

Graphs, Tables, and Sets

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Graph: A non-linear data structure consisting of vertices and edges.

Basic Graph Terminologies:

- **Vertex (Node):** Fundamental unit of a graph.
- **Edge:** Connection between two vertices.
- **Adjacency Matrix & List:** Ways to represent graphs.

Graph Traversal Algorithms:

- **Breadth-First Search (BFS):** Explores all neighbors before moving deeper.
- **Depth-First Search (DFS):** Explores as deep as possible before backtracking.

Tables:

- **Hash Table:** Stores data using key-value pairs for fast retrieval.
- **Operations:** Insertion, deletion, searching.
- **Applications:** Used in databases, caching, etc.

Sets:

- **Definition:** Collection of unique elements.
- **Operations:** Union, Intersection, Difference.
- **Applications:** Used in data filtering, relational algebra, and mathematics.

