



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

LOGBOOK

Master Project

MSc (Data Science)

README

1. Purpose of Logbook

The purpose of the logbook is for student to record activities done during the implementation of the project. The logbook will help the supervisor/panel of evaluators/committee to monitor/evaluate the progress of the student during Master Project implementation.

2. Role of supervisor

- a) Supervisor is required to check and comment on the weekly entry of the logbook.
- b) Supervisor should track the student's progress according to the agreed Gantt Chart.

3. Reminder to Students

- a) This logbook should be submitted to supervisor (or co-supervisor) for checking and verification at least ONCE in every TWO WEEKS.
- b) The logbook should be brought to every project meeting with supervisor/co-supervisor.
- c) The logbook should be submitted together with the report draft (at the end of the semester) as evidence that the student was progressing and learning/guidance took place during the project implementation process.

Title of the Project: (not more than 15 words)

UNDERSTANDING GLOBAL GREENHOUSE GAS EMISSIONS
THROUGH DATA SCIENCE TECHNIQUES

Student Name : MOHAMMED RAZA ASFAK CHIDIMAR

Supervisor Name : PROF. MADYA DR MOHD SHAHIZAN OTHMAN

Co-supervisor Name (if any) : _____

Meeting time with Supervisor: 12 PM

Day : Tuesday

Time : 26 March 2024

SUMMARY OF PROJECT

This page must be filled up by the student in week-3 of the Master project implementation after meeting/discussion with Supervisor on the **objectives** and **scope** of the project. At the end of the project, the expected outcome/result should also be stated.

Objectives

- (a) To analyze global greenhouse gas (GHG) emissions using advanced data science techniques, focusing on key sectors such as industry, transportation, energy production, and agriculture.
- (b) To develop predictive models for GHG emissions using machine learning algorithms, including random forests, neural networks, and hybrid models, to forecast future emissions trends.
- (c) Develop data-driven strategies for mitigating GHG emissions based on comprehensive analysis and predictive modelling.

Data Scope

- i. Collection and comprehensive analysis of GHG emissions datasets from reliable sources such as the Emissions Database for Global Atmospheric Research (EDGAR) and the International Energy Agency (IEA).
- ii. Integration of external factors like economic indicators, technological advancements, and regional disparities into the predictive models to enhance their accuracy and robustness.

Methodology Scope

- i. Implementation of various machine learning algorithms, including random forests, neural networks, and hybrid models, to predict GHG emissions and identify key contributing factors.
- ii. Focus on improving the predictive accuracy and reliability of the models through rigorous training, validation, and performance evaluation.
- iii. Development and testing of models using both historical and real-time data to ensure their applicability and robustness in different scenarios.
- iv. Utilization of visualization techniques such as GIS mapping, heat maps, and time-series plots to illustrate emissions trends and model predictions effectively.

Signature of Supervisor:

Date: 18/07/2024

GANTT CHART OF PROJECT IMPLEMENTATION (I & II)

The student is required to produce a Gantt Chart describing the project implementation. Please clearly indicate the milestones or deliverables for the project.

Phase I - Master Project 1

[illegible]

GANTT CHART OF PROJECT IMPLEMENTATION (I & II)

Phase II - Master Project 2 (Planning)

[illegible]

MASTER PROJECT MEETING RECORD

Notice to the student

The student must record the **date, time, signature** and **place of meeting** with the supervisor, co-supervisor or anybody (for discussion related to project etc) from week 1 of Project 1 until the submission of project report (of Project 2). Detailed outcome of the meeting should be recorded in provided section of **WEEKLY ACTIVITIES**.

PROJECT-I

No.	Week (Date)	Time (Duration)	Place of Meeting
1	Week 2 (26/03/2024)	12:00 – 1:00 pm	Online Meting
2	Week 4 (13/04/2024)	1:00 – 2:00 pm	Online Meeting
3	Week 7 (02/05/2024)	4:30- 5:00 pm.	Online Meeting
4	Week 9 (09/05/2024)	2:00 – 2:30 pm.	Supervisor's Room
5	Week 10 (15/05/2024)	3:00 – 4:00 pm.	Supervisor's Room
6	Week 12 (30/05/2024)	10:00-11:00 am	Online Meeting
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PROJECT-II

No.	Week (Date)	Time (Duration)	Place of Meeting
	Example Week 1 (16/02/2020)	Example 11:00-11:30 am.	Example Room 438-09 (Signature)
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Week : 02

Date : 26/04/2024

Until : 12:00-1:00 pm

Topic of Discussion: Project Proposal and Project Title

Description:

- Discussed the project proposal idea with my supervisor Prof. Madya Dr. Mohd Shahizan Othman.
- Prof. Madya Dr. Mohd Shahizan Othman provided suggestions on how to improve the proposal idea and emphasized the need for more in-depth research on the topic.
- Prof. Madya Dr. Mohd Shahizan Othman explained the timeline of Project 1 and outlined the expected deliverables.
- Received guidance on structuring the project proposal with detailed objectives, scopes, and a problem background.

