



`<script src="./themes/cycle.js"></script>`

Tutorial 9: Graph Algorithms II

CAB301 - Algorithms and Complexity

School of Computer Science, Faculty of Science

Agenda

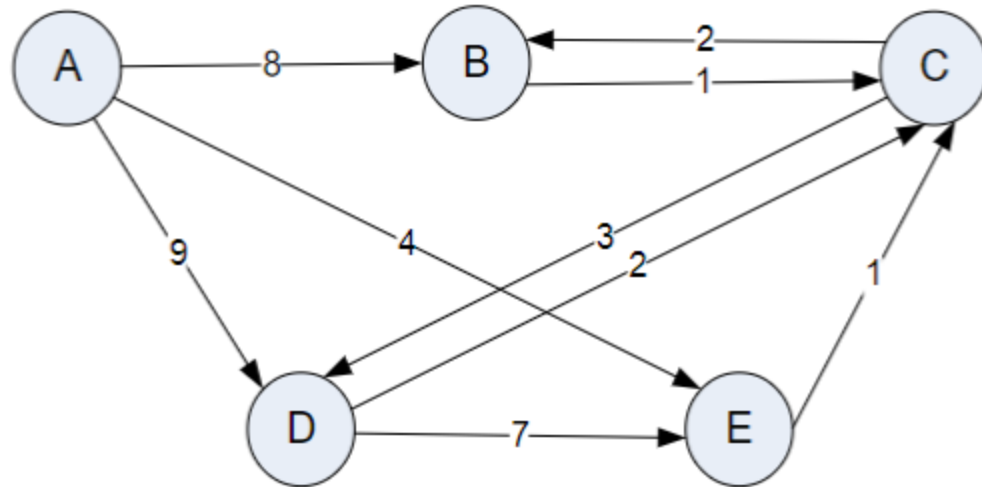
1. **Lecture Recap:** Graph Algorithms II

- Shortest Path Problem
- Dijkstra's Algorithm
- Floyd's Algorithm

2. **Tutorial Questions + Q&A**

The Shortest Path Problem

What's the shortest path from A to B?



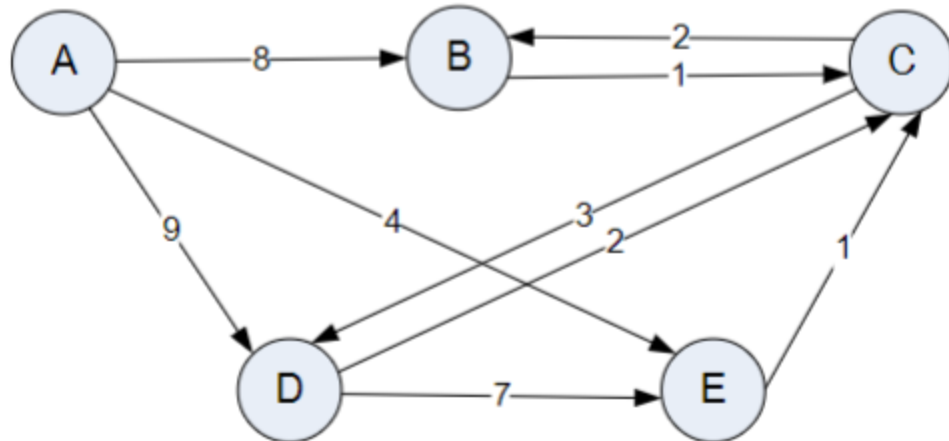
It's actually $A \rightarrow E \rightarrow C \rightarrow B$, with a total weight of 6 units, instead of $A \rightarrow B$ with a total weight of 8 units.

Dijkstra's Algorithm

<small>

Find the shortest path from a **start node to all other nodes** in a weighted graph, by 1) visit nearest node, and 2) update the distances of unvisited nodes, via the selected node.

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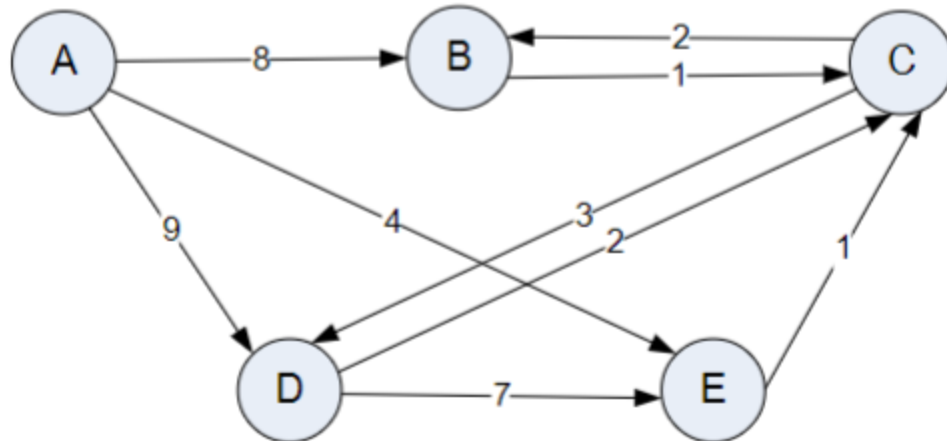
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Floyd's Algorithm

<small>

Find the shortest path between **all pairs of nodes** in a weighted graph, by 1) consider all nodes as **intermediate nodes**, and 2) update the shortest path if a shorter path is found.

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