A Shortest Path Between Two Vertices - Breadth-First Search

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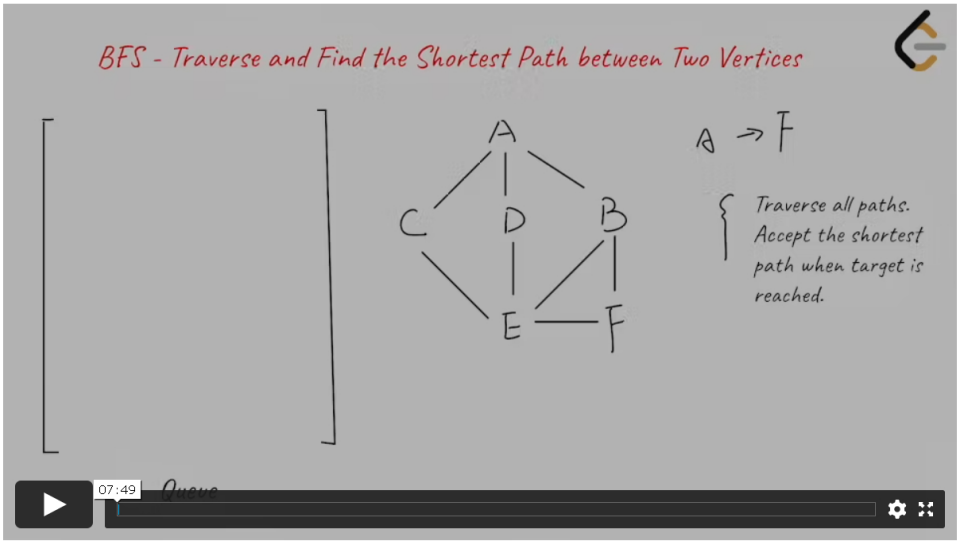
Video Introduction

In the following video, we will discuss how to find the shortest path between two vertices using a Breadth-First Search (BFS).



Complexity Analysis

- Time Complexity: $O(V + E)$. Here, V represents the number of vertices, and E represents the number of edges. In the worst case, when the distance between the starting vertex and the target vertex is the maximum possible, we need to check every vertex and traverse through every edge in the graph.
- Space Complexity: $O(V)$. The queue will take up to $O(V)$ space to store all the graph vertices in the worst-case scenario. We must also use $O(V)$ space to keep track of which vertices have been visited.