

# Graph Neural Networks

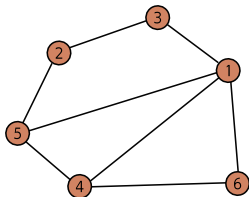
Edge Embedding

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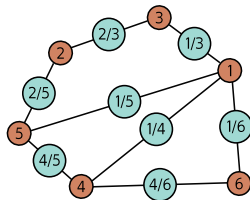
## Edge Graph

- ❖ So far, we have focused on processing node embeddings in graph neural networks.
- ❖ Now, we shift our attention to scenarios where the information is associated with the edges of the graph.
- ❖ We can extend the techniques used for node embeddings to handle edge embeddings by utilizing the concept of an edge graph.
- ❖ To process edge embeddings:
  1. Convert the original graph to its edge graph.
  2. Apply the same aggregation and update techniques used for node embeddings, treating each edge as a node in the edge graph.

a) Original graph



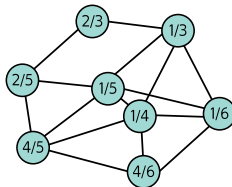
b)



→  
Add new node  
at each original edge

c)

Edge graph



→  
Connect new nodes if  
original edges shared node