GRAPH TRAVERSAL ALGORITHMS

GTA are methods used to visit and explore nodes or vertices in a graph or tree data structure. These algorithms are used to **search , traverse and retrieve** data from graphs. There are several types of graph traversal algorithms:

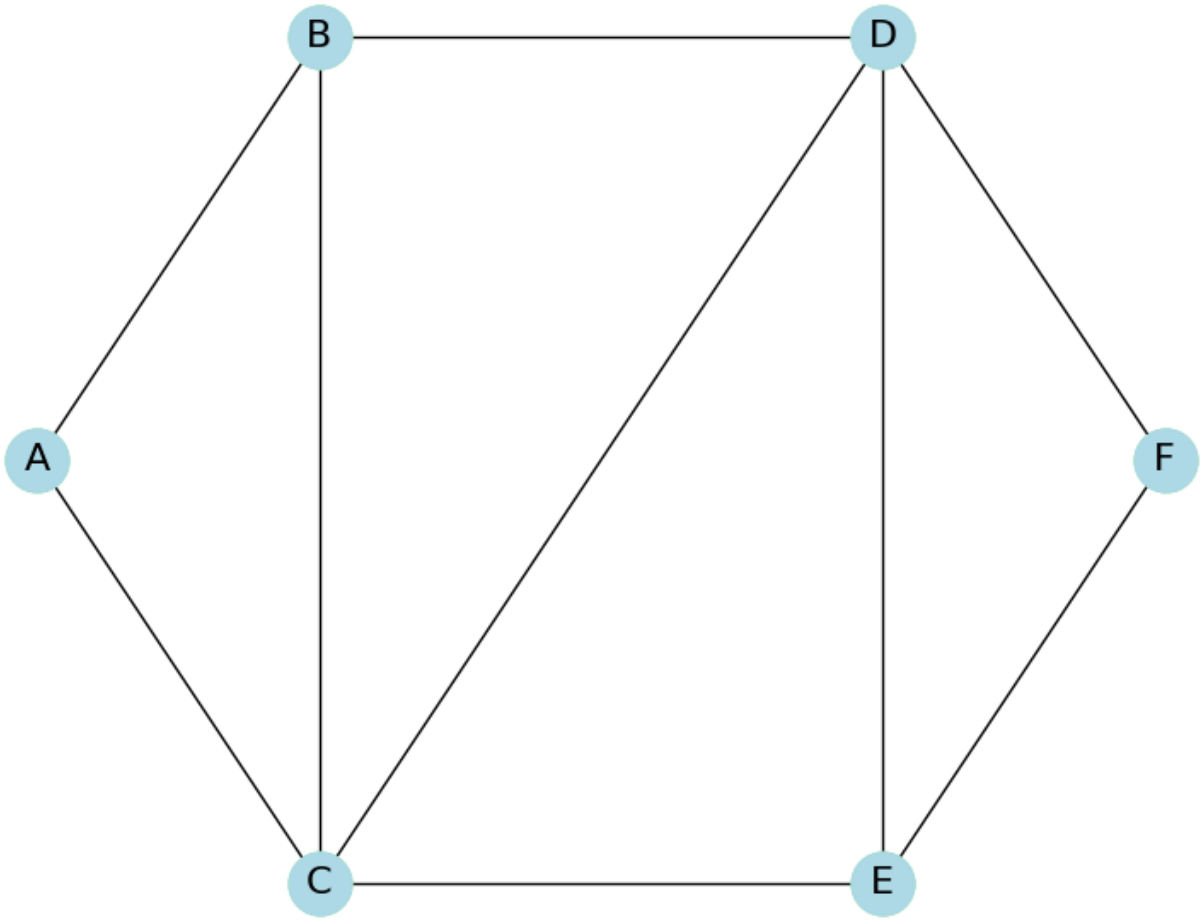
BFS(Breadth-First Search):

BFS is a fundamental graph traversal algorithm it begins with a node then first traverse all it's adjacent nodes. basically once all adjacent are visited , then their adjacent are traversed. **BFS guarantee the shortest path between two node.**

- *Data Structure used in BFS*:
    - **FIFO(First in First out)**: data structure like *queue or list* when logic is first arrived first served.

      example: like a line at the bank counter or a line at the cash.

