



**Module Code:** ITS61504 (Feb 2025)

**Module Name:** Data Mining

<b>Assignment No./Title</b>	<b>Assignment (Individual)</b> <b>30% (ASSIGNMENT 2 – EXECUTIVE SUMMARY – MLO2)</b>
<b>Course Tutor/Lecturer</b>	Ts. Dr Anbuselvan Sangodiah
<b>Section No</b>	[Provide your Section No]
<b>Student Name, ID and Signature</b>	

**Declaration** (need to be signed by the student, otherwise, the assessment will not be evaluated)

Certify that this assignment is entirely my own work, except where I have given fully documented references to the work of others, and that the material contained in this assignment has not previously been submitted for assessment in any other formal course of study. I have also read and accept the content of the **documentation and submission instructions section** of the assignment 2 question.

<b>Marks/Grade:</b>	<b>Evaluated by:</b>
<b>Evaluator's Comments:</b>	
<p style="text-align: center;">* Please include this cover page for your project submission</p>	

## **EXECUTIVE SUMMARY**

### **PURPOSE (MLO2)**

The purpose of this Assignment 2 is to:

1. **MLO2:** *Communicate findings and insights derived from data mining processes effectively to both technical and non-technical stakeholders for a given scenario.*

### **Objectives**

- **Implementation of Apriori Algorithm:**
  - Use Apriori Algorithm using *Python* to apply association analysis technique. Document the steps taken in implementing this algorithm (*screenshot Python codes when document the steps*)
  - Document frequent item sets and association rules
- **Implementation of FP Algorithm:**
  - Use FP Algorithm using *Python* to apply association analysis technique. Document the steps taken in implementing this algorithm (*screenshot Python codes when document the steps*)
  - Document frequent item sets and association rules
- **Summary of Observations:**
  - Provide detail explanation from the findings to the recommendations/conclusions.
  - Compare both algorithms when reporting interesting patterns from the findings.
- **Report Writing:**
  - Present your findings in a structured and professional manner, ensuring clarity for both technical and non-technical audiences. Also, adherence to proper file naming. This includes proper submission of Python codes.
  - **Deadline:** Ensure that the assignment is submitted by the due date via the *MyTimes*.

You are required to carry out this Assignment 2 assignment individually. Generally, in this assignment, you will be analyzing the same data set provided in Assignment 1 by implementing Apriori and FP algorithms to carry out association analysis, inferring interesting patterns from the findings and making good recommendations to achieve the set objectives.

## **EXECUTIVE SUMMARY (30%)**

### **Report Outline**

1. Implementation of Apriori Algorithm
2. Implementation of FP Algorithm
3. Summary of Observations

### **Deliverables**

1. A well-structured and properly formatted academic document that contains the detailed specifications for the Assignment 2.
2. Python codes (PyCharm Project File/Python Files)

**\*Deliverable 1** must be submitted in two formats *doc* and *pdf*

File format: **AssignmentPart2\_Report\_SectionNo\_IDNo**

**\*Deliverable 2** must be submitted in zip format – file format

File format: **AssignmentPart2\_Codes\_SectionNo\_IDNo**

**Assignment 2 Due Date: 7/3/2025 (Friday by 5.00 pm - MYT)** submit via **mytimes.taylors.edu.my** submission link.

Important Milestones for your assignment work (Assignment 2)

*% of completion work of assignment (CW)*

**Milestone 4 (Week 4) – CW - 50%: Completion of implementing association analysis algorithms**

- Preparation of data set for association analysis.
- Application of association analysis algorithms.

**Milestone 5 (Week 5) – CW - 100%: Completion of inferring interesting patterns.**

- Identification of frequent items sets and association rules.
- Completion of inferring interesting patterns from association analysis.
- Preparation for Assignment 2 report submission.

