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Knowledge Discovery and Data Mining

Homework 3

Due April 6th, 2025

**Chapter 5:**

**Problem 2 –** Consider the data set shown in Table 6.22.

(a) Compute the support for itemsets {e}, {b, d}, and {b, d, e} by treating each transaction ID as a market basket.

(b) Use the results in part (a) to compute the confidence for the association rules {b, d} −→ {e} and {e} −→ {b, d}. Is confidence a symmetric measure?

(c) Repeat part (a) by treating each customer ID as a market basket. Each item should be treated as a binary variable (1 if an item appears in at least one transaction bought by the customer, and 0 otherwise.)

(d) Use the results in part (c) to compute the confidence for the association rules {b, d} −→ {e} and {e} −→ {b, d}.

(e) Suppose s1 and c1 are the support and confidence values of an association rule r when treating each transaction ID as a market basket. Also, let s2 and c2 be the support and confidence values of r when treating each customer ID as a market basket. Discuss whether there are any relationships between s1 and s2 or c1 and c2.

**Problem 3 –**

**Problem 4 –**

**Problem 5 –**

**Problem 6 –**

**Problem 9 –**

**Problem 10 –**

**Problem 11 –**