Example : of a BFS Traversal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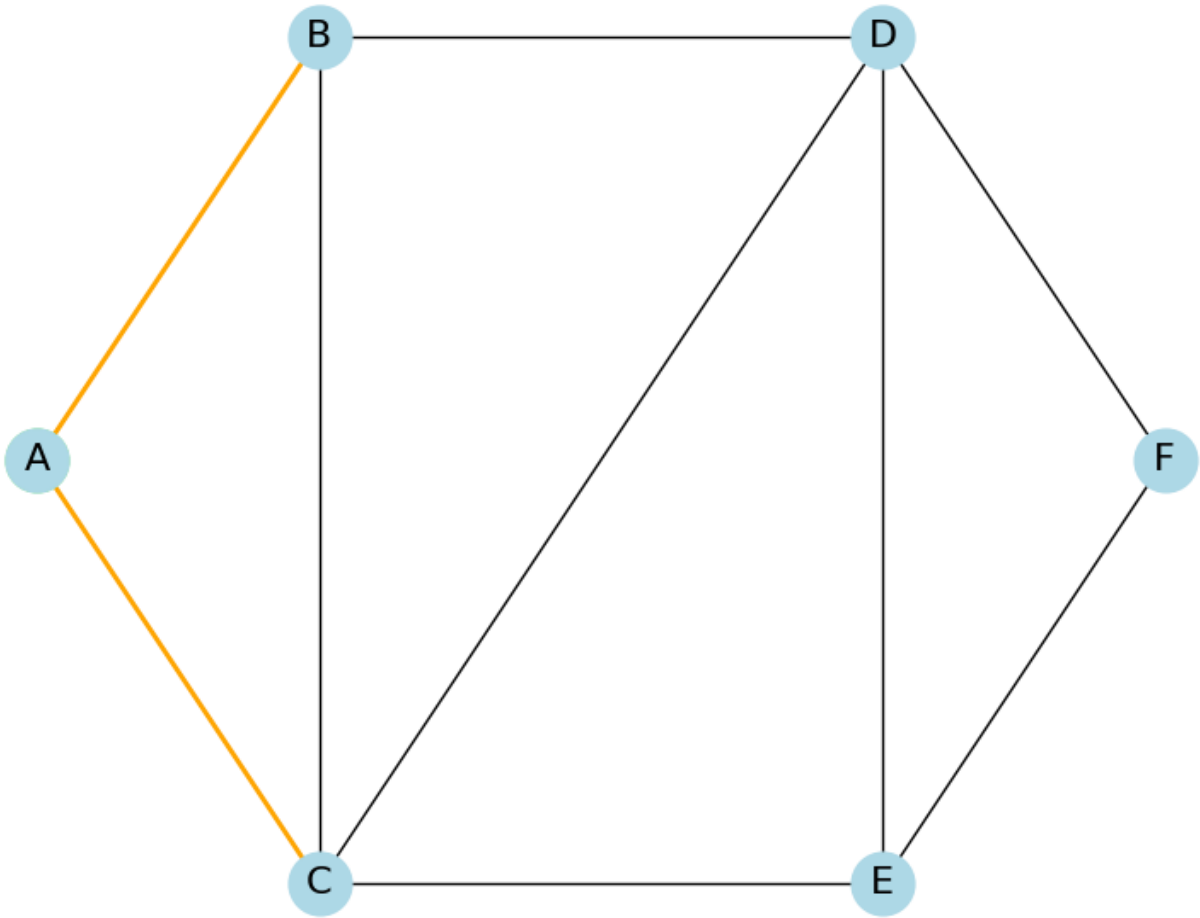
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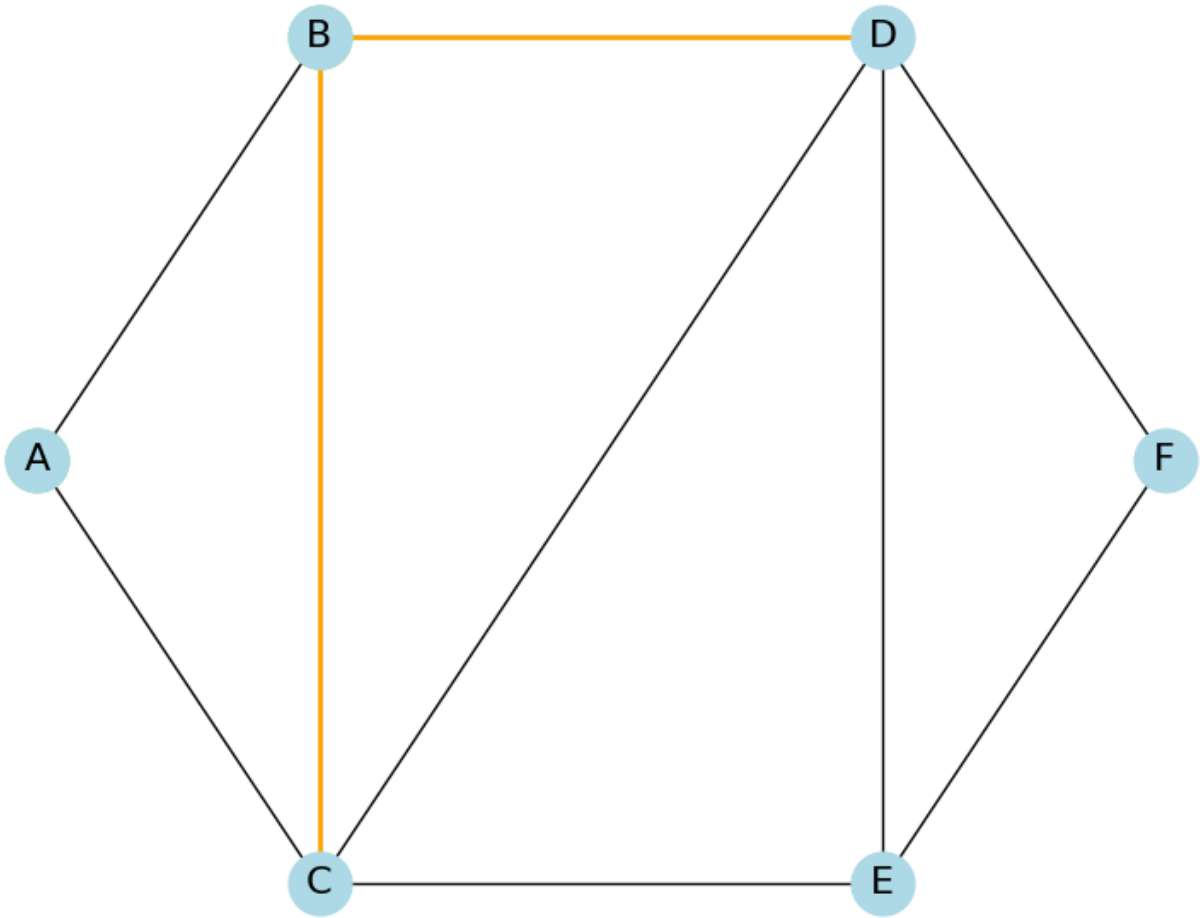
