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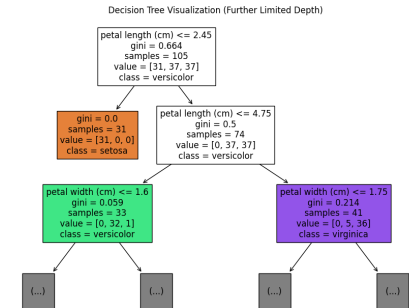
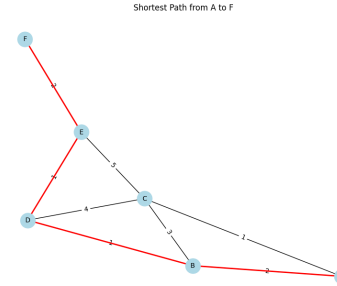
Algorithms for Data Science

Data Modeling: Graph Algorithms

Graph Algorithms

How do we uncover relationships and connections in complex systems?

- How does Facebook suggest friends based on your network?
- What helps logistics companies find the shortest delivery routes?



Graph algorithms reveal insights into relationships and structures within interconnected data.

Graph Algorithms

Computational methods for analyzing and solving problems with interconnected data modeled as nodes (entities) and edges (relationships).

Systematically explore nodes and edges for **pathfinding**, **connectivity analysis**, and **hierarchical operations**.

Traversal

Identify efficient paths and configurations for **logistics**, **network design**, and **scheduling**.

Optimization

Model uncertainty and infer relationships for **medical diagnosis**, **fraud detection**, and **causal analysis**.

Probabilistic Reasoning

Organize data into tree structures for efficient **data access** and **decision making**.

Hierarchical Representation



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