Plan for next meeting:

- Review and refine the proposal based on the supervisor's feedback.

Supervisor 's Comments: (please indicate student's achievement)

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Signature of Supervisor

Week : 04

Date : 13/05/2024

Until : 1:00-2:00 pm

Topic of Discussion: Revised the Project Proposal and Project Title

Description:

- Prof. Madya Dr. Mohd Shahizan Othman suggested that the objectives of the project proposal and title were not aligned with the research studies.
- Prof. Madya Dr. Mohd Shahizan Othman suggested new ideas for refining the objectives and scopes of the project.
- Received links to relevant research papers in revising the proposal.
- Discussed the need to find relevant datasets for the project.

Plan for next meeting:

- Finalize the proposal according to the supervisor's suggestions.
- Find and review relevant datasets for the project.

Supervisor 's Comments: (please indicate student's achievement)

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Signature of Supervisor

Week : 07

Date : 02/05/2024

Until : 4:30-5:00 pm

Topic of Discussion: Review of Collected Datasets and Thesis Paper Discussion

Description:

- Prof. Madya Dr. Mohd Shahizan Othman reviewed the datasets I had collected and provided suggestions on how to refine and finalize them.
- Received guidance on improving data quality and ensuring that the datasets are comprehensive and relevant for the project's objectives.
- We discussed the algorithms to be used in the project and strategies for developing the models.

Plan for next meeting:

- Review the literature review.
- Present Chapters 1 and 2 of the thesis report to the supervisor for feedback.

Supervisor 's Comments: (please indicate student's achievement)

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Signature of Supervisor

Week : 09

Date : 09/05/2024

Until : 2:00-2:30 pm

Topic of Discussion: Literature Review and Initial Thesis Draft

Description:

- Presented the completed literature review and the initial drafts of Chapters 1 and 2 of the thesis report.
- Discussed feedback on the content, structure, and clarity of the chapters.
- Prof. Madya Dr. Mohd Shahizan Othman provided suggestions for additional references and areas that need more detail or revision.
- Reviewed the timeline for the remaining chapters and set milestones for upcoming tasks.

Plan for next meeting:

- Revise Chapters 1 and 2 based on feedback.
- Start drafting Chapter 3 and collect any additional data required.

Supervisor 's Comments: (please indicate student's achievement)

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Signature of Supervisor

Week : 10

Date : 15/05/2024

Until : 3:00-4:00 pm

Topic of Discussion: Chapter 3 Draft and Outline for Remaining Chapters

Description:

- Presented the revised versions of Chapters 1 and 2.
- Discussed the initial draft of Chapter 3, focusing on methodology and data analysis.
- Prof. Madya Dr. Mohd Shahizan Othman provided feedback on the draft and suggested improvements.
- Reviewed and refined the outline for the remaining chapter.

Plan for next meeting:

- Finalize Chapter 3 based on feedback.
- Begin drafting Chapter 4, focusing on results and discussion.

Supervisor 's Comments: (please indicate student's achievement)

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Signature of Supervisor

Week : 12

Date : 30/05/2024

Until : 10:00-11:00 am

Topic of Discussion: Results and Discussion Draft (Chapter 4)

Description:

- Presented the draft of Chapter 4, detailing the results and discussion of the research findings.
- Prof. Madya Dr. Mohd Shahizan Othman provided detailed feedback on the results.
- Discussed the integration of visuals such as graphs, tables, and charts to enhance the clarity of the findings.
- Reviewed the progress on the final chapters and discussed any challenges faced during the drafting process.

Plan for next meeting:

- Revise Chapter 4 based on feedback and finalize the visuals.
- Begin drafting the conclusion and recommendations (Chapter 5).

Supervisor 's Comments: (please indicate student's achievement)

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Signature of Supervisor