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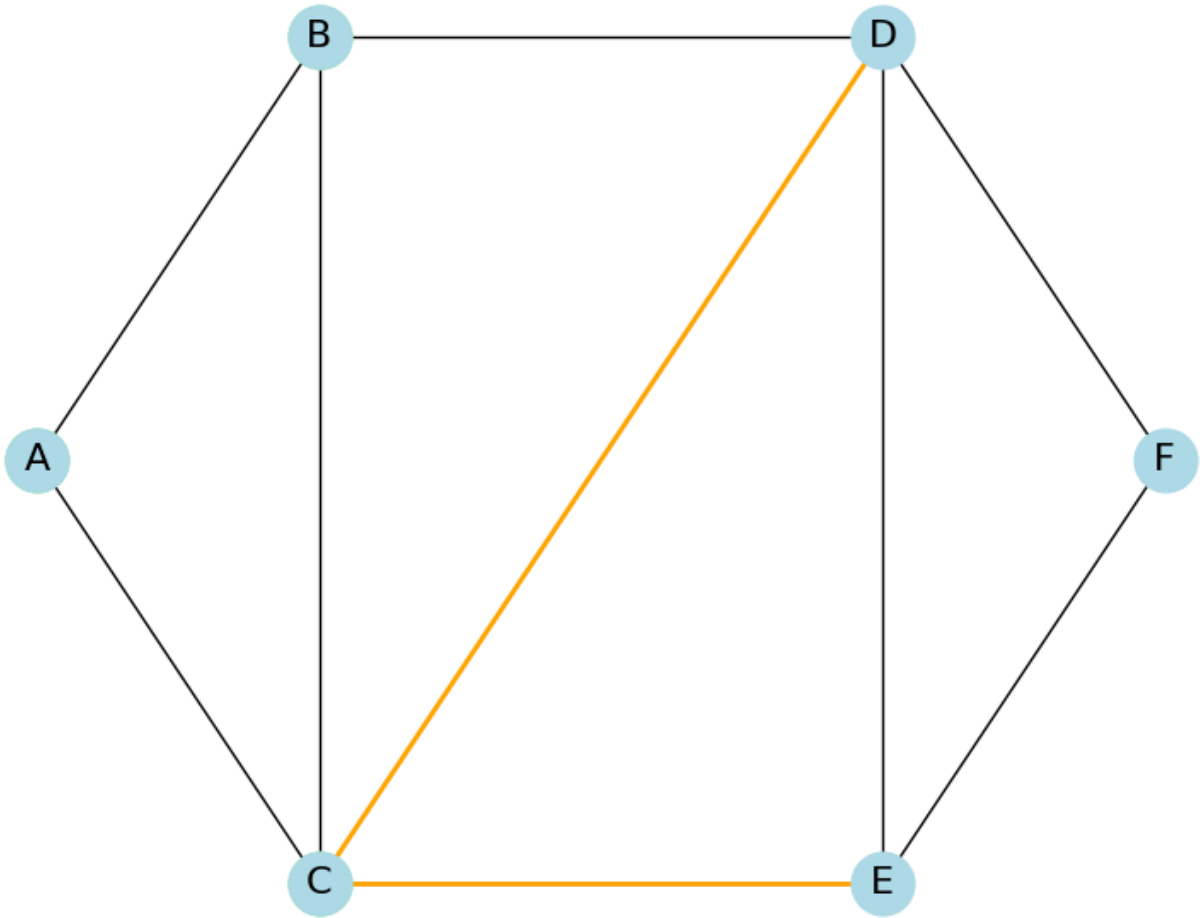
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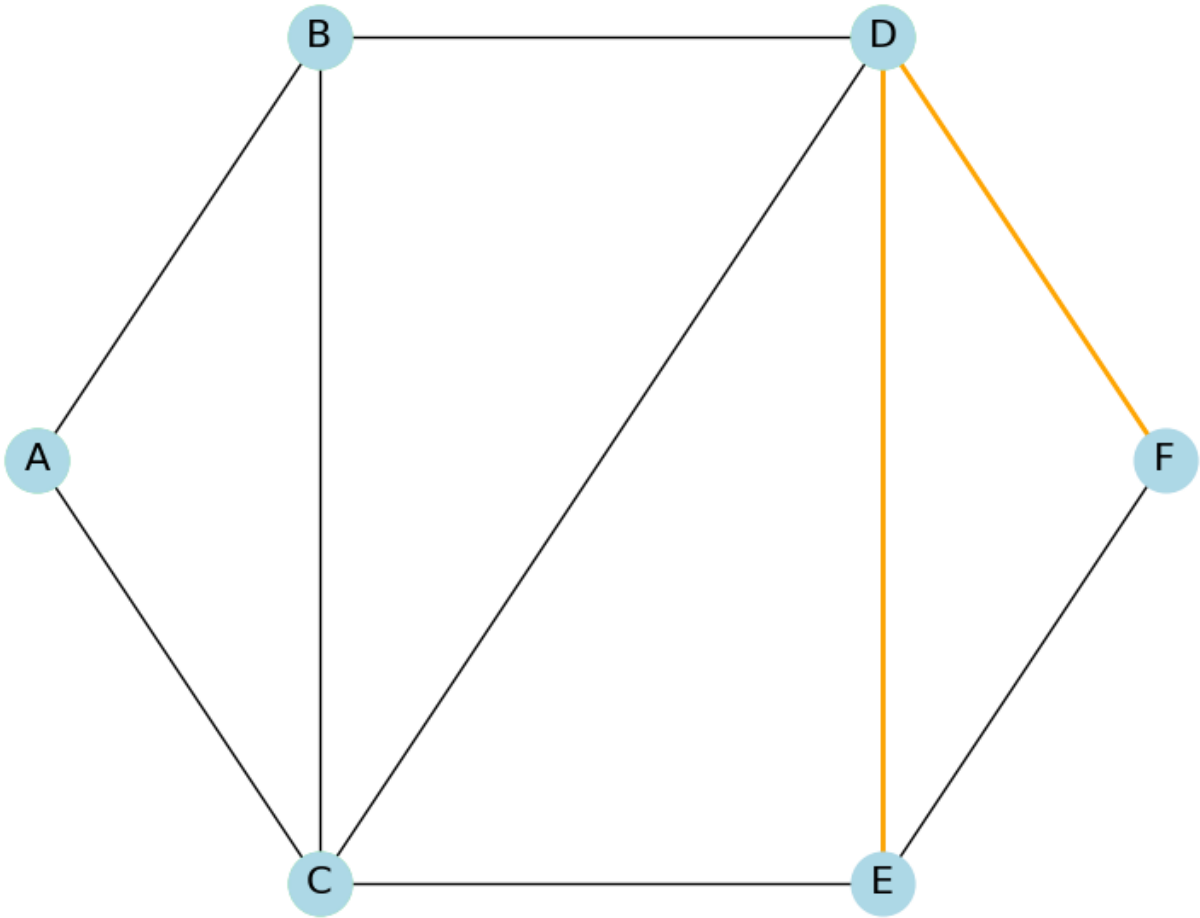
