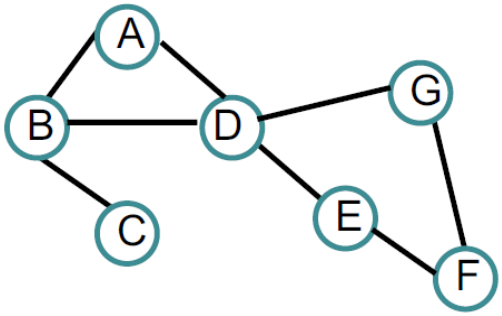
School of Computing and Information Systems (CIS)
The University of Melbourne
COMP90073
Security Analytics
Tutorial exercises: Week 9

1. How the following GCN propagates information across the graph (only state the first 3 layers/depth) to compute node features?



2. (a) What are the applications of Graph Convolutional Networks (GCNs)?
(b) What kind of dataset it may most suit regarding anomaly detection?

3. A database has five transactions. Let *min_sup* = 60% and min_conf = 80%.

(a) Find all frequent *itemsets* using Apriori and FP-growth, respectively.

(b) Compare the efficiency of the two mining processes.

TID	*items_bought*
T100	{M, O, N, K, E, Y}
T200	{D, O, N, K, E, Y }
T300	{M, A, K, E}
T400	{M, U, C, K, Y}
T500	{C, O, O, K, I ,E}

4. The price of each item in a store is nonnegative. The store manager is only interested in patterns of the form: “one free item may trigger $200 total purchases in the same transaction”. State how to mine such patterns efficiently.