FACULTY OF COMPUTING
UTM Johor Bahru

UNIVERSITI TEKNOLOGI MALAYSIA

SUBJECT CODE	:	**MCSD1013**
SUBJECT NAME	:	**BUSINESS INTELLIGENCE AND ANALYTICS**
SECTION	:	**01**
TIME	:	
DATE/DAY	:	
VENUES	:	

_____

INSTRUCTIONS:

This alternative assessment is an INDIVIDUAL assessment consists of **THREE (3)** questions/phases:

1) Data preparation
2) Dashboard development
3) Reporting of analysis
   Each student will be evaluated based on ALL the questions/phases given.
   (Please attach this page as the front page of your report)

(Please Write Your Lecturer Name And Section In Your Answer Booklet)

Name	
I/C No.	
Year / Course	
Section	
Lecturer Name	

This question paper consists of _____ (__) printed pages excluding this page.

Use Case

Imagine you are assigned with a task to provide data driven business intelligence/business analytics solution using tools to address some concerns from your stakeholders. **For example,** manager of sales department of a profit organization is facing issues with declining sales in certain product range, OR operation director of a non-profit organization such as NGO wanted to understand more how well donations collected are distributed across the country. You are responsible to gather relevant data, develop dashboards and, identify and perform suitable analysis, provide insights, and report the results to your stakeholders.

Question 1: Data Preparation

a) Identify the source of data
b) Perform data integration from multiple sources where necessary
c) Perform data cleaning steps including removing duplicates, fixing structural errors, standardization of format or data type, handling missing data (if necessary) and perform data validation

Question 2: Dashboard Development and Data Story Telling

a) Identify audience segment and objectives of the data stories
b) Craft the storyline and choice of visualizations
    *2(a) and 2 (b) to be included in the report
c) Ingest dataset(s) that have been prepared into the tool that you choose to create the dashboard (e.g. Tableau, Power BI).
d) Build the dashboard based on the storyline and level of analytics required in **Question (3)** (refer sample visualization in **Figure 1**)
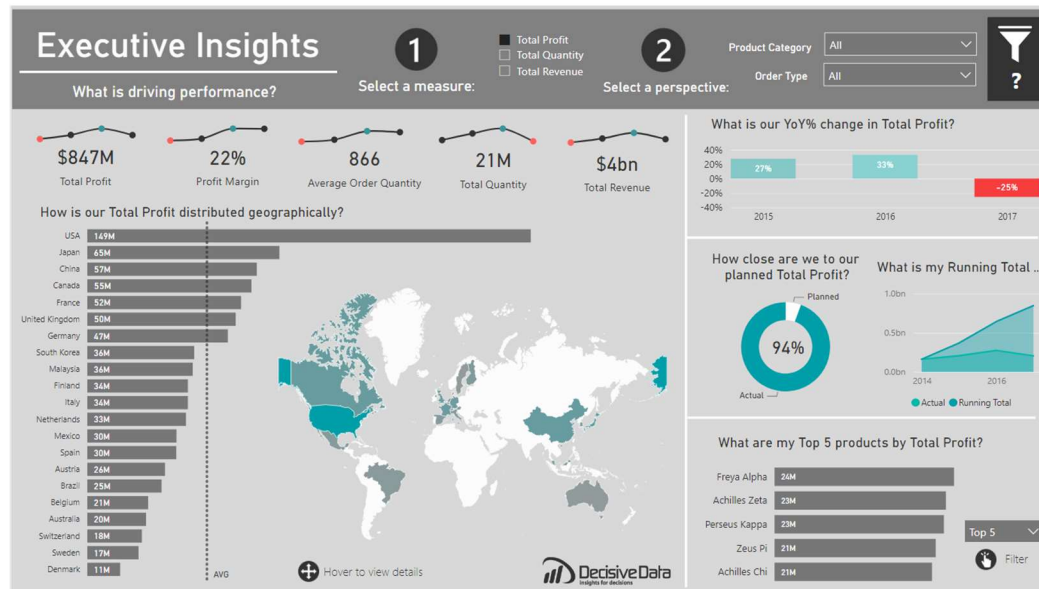
Figure 1 : Sample data visualization with story telling ([Executive Insights by Decisive Data - Microsoft Power BI Community](#))

Question 3: Reporting of Analysis

a) Conduct exploratory analysis by providing **descriptive analytics** of the dataset

b) Based on the insights of interest from (a), conduct **diagnostic analytics** to understand the observation in the descriptive analytics phase.

c) Conduct a **higher level of analytics (predictive/prescriptive)** using the functionality provided in the Business Intelligence tool that you choose.

d) Analyze the visualization you create and discuss the insights.

e) Provide suggestions that can be made to stakeholders relevant to the purpose of the project.