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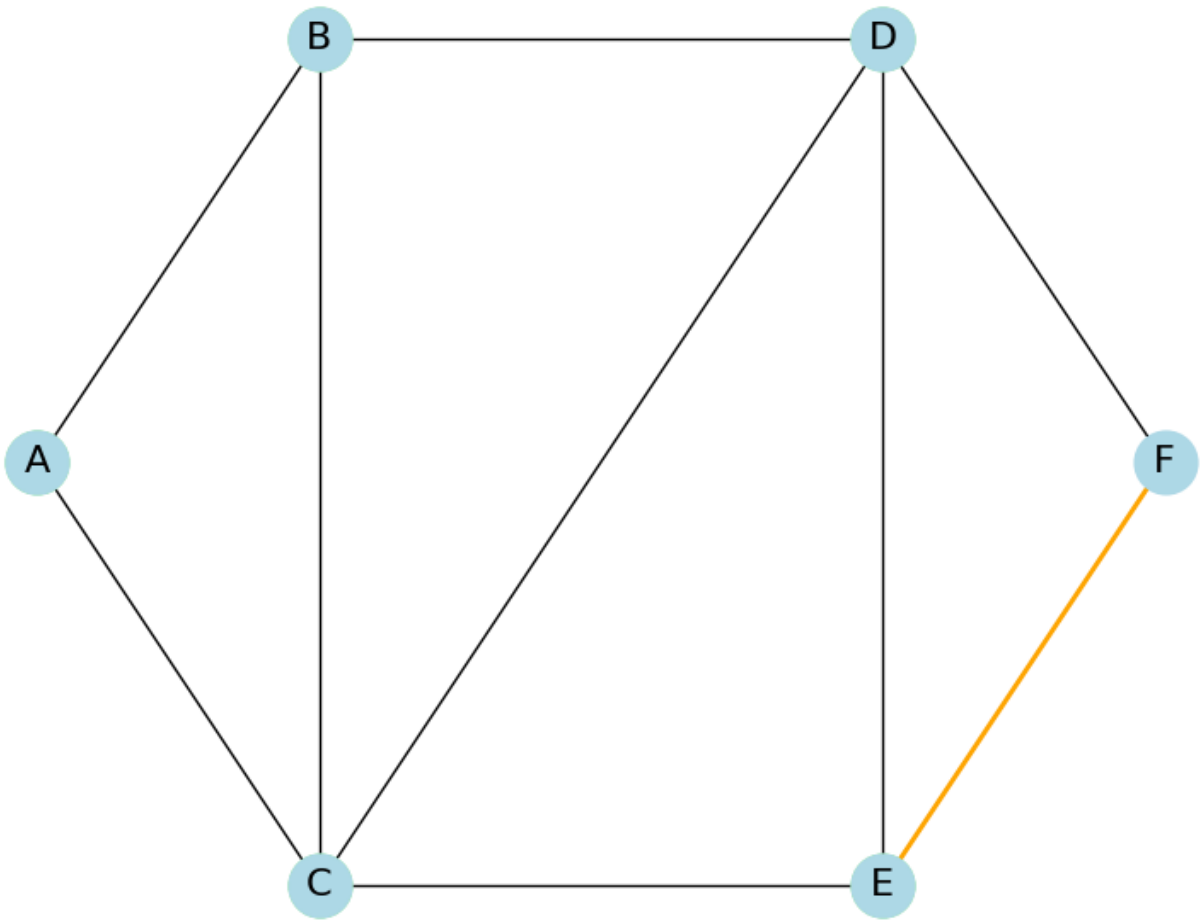


DFS(Depth First-Search):

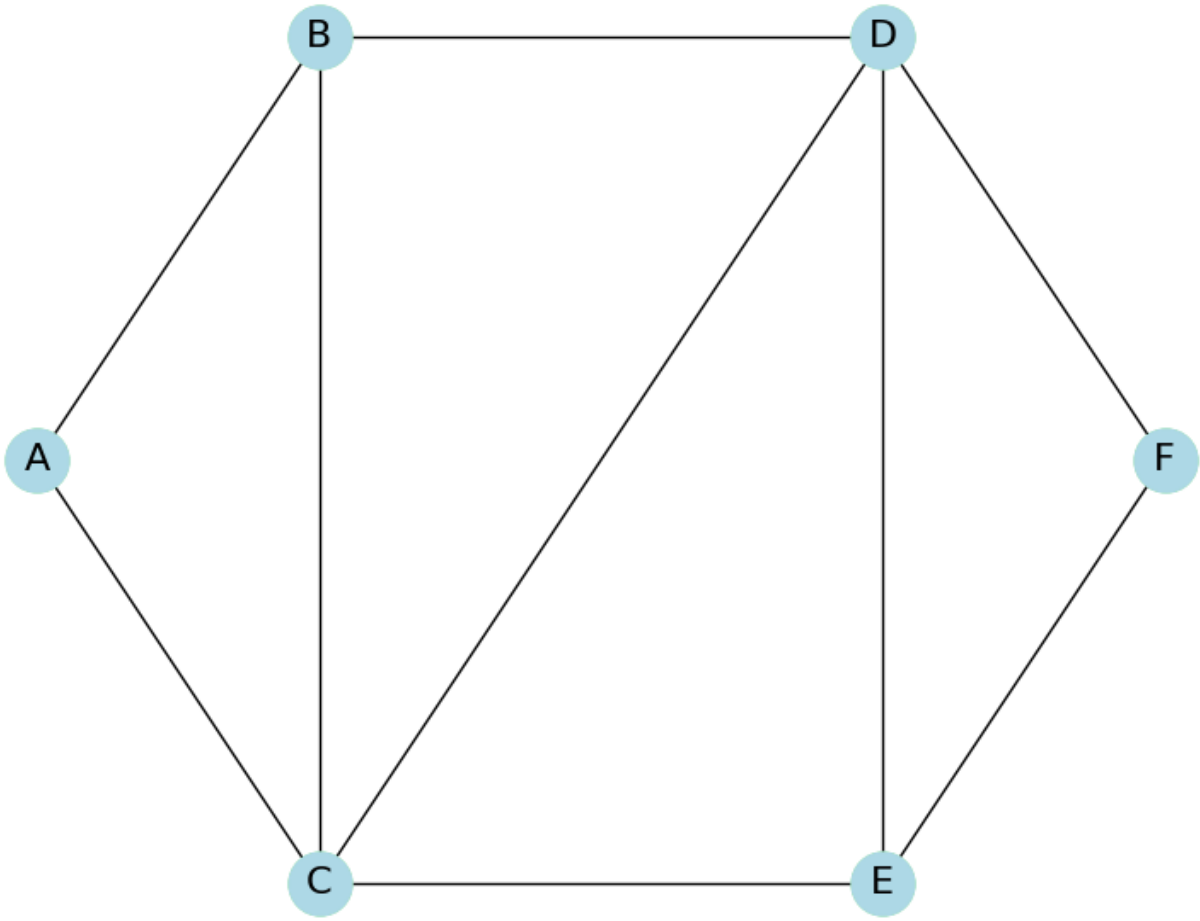
DFS is another fundemental graph traversal algorithm used to traverse or search