Graph Mining CSF426
Lab session 17
Time: 3pm-5 pm
Date: Oct 20, 2022
Instructor IC – Vinti Agarwal

Instructions: Today's lab session is based on some of previous lectures. Students need to perform following set of operations. **MM - 10**

1. By taking the example graph from lectures as input, create a co-occurrence list(I) by performing random walk on nodes. (5 marks)

   Steps:
   a. Taking each node as start node, create a predefined number of random walks of some fixed length.
   b. Define some window size (vary between1 to m) and collect pair of nodes that co-occur in this window size.
   c. This will result in co-occurrence list, I.

2. Use the encoder-decoder model to compute the probability of occurrence of such co-occurred pairs. (5 marks)

   Steps:
   a. Initialize two random embedding matrices for target nodes and context nodes, Z_{tar} and Z_{con}
   b. Both embedding matrices should be of same size.
   c. Use the decoder formula discussed in lectures to compute the probability for each cooccurred pair in I.