

Consider the following transactions

Transaction ID	Itemsets
1	{A,E}
2	{E,D}
3	{B,E,D}
4	{A,C,D,E}
5	{A,B,E,F}
6	{A,B}
7	{B,C,F}
8	{E,B,F}
9	{A,D,F}
10	{A,D,C,F}

- A) Extract the frequent itemsets by *Apriori* using  $min\ sup=20\%$ , showing and discussing the different steps of the algorithm **(7 points)**
- B) Extract the association rules using minimum confidence equal to 70% **(3 points)**
- A) Compute the lift for the rules extracted in the previous point and explain the lift measure highlighting when it is particularly useful and explaining the relation among the variables in case of lift value greater than 1, lower than 1 and equal 0. **(3 points)**
- C) How many frequent subsets with maximum length 3 does the frequent pattern {a, b, c, d, e, u, f, h} contain? **(1 points)**