storing parquet file</li> <li>● Debugging in R using AI tools</li> </ul>
Shradha NUCCA GOVEDO	<ul style="list-style-type: none"> <li>● Contributed in writing R codes for Part A assignment</li> <li>● Build regression model for part A</li> <li>● Report writing, formatting for part A</li> </ul>	<ul style="list-style-type: none"> <li>● How to store JSON, csv file</li> <li>● How to do data cleaning, sorting, filtering</li> <li>● Running regression model</li> <li>● Using SQL</li> </ul>

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### 3. AI Prompts, Generated Content & Verification notes

#### Prompt 1:

What are the SDG goals for Mauritius that are relevant to climate, crops, and electricity?

#### Generated output:

In Mauritius, the most relevant Sustainable Development Goals (SDGs) for climate, crops, and electricity are SDG 2 (Zero Hunger), SDG 7 (Affordable and Clean Energy), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). These goals directly align with the island's agricultural resilience, renewable energy transition, and climate adaptation priorities.

#### Verification notes: -

Checked for factual accuracy: Yes — evidence/source: [Mauritius ... Sustainable Development Knowledge Platform](#)

## Prompt 2:

Mauritius policies related to climate, electricity and weather

### Generated output:

Domain	Key Policy/Target	Main Instruments
Climate	40% GHG cut by 2030	NDCs, Climate Change Act
Electricity	60% renewables by 2030	Energy Strategy, IPPs, solar PV incentives
Weather	Cyclone & flood resilience	Disaster Risk Reduction Act, MMS early warnings

### Verification notes: -

Checked for factual accuracy: Yes for Key Policy for Climate only— evidence/source: [Nationally Determined Contributions Registry | UNFCCC](#),

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## 4. What worked / What didn't

### What worked:

- Debugging errors in R codes
- Generating code snippets for desired functions
- Summarising the main points for all metadata
- Generated proper SQL view for yearly crop-environment aggregation.
- Joining datasets straightforward; enabled correlation-ready tables.
- Summarise outputs of models in tabular format
- Interpretation of summary statistics and model statistics
- Template for presenting the technical report writing / reflexive diary
- Generated workflow/ data processing summary table
- Troubleshoot this error for R codes
- Refine report language and improve clarity
- Risk mitigation that can occur during a project
- R codes for 2 stage and polynomial regression modeling

#### What didn't:

- Variables names and dataset paths needed manual correction
- Early versions of plotting code produced empty plots due to ggplot object reference issues.
- Color labels for original vs imputed data needed manual renaming to match legend.
- Hallucinations in prompts for SQL (mismatch syntax, wrong column aliases) and URL references were corrected
- Some prompts suggested unnecessary intermediate variables which were optimized manually.

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## 5. Short critical reflection on skills gained & changes for next time

Working as part of a team during this project highlighted the importance of collaboration, communication and adaptability. Each member had different skills such as some were good at writing, others at organizing and others at the technical side like coding in R, cleaning the data and making sure everything worked properly.

At first, it wasn't always smooth but we kept in touch regularly, helped each other out and slowly found a good rhythm.

Using AI tools made things easier. They helped us to fix code errors, understand and write better explanations, and save time when preparing our report and presentation.

Finally, teamwork meant more than just dividing tasks. It was about building trust, supporting each other, being flexible and working towards a common goal.

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## 6. Peer confirmation of fair split

Each member initial below confirming the split is fair and accurate.

- *Mavish GAJADHUR* — MG — date: 31/10/2025
- *Parvesh GHOORA* — PG — date: 31/10/2025
- *Homeswaree JOWAHEER* — HJ — date: 31/10/2025
- *Saveena KOWLESSUR* — SK — date: 31/10/2025
- *Shradha NUCCA GOVEDO* — SNG — date: 31/10/2025