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Lab session # LAB 6
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1 Question 1

For unweighted graph, the problem can be considered as a classification problem, where the input is an edge and the target is 1 if it belongs to the graphs and 0 otherwise.In order to do this we need to change the loss function to the binary cross-entropy loss.

2 Question 2

To do so, we may modify the last layer (the sigmoid layer) in a way to get X as output depending on the matrix of low-dimensional node representations Z.

3 Question 3

a) sum readout:

$$Z_{G_1} = [2.69, -4.42, -2.2]$$
$$Z_{G_2} = [4.6, -7.6, 3.76]$$
$$Z_{G_3} = [1.54, -2.52, -1.26]$$

b) mean readout:

$$Z_{G_1} = [0.8966, -1.4733, -0.733]$$
$$Z_{G_2} = [1.15, -1.9, -0.94]$$
$$Z_{G_3} = [0.77, -1.26, -0.63]$$

c) max readout:

$$Z_{G_1} = [1.15, -1.26, -0.63]$$
$$Z_{G_2} = [1.15, -1.9, -0.94]$$
$$Z_{G_3} = [0.77, -1.26, -0.63]$$

4 Question 4

Sinces the feature of the nodes in both graphs are initialized to 1, and the number of nodes is also equal, the algorithm will give the same representation for both graphs with any readout function.

References