



School Name: School of Computing

Academic Year: AY2526 Semester 2

Course Name: DAAA

Module Code: ST1502

Module Name: Data Visualization

Assignment: CA2 (Group Work)

Deadline: Monday, 9 Feb 2026 by 8:00 am

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## Section 1

### Plotly: Instructions and Guidelines

1. This is a Group assignment for two persons, contributing **40%** to the module grade. The aim is to plot charts and visuals and gather insights using Python Plotly Express, Python Plotly Graph Objects and Python Plotly Dash.
2. The deliverable is a zip file with the following file-naming convention  
**“Student Name1+Student Name2.zip”**
3. Below is the contents in the zip file:
  - **One Jupyter notebook:** Write clear, commented code using python plotly, plotly graph objects and Plotly dash
  - **Datasets:** The datasets that you have cleaned or wrangled for analysis
  - **Powerpoint slides:** **describe how you clean data**, impute missing values, prepare your datasets for analysis, and provide **insights** on the data clearly and concisely.
4. The zip file shall include both group and individual components. A member will submit it on behalf of the group. Individual components submitted separately will not be marked.
5. A penalty will be imposed on late submission. 50% of the marks will be deducted for assignments that are received within ONE (1) calendar day after the submission deadline. No marks will be given thereafter.  
Exceptions to this policy will be given to students with valid LOA on medical or compassionate grounds. Students in such cases will need to inform the lecturer as soon as reasonably possible. Students are not to assume on their own that their deadline has been extended.
6. Plagiarism is a serious offence. No marks will be awarded, if the work is copied or you have allowed/enabled others to copy your work. If you are found to have committed, aided, and/or abetted the offence of plagiarism, disciplinary action will be taken against you.

Warning: Plagiarism means passing off as one's own ideas, works, writings, etc., which belong to another person. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turning it in as your own, even if you have the permission of that person.

## Section 2

# Plotly: Scope of the assignment

You are required to write Python programs and produce a data analysis presentation which describe insights drawn on **educational datasets** based on the requirements stated below.

### Basic Requirements

#### 1. Objective:

Define a clear objective for your analysis with the given datasets. The meta data on student profiles, courses results and survey is listed in the attached file “Meta Data”.

#### 2. Data Wrangling:

Clean and preprocess your datasets to ensure accurate analysis.

Document the process following the format of Table 1 sample below. It should contain the field names, number of records affected and action taken to clean the data.

Table 1: Data Wrangling using Python (HDB Resales Price Dataset)

Original Dataset: 202,764 After Cleaning: xxxx Total Rows removed because of duplicated records: xxx

Field Name	Number of records Affected	Action Taken to clean the data
month	0	Converted to datetime; format standardised
town	5	Cleaned abbreviations (e.g., AMK → ANG MO KIO)
flat type	10	Standardized (e.g., 3 RM, 3-ROOMS → 3-ROOM)
block	25	Removed symbols like @, #

#### 3. Plot charts:

- a. **Plotly Express/Graph Objects:** Create four charts using plotly express or graph objects
- b. **Plotly Dash:** Develop interactive dashboards with dropdown lists, checkboxes and etc.

#### 4. Insights:

Explain the insights from each chart in not more than three points.

Use your analysis to craft a compelling narrative.

#### 5. PowerPoint Slides:

Compile your process and findings into a deck of Powerpoint slides (not more than **15 slides**).

Your Powerpoint slides should include the following:

- **Cover Page:**
  - Module Name: DAVI
  - Academic year: AY2526 Sem2
  - CA2: Data Analytics on Educational Datasets
  - Student IDs and Full Names as in SAS: P2523456 Amanda Tan Ling Ling and P2512345 Johnson Seah
- **Objective of the assignment:** Explain the objective of the assignment.
- **Data wrangling:** Tabulate the process, following the example in the above Table 1.
- **Dashboard design template:** Outline the placement for header, navigation and main content area and etc
- **Chart and Dashboard: Each student** will prepare three slides:
  - Two slides with screenshots of charts and a summary of insights for each chart.
  - One slide with a screenshot of the dashboard and a summary of insights from the dashboard.
- **Recommendations: Each student** will provide actionable recommendations based on your analysis.

## Section 3

# Plotly: Marking Scheme

Marks will be awarded to each student based on the following rubrics.

To score higher marks, you are encouraged to explore and experiment beyond the syllabus and demonstrate your independently-acquired skills via your deliverables / interview.

Component	Weightage
<b>Group Work:</b>	<b>Total: 30 marks</b>
1. Data Wrangling <ul style="list-style-type: none"> <li>• Clean and preprocess the data</li> </ul> 2. Project Objective and Dashboard template design <ul style="list-style-type: none"> <li>• Project objective               <ul style="list-style-type: none"> <li>➢ State the objective on analyzing the given dataset</li> </ul> </li> <li>• Provide a dashboard template design               <ul style="list-style-type: none"> <li>➢ Header Section: company logo and Dashboard title</li> <li>➢ Navigation Bar: Date Range, Categories</li> <li>➢ Main Content Area: Chart 1, Chart 2, Chart 3 and Chart 4</li> </ul> </li> </ul>	20 5 5
<b>Individual:</b>	<b>Total: 70 marks</b>
3. Quality of application <ul style="list-style-type: none"> <li>• Technical complexity: demonstrate advanced use of libraries, data processing, and visualization techniques</li> <li>• User-friendliness: intuitive layout, easy navigation and clear labelling</li> <li>• Aesthetics &amp; Creativity: Visually appealing design with thoughtful use of colors, layout, and chart types</li> <li>• Coherent insights: Well-explained insights</li> <li>• Chart: Create four charts: one (1) plotly express chart and three (3) plotly graph objects. The three Plotly Graph Objects chart must include interactive elements such as radio buttons, checkboxes, dropdowns, slides or etc</li> <li>• Dashboard: Create one interactive dashboard that integrates interactive elements such as radio buttons and filters.</li> <li>• Innovation (e.g., animations), Responsiveness &amp; interactivity(e.g., dynamic tooltips), Code quality &amp; Documentation (e.g., modular code with comments)</li> </ul>	(a) 4 charts * 8 marks = 32 marks  (b) 1 dashboard = 8 marks  (c) Innovation, Responsiveness and Code Quality = 5 marks

4. Data analysis ( <u>Powerpoint Slides</u> ) <ul style="list-style-type: none"><li>• Quality of Presentation &amp; Slides</li><li>• Coherence and Completeness in the analysis of data</li><li>• Recommendation – based on all the charts and dashboard</li></ul>	15
5. Presentation, Interview and Q and A session <ul style="list-style-type: none"><li>• Effectiveness in presenting and answering questions</li></ul> <p>Note: As it is a group work, each student in a group will present one after another. The duration for each group presentation is 15 mins. The Q&amp;A session for each group is 5 mins.</p>	10

- **End of assignment specifications -**