FINAL ASSESSMENT

COURSE	: DATA ANALYTICS & VISUALIZATION
COURSE CODE	: BCM3253
COURSE COORDINATOR	: TS. AZIMAN BIN ABDULLAH
DATE	: 16 DEC 2024 – 26 JAN 2025
DURATION	: 7 WEEKS
SESSION/SEMESTER	: SESSION 2024/2025 SEMESTER I

INSTRUCTIONS TO STUDENTS:

1. This assessment consists of **TWO (2) QUESTIONS**. Answer ALL question.

2. This assessment consist of **THREE (3)** learning outcomes as follow:

Learning Outcomes		Weight	
		PART A	**PART B**
CO1	Analyze the concept of data analytics and visualization in various applications.	20%	15%
CO2	Construct a visualization application by implementing data analytics and visualization techniques.	14%	4%
CO3	Adhere to the concept of independent learning in providing suitable solutions to facilitate stakeholder's decision making.	1%	1%
	TOTAL	**55%**	

APPENDIX:

1. Appendix 1 – Dashboard rubric.

2. Appendix 2 – Final report rubric.

This assessment paper consists of **NINE (9)** printed pages including the front page.

PART A: DASHBOARD DEVELOPMENT [70 MARKS]

Based on your previous case study in your proposal, you are instructed to create an online dashboard based on the following tasks:

(a)   Explain the profile of primary stakeholder for the dashboard.

[CO1: 2 Marks]

(b)   Define **TWO** value propositions of the dashboard.

[CO1: 2 Marks]

(c)   Justify your decision model for the targeted stakeholder.

[CO1: 2 Marks]

(d)   Justify the use of the selected tool for online dashboard development.

[CO1: 2 Marks]

(e)   Explain the chosen visualization technique in the dashboard.

[CO1: 2 Marks]

(f)   Design the online evaluation for the stakeholder.

[CO1: 10 Marks]

(g)   Integrate the result of stakeholder evaluation in the dashboard

[CO1: 20 Marks]

(h)   Synchronize the dataset for real-time updates in the dashboard.

[CO2: 6 Marks]

(i)   Adopt data extraction in the dashboard.

[CO2: 8 Marks]

(j)   Produce new data from the original dataset in the dashboard.

[CO2: 8 Marks]

(k)   Visualize efficiently with reasonable loading time.

[CO2: 6 Marks]

(l)   Perform self-assessment in the self-directed learning survey.

[CO3: 2 Marks]

PART B: FINAL REPORT [100 MARKS]

Create an extensive final report following the IEEE format, with a central focus on the case study from your project and proposal. Emphasize the lessons acquired during the project's development and provide reflections on your personal learning journey throughout the entire process.

(a)   Prepare the report in proper IEEE format.

[CO1: 5 Marks]

(b)   Explain the problem and the motivation of your case study oriented to the United Nation Sustainable Development Goals (SDG).

[CO1: 5 Marks]

(c)   Review the **ONE (1)** existing literature that related to your case study.

[CO1: 5 Marks]

(d)   Explain the process design of your solution in the project (the dashboard) based on the life cycle of data analytics and visualization as follow: -
      i)   Data acquisition

[CO1: 5 Marks]

      ii) Data filtering

[CO1: 5 Marks]

      iii) Data mapping

[CO1: 5 Marks]

      iv) Data rendering (visualization)

[CO1: 5 Marks]

(e)   State **FIVE(5)** major challenges or issues you experience in adopting data analytics and visualization process in your case study.

[CO2: 5 Marks]

(f)   Explain briefly how you resolve those challenges in (e).

[CO2: 5 Marks]

(g)   Assess the influence of your project development learning experience on your potential future career after graduation.

[CO1: 10 Marks]

(h)   Identify **FIVE(5)** different industries for job or professional requirement from the recent job vacancy database (e.g: Jobstreet etc) in Table 1.

Table 1

Organization Name	Salary rate

[CO1: 10 Marks]

(i)   Compare **ONE(1)** benefit and **ONE(1)** limitation of your selected software tool with another **TWO(2)** software tools in the market in Table 2.

Table 2

Comparison	Adopted tool :	Tool 1:_____	Tool 2:_____
Benefit			
Limitation			

[CO1: 10 Marks]

(j)   Discuss the stakeholder's evaluation of your dashboard in terms of performance and significance for their organization.

[CO3: 5 Marks]

(k)   Explain the **TWO(2)** important parts of your dashboard with the screenshots and proper label.

[CO1: 10 Marks]

(l)   Propose **TWO(2)** future works to expand upon your project.

[CO1: 5 Marks]

(m)   Include the screenshot of the dashboard as appendix.

[CO1: 5 Marks]

