



NGEE ANN
POLYTECHNIC

School of InfoComm Technology

Data Discovery & Visualisation

Diploma in Data Science

October 2022 Semester

ASSIGNMENT 1 (Individual Assignment)

Submission Deadline:

7 December 2022 (Wednesday), 2359 hrs

Tutorial Group	:	
Student Name	:	
Student Number	:	
Video submission link	:	

Penalty for late submission:

10% of the marks will be deducted every calendar day after the deadline.

NO submission will be accepted after **14 December 2022 (Wednesday), 2359 hrs**

DATA DISCOVERY & VISUALISATION ASSIGNMENT

1. INTRODUCTION

The goal of this assignment is to design and implement a dashboard and/or interactive visualisations that allow you to explore a given dataset. You will be involved in cleaning and preparing the data where necessary, exploring the data, designing your visualisations, and implementing your dashboard **using Tableau Desktop**.

This assignment constitutes **30% of your overall DVST module grade**. It is an individual assignment.

2. OBJECTIVES

- a) Understand, prepare, and clean a curated dataset.
- b) Identify meaningful exploratory questions from the dataset.
- c) Design a multitude of visualisations to effectively derive answers to the declarative and exploratory questions identified earlier.
- d) Perform data storytelling using a dashboard and/or interactive visualisations for the target audience.

3. ABOUT THE DATASET

Have you ever wondered what the price of resale flats at a certain location is? Or is flat housing an asset that will rise in price over time? These resale flats dataset direct from HDB can help you to explore and perhaps find some answers to these questions.

This data set contains HDB resale flat information in Singapore from 1990 to 2022 and includes information such as when the transaction was made, town, flat type, block number, and the resale price, among other things.

The metadata of the resale flat dataset is provided in the accompanying **metadata-resale-flat-prices.txt** file.

4. ASSIGNMENT REPORT RECOMMENDED STRUCTURE

You may use the following pointers to structure your Report. In addition, you should include visuals, diagrams and/or tables where appropriate to enhance your Report's readability.

1) Project Objectives

- Provide a list of primary exploratory questions you are trying to answer with your visualisation(s).
- Provide the background on why your proposed target audience – a regular Singapore resident should care.
- The questions may evolve over the course of the project. Therefore, update this part by adding or removing exploratory questions you consider necessary during your analysis.

Hints

*Some possible exploratory questions include, but are not limited to the following themes:

Location Analysis

- Which location attracted the most buyer?
- What is the average cost of flat in various location?

Product Analysis

- Which flat type generate the most sales?
- Which flat type is the most / least expensive?

Price Analysis

- Any correlation of price against flat age?
- How is the price distributed?

**Note: you are NOT required to answer all the questions listed here. Most of these questions are meant as a starting point for more in-depth questions you are to formulate.*

2) Data Preparation

- Describe the state of the data (e.g. is it clean, is it complete). Do you expect to do substantial data cleanup?
- How will you prepare your data to be suitable for exploration and analysis? Describe the steps involved in detail.
- Did you perform further research to better understand the context of the data and metadata? Elaborate on the process and describe any additional findings.

3) Exploratory Data Analysis and Visualisation

- Perform univariate and multivariate analysis on your dataset.
- Using descriptive analytics techniques (i.e. statistical analysis, correlation analysis, basic visualisations etc.), document your findings.
- Identify the core findings and insights that help to answer the exploratory questions identified earlier. Create the visualisations accordingly.
- Describe each visualisation by highlighting the exploratory questions it answers.
- Where necessary, explain how to interpret the visualisations in order to answer the exploratory questions (e.g. interactive elements).

4) Dashboard

- From your library of visualisations created earlier, identify suitable ones to create a dashboard. Recall that dashboards should incorporate only visualisations related to one main topic.
- Depending on your exploratory questions, create multiple dashboards to aid you in performing your data storytelling presentation subsequently.

Guidelines for Assignment Report

- Include all the screenshots of your visualisations and dashboards in your Report.
- Provide clear images showing the key design and interactive elements where necessary.

