

**School of Information Technology and Electrical Engineering**  
**INFS4203/7203 – Data Mining**

**Tutorial 2 Mining Association Rules**

**Question 1.**

A database has four transactions. Let  $\text{min\_sup} = 60\%$  and  $\text{min\_conf} = 80\%$ .

<b>TID</b>	<b>Date</b>	<b>Items bought</b>
120	5/10/02	{K, A, D, B}
230	5/10/02	{D, A, C, E, B}
340	15/10/02	{C, A, B, E}
450	20/10/02	{B, A, D}

- (a) Find all frequent itemsets using Apriori and FP-Growth algorithm respectively (show all intermediate results).
- (b) List all of the strong association rules (with support  $s$  and confidence  $c$ ) matching the following meta rule, where  $X$  is a variable representing customers, and  $\text{item}_i$  denotes variables representing items (e.g., “A”, “B”, etc.):

$$\forall X \in \text{transaction}, \mathbf{buys}(X, \text{item}_1) \wedge \mathbf{buys}(X, \text{item}_2) \Rightarrow \mathbf{buys}(X, \text{item}_3) [s, c]$$