## **Documentation & Submission Instructions**

As you prepare your assignment for submission, please adhere to the following guidelines to ensure your work is clear, well-documented, and demonstrates your coding process effectively:

1. Use the provided front page template for your assignment. It should include the full details of yourself. Make sure all information is accurate and clearly presented.
2. As for documenting Python codes, accompany every segment of code with detailed comments. These should explain the function and mechanism of the code, the expected outputs, and any important considerations or potential issues that might arise.
3. The academic Honors Code applies to this assignment. Plagiarized work would not be marked.
4. All assignments are due on the dates given by the instructor on *MyTimes* or a certain day of the week as specified in the lesson plan.
5. All work must be original and if, taken from any works other than yours must be properly referenced using APA Referencing System.
6. Before proceeding to the final submission, you must first submit your PDF document to Turnitin for plagiarism check. Ensure you review the similarity report and make any necessary adjustments to your work to adhere to academic integrity guidelines.
7. **Take note: Submission of assignment DOES NOT mean that you pass assignment by default.**
8. Final Review: Before submission, review your PDF/Word document to confirm that all parts of the assignment are included and that the document is not missing any content.
9. **The following circumstances can result in your assignment being rejected or no marks are awarded for assignment:**
  - a. **Fail to comply with assignment submission due date**
  - b. **Incomplete submission of assignment (example: files are missing)**
  - c. **Submission of corrupted assignment files**
  - d. **Fail to adhere to proper file naming format**
  - e. **Submission of plagiarized assignment work**
  - f. **Fail to attach/incomplete Turnitin report**

## MARKING SCHEME – ASSIGNMENT 2

Items	Marks
Implementation of Apriori Algorithm	8
Implementation of FP Algorithm	8
Summary of Observations	10
Overall documentation	4
<b>TOTAL</b>	<b><u>30</u></b>

## MARKING RUBRICS – ASSIGNMENT 2

Criteria	8-10 marks	6-7 marks	5 marks	1-4 marks	0 marks
<b>Implementation of Apriori Algorithm</b>	Correct and efficient implementation of the Apriori algorithm. Handles large datasets effectively. Includes optimizations (e.g., candidate generation, pruning). Well-documented and commented code	Correct implementation of the Apriori algorithm. Good in handling large datasets. Includes some basic optimizations. Code is reasonably well-documented.	Basic implementation of the Apriori algorithm. May have minor errors or inefficiencies. Limited or no optimizations. Code has minimal documentation.	Incorrect or incomplete implementation of the Apriori algorithm. Does not handle datasets effectively. No optimizations implemented. Code is poorly documented or missing.	No attempt to implement the Apriori algorithm.
<b>Implementation of FP-Growth Algorithm</b>	Correct and efficient implementation of the FP-growth algorithm. Handles large datasets effectively. Efficient construction of the FP-tree. Well-documented and commented code.	Correct implementation of the FP-growth algorithm. Good in handling large datasets. Construction of the FP-tree is reasonably efficient. Code is reasonably well-documented.	Basic implementation of the FP-growth algorithm. May have minor errors or inefficiencies. Construction of the FP-tree may be inefficient. Code has minimal documentation.	Incorrect or incomplete implementation of the FP-growth algorithm. Does not handle datasets effectively. Construction of the FP-tree is inefficient or incorrect. Code is poorly documented or missing.	No attempt to implement the FP-growth algorithm.
<b>Summary of Observations</b>	Clear and concise summary of the findings. Analysis of the performance of both algorithms in terms of frequent items set, association rules, (e.g., runtime, memory usage). Recommendations are significant. Comparison of the results obtained from both algorithms. Discussion of the strengths and weaknesses of each algorithm.	Adequate summary of the findings. Basic analysis of the performance of both algorithms. Some comparison of the results. Recommendations are decent. Limited discussion of strengths and weaknesses.	Basic summary of the findings. Limited analysis of algorithm performance. Limited comparison of results. Limited discussion of strengths and weaknesses.	Incomplete or inaccurate summary of the findings. No analysis of algorithm performance. No comparison of results. No discussion of strengths and weaknesses.	No summary of observations provided.
<b>Overall documentation</b>	Well-organized and professional presentation of the project. Clear and concise writing style. Properly formatted and cited	Good organization and presentation of the project. Clear and generally concise writing. Properly formatted sources. Effective	Adequate organization and presentation of the project. Some clarity and conciseness in writing. Some formatting and	Poor organization and presentation of the project. Unclear and difficult to read. Significant formatting and citation issues.	Poorly organized and presented project. Unclear and difficult to understand. No proper formatting or citations. No use of

	sources. Effective use of tables, figures, and diagrams.	use of some tables, figures, and diagrams.	citation issues. Limited use of tables, figures, and diagrams.	Ineffective use of tables, figures, and diagrams.	tables, figures, or diagrams.
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-----END OF ASSIGNMENT 2-----