5. PRESENTATION AND DATA STORY TELLING

You are required to do an **online recorded presentation** using your Tableau dashboards and visualisations to perform data storytelling and share your findings. The presentation **should not exceed 10 minutes**. The presentations which exceed the allotted time will be penalised.

6. ASSIGNMENT DELIVERABLES

Upon completion of the assignment, you are required to submit the following deliverables:

i. **Assignment Report (in Microsoft Word / PDF format)**

- Submit in “**Assignment 1 Report Submission**” folder in PoliteMall.

ii. **Tableau Packaged Workbook (in .twbx format)**

- Submit in “**Tableau Packaged Workbook Submission**” folder in PoliteMall.

iii. **Link to video recorded presentation (using any tools such as MS Team, PowerPoint, etc)**

- Upload the video to YouTube as unlisted. **Make sure your Google account is registered and verified.**
- Copy and paste the YouTube link in “**DDV Assignment 1 Report Cover**”.
- Below are guides on how to do recording and uploading Unlisted Youtube.

iv. **Reference:**

- **How to record Video with MS Team**
<https://youtu.be/hjfQ41LF0w>
- **How to Record Desktop Screen Using Zoom**
<https://youtu.be/P6cTbnUPwfY>
- **How to upload an unlisted video to Youtube**
<https://youtu.be/WkgOvUr5Alc>

7. ASSESSMENT CRITERIA

No.	Deliverable	Weightage
1.	Assignment Report	40%
2.	Tableau Packaged Workbook	30%
3.	Video Presentation	30%
TOTAL		100%

8. MARKING SCHEME GUIDE:

<p>Above Average A+ to B+</p>	<ul style="list-style-type: none"> • Excellent/Good list of excellent exploratory questions tailored for target audience. Excellent justification of target audience, and detailed data preparation steps. • In-depth analysis coupled with accurate application of analytical techniques, yielding valuable insights in answering all exploratory questions. • Excellent/Good mix of visualisations that are thoughtfully enhanced, coupled with correct and accurate interpretation of all visualisations and dashboards. • Excellent/Good design of all visualisations with perfect consistency of design elements across all visualisation and dashboards. • Presentation: <ul style="list-style-type: none"> ○ Skills: clear, lively, imaginative; great use of visual aids with lively animation. ○ Use of relevant and accurate evidence: key points supported with highly relevant and objective evidence, critically evaluate. ○ Detailed analysis of data insights, coupled with good data storytelling techniques for a suitable target audience. ○ Detailed sharing of data exploration, coupled with excellent use of relevant analytical techniques to showcase insights that are highly relevant to target audience.
<p>Average B to C</p>	<ul style="list-style-type: none"> • Largely correct level of analysis, with a suitable mix of analytical techniques applied to answer some exploratory questions. • Largely good variety of visualisations with accurate descriptions of visualisations and dashboards. • Largely correct visualisations with good effort in enhancing the visuals. • Use of dashboard that are populated with largely suitable visualisations. Some inconsistent design of visualisations with some/little naming of visuals and dashboards. • Presentation: <ul style="list-style-type: none"> ○ Presentation Skills: conveys the meaning generally, but sometimes unclear; use of appropriate visual aids with some animation. ○ Minimal sharing on data insights and/or lack of suitable visualisations for data exploration.

Below Average D+ to F	<ul style="list-style-type: none">• Minimal listing of exploratory questions and/or poor justification of target audience(s) and/or poor explanation of data preparation steps.• Minimal analysis using various analytical techniques or wrong interpretations. Incomplete and skimpy document.• Mixture of poor or incorrect visualisations, with little enhancements performed.• Mediocre/poor use and design of dashboards. Some inconsistent design of visualisations with some/little naming of visuals and dashboards.• Presentation:<ul style="list-style-type: none">○ Presentation Skills: not always clear or easy to follow, clumsy, disjointed, dull. Basic use of visual aids.○ Little to no sharing on data insights or wrong insights.○ Use of relevant and accurate evidence: little or no evidence discussed; or irrelevant and inaccurate.
----------------------------------	--