CPS685/Murthy

Homework Assignment#2

Association Rule Mining

**Problem Statement**

A TOYOTA dealership kept track of all the additional components requested by customers on the new vehicle purchases.

A: Remote Key-less entry / Power windows B: Global Positioning System (GPS);

C: Premiere Audio System D: Anti-theft protection system

Consider a database of seven car sales with items A, B, C, and D components added for each car is given in the following table:

|  |  |
| --- | --- |
| **Trans. ID** | **Item Set** |
| T1 | A, C, D |
| T2 | A, B, C |
| T3 | A, D |
| T4 | B, D |
| T5 | A, C |
| T6 | A, B, C, D |
| T7 | A, C, D |
| T8 | B C D |
| T9 | A B |

Assume that the minimum support count = 3 (that is: min support ≈ 0.43) and minimum confidence = 0.7,

Part I:

1. Find all ‘Frequen tIitemsets’ using the Apriori Algorithm (show all tables C1, L1, C2, L2, etc.)
2. Find all **association rules involving 3 items** using the Apriori algorithm.
3. For each rule mined, show the confidence level.

Part II:

1. Find all ‘Frequent Itemsets’ using ECLAT
2. Compare the result with the ones obtained in Part I.

**What to submit:**

Obtain your solutions in a written form (as if you are working in an exam) (for practice purposes)

Then develop a word document of your solution to be titled: HW2.docx.

Submit HW2.docx on the Blackboard on or before due date.

**Credit: 20 points**

**Due date: Sunday, Sep 29, 2024, by midnight.**

**Penalty for late submission: 10% per day for 5 days. No credit afterwards.**