END OF QUESTION

APPENDIX 1 – DASHBOARD RUBRIC

CO	Competency	Learning outcomes			Weight	Attained Mark
		Poor	Moderate	Good		
		0	1	2		
CO1	Explain the profile of primary stakeholder in the dashboard.	Does not explain the stakeholder's profile	Provides a basic explanation of the stakeholder's profile	Provides a comprehensive explanation of the stakeholder's profile	2	
CO1	Justify the value proposition of the dashboard.	Does not justify the dashboard's value proposition	Provides a basic justification of the dashboard's value proposition	Provides a compelling justification of the dashboard's value proposition	2	
CO1	Justify the decision model for the targeted stakeholder.	Does not justify the decision model	Provides a basic justification of the decision model	Provides a comprehensive justification of the decision model	2	
CO1	Justify the use of the selected tool for online dashboard development.	Does not justify the use of the selected tool	Provides a basic justification for the use of the selected tool	Provides a compelling justification for the use of the selected tool	2	
CO1	Explain the chosen visualization technique in the dashboard.	Does not explain the visualization technique	Provides a basic explanation of the visualization technique	Provides a comprehensive explanation of the visualization technique	2	
CO1	Design the stakeholder online evaluation	Does not design an online evaluation	Designs a basic online evaluation	Designs a comprehensive online evaluation	10	
CO1	Integrate the result of stakeholder evaluation in the dashboard	Does not integrate the stakeholder evaluation results	Partially integrates the results of the stakeholder evaluation	Effectively integrates the results of the stakeholder evaluation	20	
CO2	Synchronize the dataset for real-time updates in the dashboard.	Does not synchronize the dataset for real-time updates	Partially synchronizes the dataset for real-time updates	Effectively synchronizes the dataset for real-time updates	6	
CO2	Adopt data extraction in the dashboard.	Does not adopt data extraction in the dashboard	Partially adopts data extraction in the dashboard	Effectively adopts data extraction in the dashboard	8	
CO2	Produce new data from the original dataset in the dashboard.	Does not produce new data from the original dataset	Partially produces new data from the original dataset	Effectively produces new data from the original dataset	8	
CO2	Visualize efficiently with reasonable loading time.	Does not visualize data efficiently	Visualizes data but with slow loading time	Visualizes data efficiently with fast loading time	6	
CO3	Perform self-assessment in the self-directed learning survey.	Does not perform a self-assessment	-	Performs a self-assessment	2	
Mark Distribution		CO1	CO2	CO3	TOTAL	
		40	28	2	70	
Overall weight		**20%**	**14%**	**1%**	**35%**	

APPENDIX 2 – FINAL REPORT RUBRIC

CO	Competency	Learning outcomes			Weight
		Poor	**Moderate**	**Good**	
		0	1	2	
CO1	Prepare the report in proper IEEE format.	Report does not follow IEEE format	Report mostly follows IEEE format with minor errors	Report is well-structured, follows IEEE format accurately	5
CO1	Explain the problem and the motivation of the case study oriented to the United Nation Sustainable Development Goals (SDG).	Does not explain the problem and its motivation, or does not link it to SDGs	Provides a basic explanation of the problem and its motivation, somewhat links it to SDGs	Provides a comprehensive explanation of the problem and its motivation, clearly links it to SDGs	5
CO1	Review the **ONE (1)** existing literature that related to the case study.	Does not review any relevant literature	Provides a basic review of one relevant literature	Provides a comprehensive review of one relevant literature	5
CO1	Explain the process of data acquisition	Does not explain the data acquisition process	Provides a basic explanation of the data acquisition process	Provides a comprehensive explanation of the data acquisition process	5
CO1	Explain the process of data filtering	Does not explain the data filtering process	Provides a basic explanation of the data filtering process	Provides a comprehensive explanation of the data filtering process	5
CO2	Explain the process of data mapping	Does not explain the data mapping process	Provides a basic explanation of the data mapping process	Provides a comprehensive explanation of the data mapping process	5
CO2	Explain the process of data rendering (visualization)	Does not explain the data rendering process	Provides a basic explanation of the data rendering process	Provides a comprehensive explanation of the data rendering process	5
CO2	State **FIVE(5)** major challenges or issues you experience in adopting data analytics and visualization process in the case study.	Does not state or explain any major challenges or issues	States and explains less than five major challenges or issues	States and explains five major challenges or issues	5
CO2	Explain briefly strategy to resolve the challenges in (e).	Does not provide a strategy to resolve the challenges	Provides a basic strategy to resolve the challenges	Provides a comprehensive strategy to resolve the challenges	5
CO2	Assess the influence of the learning experience on potential future career after graduation.	Does not assess the influence of the learning experience	Provides a basic assessment of the influence of	Provides a comprehensive assessment of the influence of	10

CO	Description				Mark
		Does not identify or explain any organization names	the learning experience Identifies and explains less than five organization names	the learning experience Identifies and explains five organization names	
CO1	Identify **FIVE(5)** organization names	Does not identify or explain any salary rates	Identifies and explains less than five salary rates	Identifies and explains five salary rates	5
CO1	Identify **FIVE(5)** salary rate	Does not compare any benefits or limitations	Provides a basic comparison of one benefit and one limitation	Provides a comprehensive comparison of one benefit and one limitation	5
CO2	Compare **ONE(1)** benefit and **ONE(1)** limitation of your selected software tool.	Does not discuss the stakeholder's evaluation	Provides a basic discussion of the stakeholder's evaluation	Provides a comprehensive discussion of the stakeholder's evaluation	10
CO3	Discuss the stakeholder's evaluation of the dashboard in terms of performance and significance for their organization.	Does not explain any important parts of the dashboard	Provides a basic explanation of two important parts of the dashboard with screenshots and proper labels	Provides a comprehensive explanation of two important parts of the dashboard with screenshots and proper labels	5
CO1	Explain the **TWO(2)** important parts of the dashboard with the screenshots and proper label.	Does not propose any future works to expand the project	Proposes and explains less than two future works to expand the project	Proposes and explains two future works to expand the project	10
CO1	Propose **TWO(2)** future works to expand the project.	Does not provide a dashboard screenshot	Provides a somewhat clear or somewhat relevant dashboard screenshot	Provides a clear and relevant dashboard screenshot	5
CO1	Dashboard screenshot	Report does not follow IEEE format	Report mostly follows IEEE format with minor errors	Report is well-structured, follows IEEE format accurately	5

Mark Distribution	CO1	CO2	CO3	TOTAL
	65	30	5	100
Overall weight	**13%**	**6%**	**1%**	**20%**