f) Write a report consisting of:

    i. Business problem formulation

    ii. Relevant stakeholder(s)

    iii. Data source and type

    iv. Audience segment, objectives of data stories, storyline, and choice of visualization

    v. Analysis from the visualization and discussion of insights

    vi. Discussion on suggestions towards stake holders relevant to the business problem

    ** item (i), (ii), (iii) can be extracted from your proposal

Submission

Each question given requires submission through E-learning:

Question 1: Data used for the project (example: .csv, .xlsx)

Question 2: Dashboard that contains your visualization (please make sure the file submitted is in a readable format (example: *.tbwx* for Tableau Desktop, *.pbix* for Power BI Desktop), packaged with datasets

Question 3: Report in *.pdf* format consisting of screenshots and discussion of the analysis, insights, and suggestions for stakeholders to assist decision making relevant to the business problem.

PROJECT: ASSESSMENT RUBRIC

Name:
Matric No:
Project Title:

ALTERNATIVE ASSESSMENT					
(A) Data Preparation					
Item	**Mark**				
Data quality	1	2	3	4	5
Data understanding	1	2	3	4	5
Total	[_____/10] * 10 =				
(B) Dashboard Development and Data Story Telling					
Item	**Mark**				
Adherence to requirements	1	2	3	4	5
Actionable insights	1	2	3	4	5
Interactivity	1	2	3	4	5
Clarity and aesthetics	1	2	3	4	5
Organization	1	2	3	4	5
Total	[_____/25] * 50 =				
(C) Reporting of Analysis					
Item	**Mark**				
Reporting of insights	1	2	3	4	5
Suggestion towards decision making	1	2	3	4	5
Total	[_____/10] * 25 =				
(D) Overall Discussion and Summary					
Item	**Mark**				
Summary of project outcome and results	1	2	3	4	5
Detail information and discussion	1	2	3	4	5
Total	[_____/10] *13 =				
TOTAL OF PARTS (A+B+C)	_____/100				
TOTAL MARKS:	[_____/100] * 40 =				

ALTERNATIVE ASSESSMENT					
Section	**Criteria/ Assessment**	**Marks Weight**	**Proficient (5,4)**	**Intermediate (3,2)**	**Basic (1,0)**
Data Preparation (12%)	Data Quality	7	Data is free from duplications, missing values and outliers are well addressed	Data consist minimum duplications, missing values and outliers are somewhat addressed	Data consist of duplications, missing values and outliers are not addressed
	Data Understanding	5	Data attributes are well described, keeping the important attributes, and transformed into appropriate format	Data attributes are somewhat described, some important attributes are kept and transformed into appropriate format	Data attributes are poorly described, important attributes are missing, and transformation are not performed
Dashboard Development and Data Story Telling (50%)	Adherence to Requirement	5	Meets and exceeds the requirements	Meets all requirements	Does not meet 1 requirement
	Actionable Insights	18	Visualization articulates findings that relates to business problem clearly Use of effective analytics to provide relevant recommendations (for example forecast/regression)	Visualization somewhat articulates findings that relates to business problem Some use of analytics to provide relevant recommendations	Visualization cannot be drilled down with minimal filtering of information Analytics is minimally/not use to provide relevant recommendations
	Interactivity	12	The visualization is customizable to generate a variety of required information	The visualization is explorable with limited perspective of information	The visualization is static
	Clarity/Aesthetic	10	Illuminated (every aspect of design enhances messsage & guides the user's attention) Effective use of, or combination of visualizations to support the storyline	Illustrated (unique layout that capture brand) Use of visualizations partially supports the storyline	Functional (tables, crosstabs & basic graphs) Use of visualizations poorly supports the storyline
	Organization	5	Well organized visualization Clear and easily understood visualizations	Moderately organized visualization Visualizations can somewhat understood	Poorly organized visualization Visualizations is poorly understood

Reporting of Analysis (25%)	Reporting of Insights	15	Clear discussions on the insights in relation to the dashboard developed	Some discussions on the insights in relation to the dashboard developed	Minimal/No discussions on the insights in relation to the dashboard developed
	Suggestion towards decision making	10	Relevant suggestions on how the insights can assist decision making	Insufficient suggestions on how the insights can assist decision making	Irrelevant suggestions on how the insights can assist decision making
Overall discussion and summary (13%)	Summary of project outcome and results	8	Project outcome is well summarized, results from the analysis are shown clearly, and how it can help in the decision making process is clearly discussed	Project outcome is summarized, results from the analysis are shown, and how it can help in the decision making process is somewhat discussed	Project outcome is poorly summarized, results from the analysis are shown, and how it can help in the decision making process is not discussed
	Detail information and discussion	5	Detail information on project execution and good discussion that facilitate understanding of project	Adequate information on project execution and some discussion that facilitate understanding of project	Inadequate information on project execution and minimal/no discussion that facilitate understanding of project