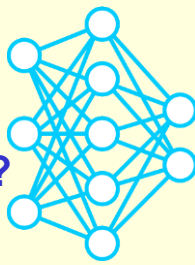
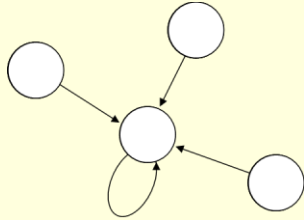


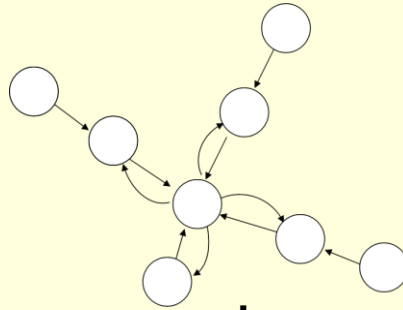
Homework assignments for Class #7



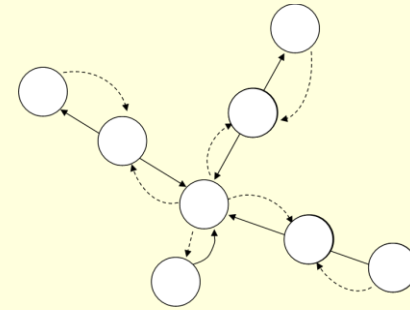
1. Which one of the charts shown below represents a Message Passing Network?



a



b



c

2. You apply the self-attention algorithm implemented in the MultiHeadAttention layer to an input tensor of shape (20, 64, 128). The layer has been passed the hyperparameters:

$\text{num_heads} = 1$, $\text{key_dim} = 16$, $\text{value_dim} = 48$.

What will be the shape of the output tensor?

3. As mentioned in the lecture, the Message Passing layer is a generalization of the vanilla Graph Convolution layer. Actually, in a certain limiting case, the data transformation performed by the Message Passing layer should be equivalent to the data transformation performed by the GCNConv layer. Based on what you learned from the lecture and from the `mpn_molgraph_classification.py` code, identify the 3 conditions that make up this limiting case. Then modify the `mpn_molgraph_classification.py` code so that it produces the results similar to those produced by the `gcn_molgraph_classification.py` code.