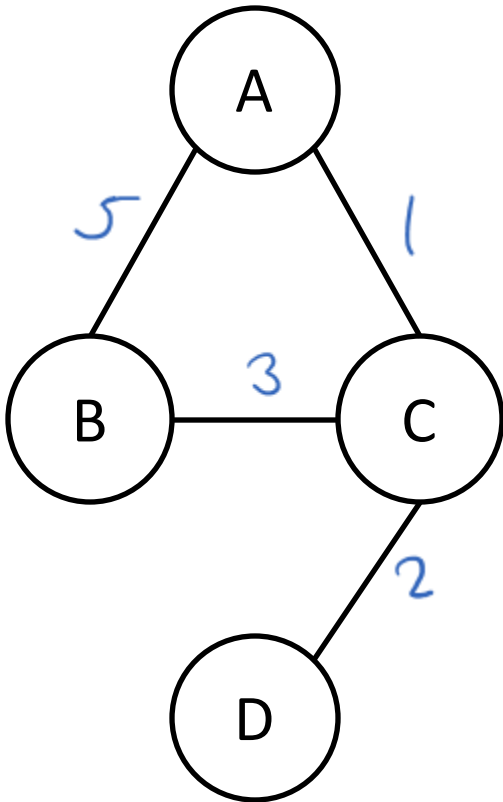


More Graph Terminology

Weighted Graphs

Weighted edges assign a cost or weight to each edge.



```
double[][] adjacencyMatrix;
```

```
| List<Graphnode<T>> adjacencyList;  
| List<Double> edgeWeights;
```

Cost of a Path

- For weighted graphs: sum of edge weights on path

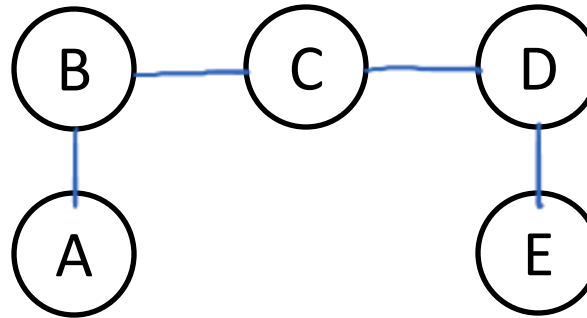
$$A \xrightarrow{3} B \xrightarrow{4} C$$
$$\text{Cost}(ABC) = 3 + 4 = 7$$

- For unweighted graphs: length of path (# of edges)

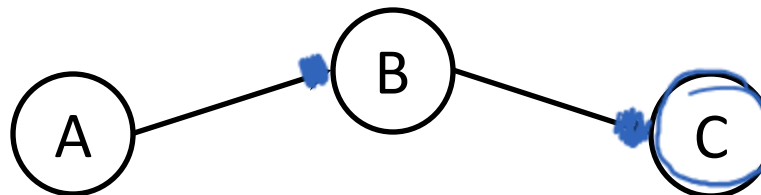
$$\text{Cost}(CDE) = 2$$

Connected Graph

- In a connected graph, a path exists between every pair of nodes.



- For directed graphs:
 - strongly connected: a path exists between every pair of nodes with edge directions respected
 - weakly connected: a path exists between every pair of nodes with edge directions ignored



Subgraphs

- G' is a subgraph of G if:
 - The set of nodes of G' is a subset of the nodes of G , and
 - The set of edges of G' is a subset of the edges of G .