through tree or graph data structure. it starts at a root node and explores as far as possible along each edge before backtracking.

- Data Structure used in **DFS**:
    - **LIFO(Last in Firs out)**: data structure like a **stack** or **deque**.

      example: like a stack of plate.

Example: of a DFS Traversal

The DFS algorithm begins the search at the root of the graph and explores each vertex by following a single path until it reaches the end point. Then, it backtracks to explore other paths until it reaches the root.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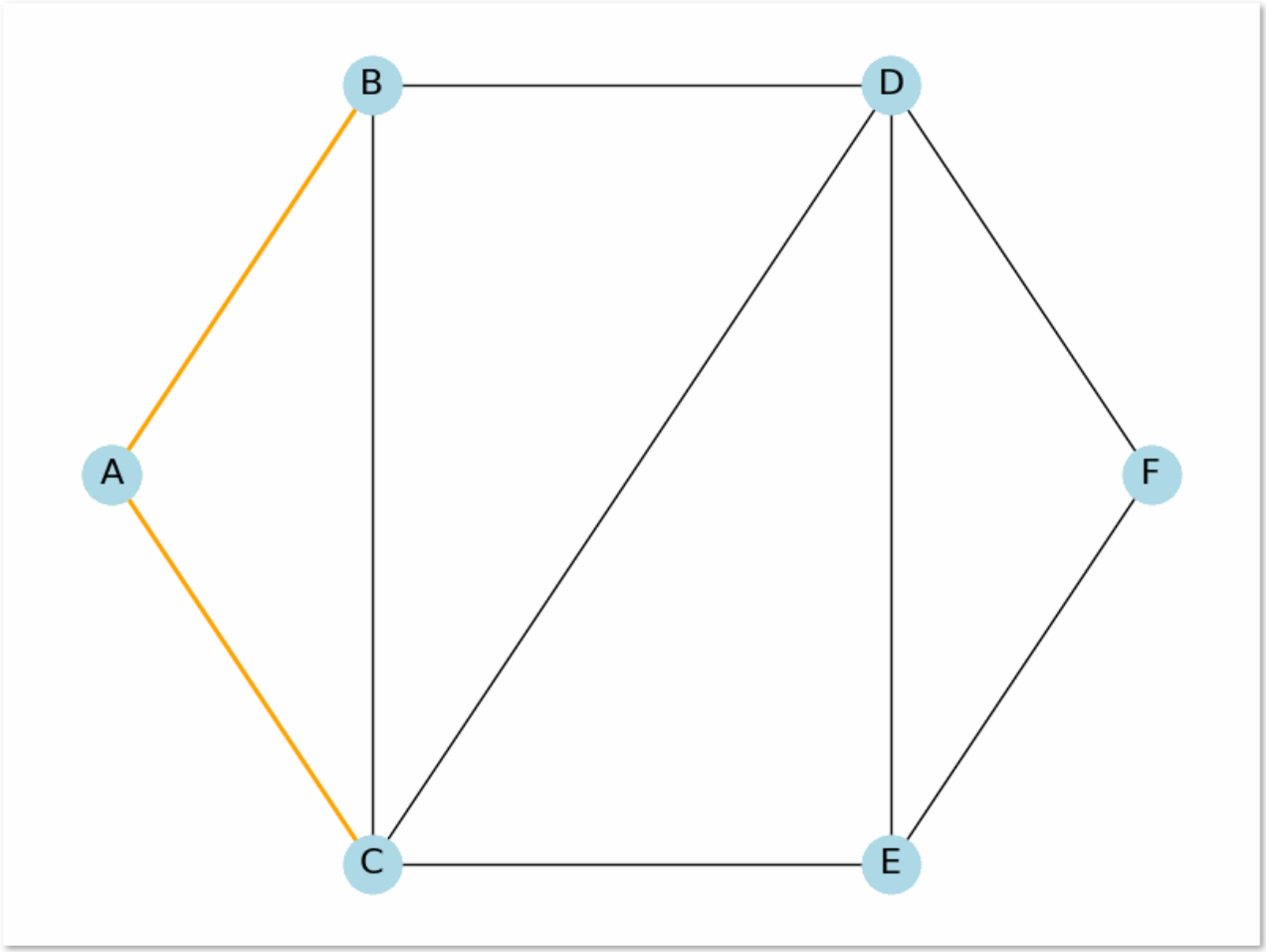
