Describe Apriori algorithm and the flow of the association rule generation algorithm briefly.

For the frequent itemset, we generate the ones with length-1 and goes on from 1 to n. We joined every k-length itemset to generate k+1 length itemsets.

We implemented Apriori algorithm by pruning out the association rules that have confidence that is less than the threshold. Other than that, the subsets of that parent rules will be pruned since the subset of a set that does not pass the confidence threshold do not satisfied the point.

Support is set to be 30.0%
number of length-1 frequent itemsets: 196
number of length-2 frequent itemsets: 5340
number of length-3 frequent itemsets: 5287
number of length-4 frequent itemsets: 1518
number of length-5 frequent itemsets: 438
number of length-6 frequent itemsets: 88
number of length-7 frequent itemsets: 11
number of length-8 frequent itemsets: 1
number of all lengths frequent itemsets: 12879

Support is set to be 40.0%
number of length-1 frequent itemsets: 167
number of length-2 frequent itemsets: 753
number of length-3 frequent itemsets: 149
number of length-4 frequent itemsets: 7
number of length-5 frequent itemsets: 1
number of all lengths frequent itemsets: 1077

Support is set to be 50.0%
number of length-1 frequent itemsets: 109
number of length-2 frequent itemsets: 63
number of length-3 frequent itemsets: 2
number of all lengths frequent itemsets: 174

Support is set to be 60.0%
number of length-1 frequent itemsets: 34
number of length-2 frequent itemsets: 2
number of all lengths frequent itemsets: 36

Support is set to be 70.0%
number of length-1 frequent itemsets: 7
number of all lengths frequent itemsets: 7

Part 2, Q1
Template 1 output: 26
Template 1 output: 91
Template 1 output: 26
Template 1 output: 9
Template 1 output: 108
Template 1 output: 9
Template 1 output: 9
Template 1 output: 108
Template 1 output: 17
Part 2, Q2
Template 2 output: 9
Template 2 output: 6
Template 2 output: 117
Part 2, Q3
Template 3 output: 17
Template 3 output: 0
Template 3 output: 11
Template 3 output: 0
Template 3 output: 117
Template 3 output: 3