



## **A251 STTHK 2113 DATA ANALYTICS ASSIGNMENT 2**

This second assignment builds upon the pre-processed dataset from Assignment 1. You will perform descriptive analytics to summarize, visualize, and interpret your dataset, followed by creating a presentation to communicate your findings effectively.

This assignment contributes 20% to your overall course assessment.

### **Task 1: Descriptive Analytics**

Perform descriptive analysis on your processed dataset from Assignment 1. Include:

- Summary Statistics: Compute measures such as mean, median, mode, range, and standard deviation for key variables.
- Frequency Distributions and Cross-Tabulations: Explore relationships between categorical and numerical variables.
- Data Visualization: Create relevant and well-labelled charts (e.g., bar charts, histograms, pie charts, scatter plots) to represent trends or relationships.
- Apply clustering to identify data groupings (e.g., K-means clustering).
- Apply association rule mining to uncover patterns (if applicable, e.g., in transaction data).

Provide clear interpretations and insights for all analyses. Discuss what the findings reveal about the chosen dataset and domain.

### **Task 2: Presentation of Findings**

Prepare a concise presentation (5–8 slides) summarizing your work. The presentation should include:

- Dataset overview and context.
- Summary of data preprocessing (brief recap).
- Results of descriptive analysis (key findings and visualizations).
- Insights or recommendations based on your analysis.
- Discussion of limitations or challenges encountered.

### **Deliverables (Assignment 2)**

Each student must submit:

1. Comprehensive Report (PDF or Word format) including:
  - Introduction and dataset overview.
  - Summary statistics and analytical results.
  - Data visualizations with explanations.
  - Discussion of findings, insights, and limitations.
  - References to data sources.
2. Presentation Slides (PowerPoint or PDF).

### **Important Notes**

This is an individual assignment. Use the same dataset from Assignment 1. Analyses must be performed using Google Colab or Jupyter Notebook. Cite all sources using a consistent citation style (APA/IEEE).

Follow the assessment rubric for marking criteria.

### Rubrics for Assignment 2

| Criteria                                          | Very Weak                                                         | Weak                                                                                    | Fair                                                                     | Good                                               | Very Good                                                   | Score |
|---------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------|-------|
| <b>Clear delivery of ideas</b>                    | Not able to deliver ideas clearly and requires major improvements | Able to deliver ideas and require further improvements                                  | Able to deliver ideas fairly clearly and requires minor improvements     | Able to deliver ideas clearly                      | Able to deliver ideas with great clarity                    |       |
| <b>Confident delivery of ideas</b>                | Not able to deliver ideas confidently                             | Able to deliver ideas with limited confidence and requires further improvements.        | Able to deliver ideas fairly confidently and requires minor improvements | Able to deliver ideas confidently                  | Able to deliver ideas with great confidence                 |       |
| <b>Effective and articulate delivery of ideas</b> | Not able to deliver ideas effectively                             | Able to deliver ideas with limited effect and requires further improvements             | Able to deliver ideas fairly effectively and requires minor improvements | Able to deliver ideas effectively and articulately | Ability to deliver ideas with great effect and articulate   |       |
| <b>Understand and respond to questions</b>        | Not able to understand and respond to a question                  | Able to understand and answer questions, but not able to accurately answer the question | Able to understand and answer questions satisfactorily                   | Able to respond to questions well                  | Able to fully understand and respond to questions very well |       |
|                                                   |                                                                   |                                                                                         |                                                                          |                                                    | <b>TOTAL ( /20) X 20%</b>                                   |       |