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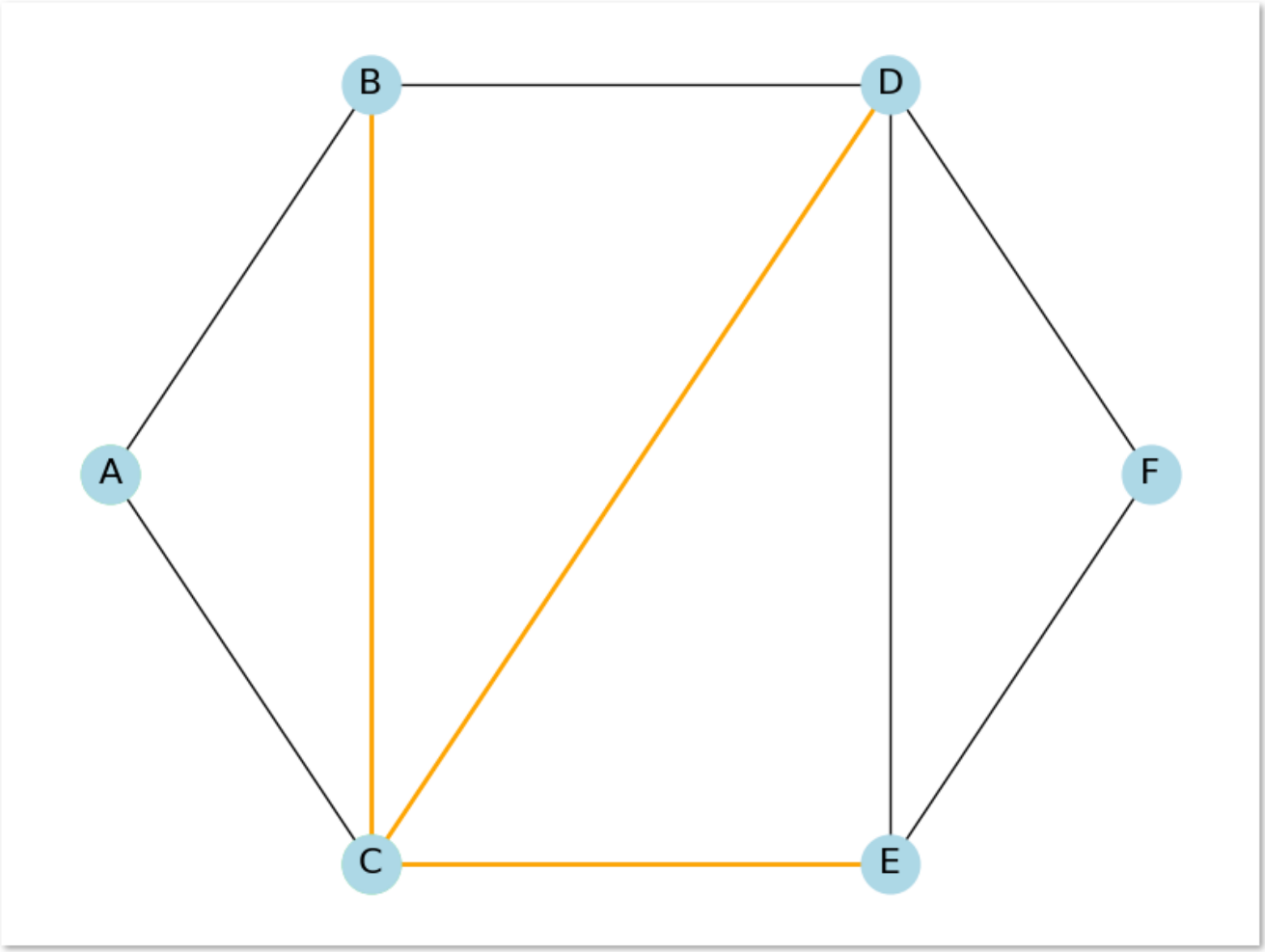
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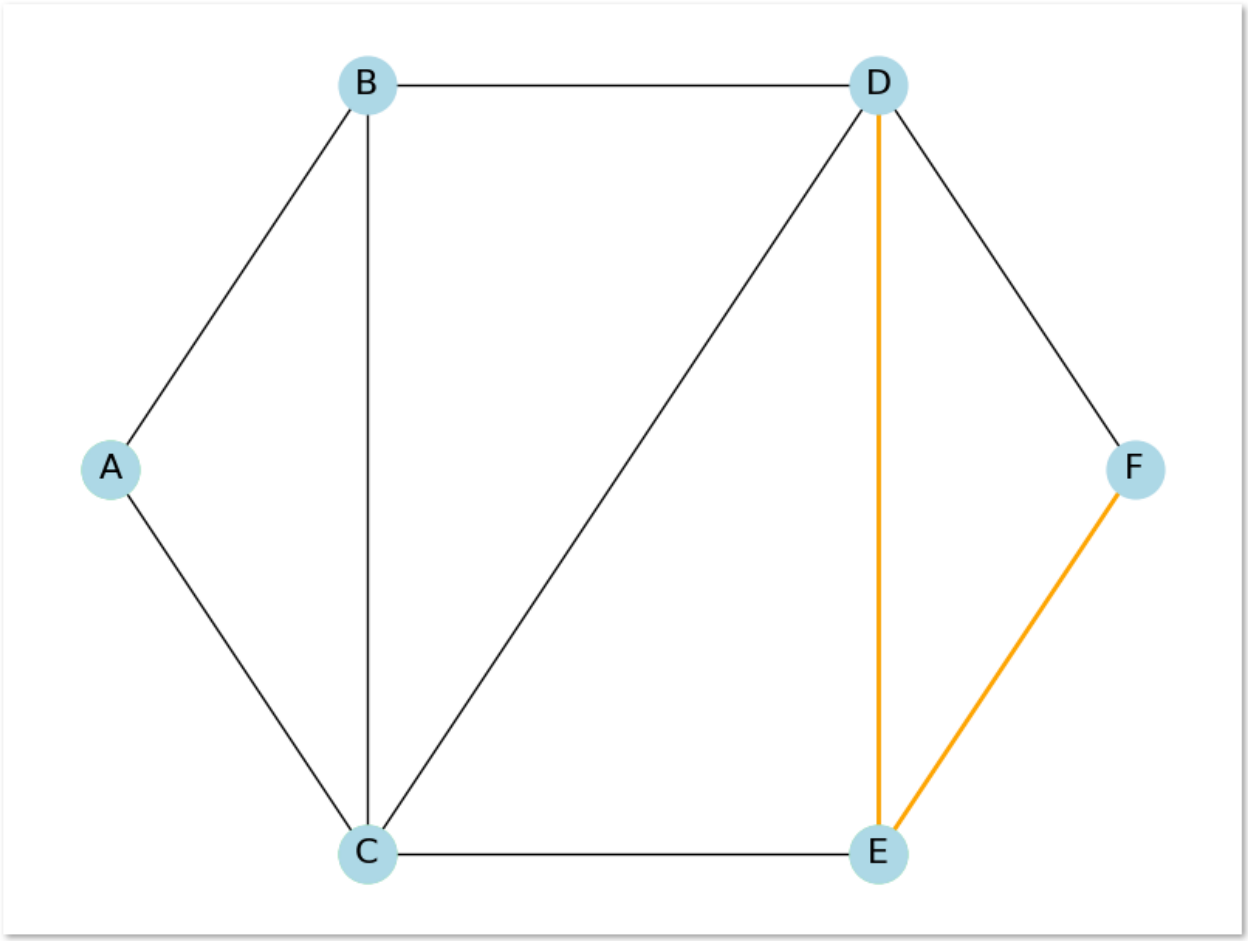
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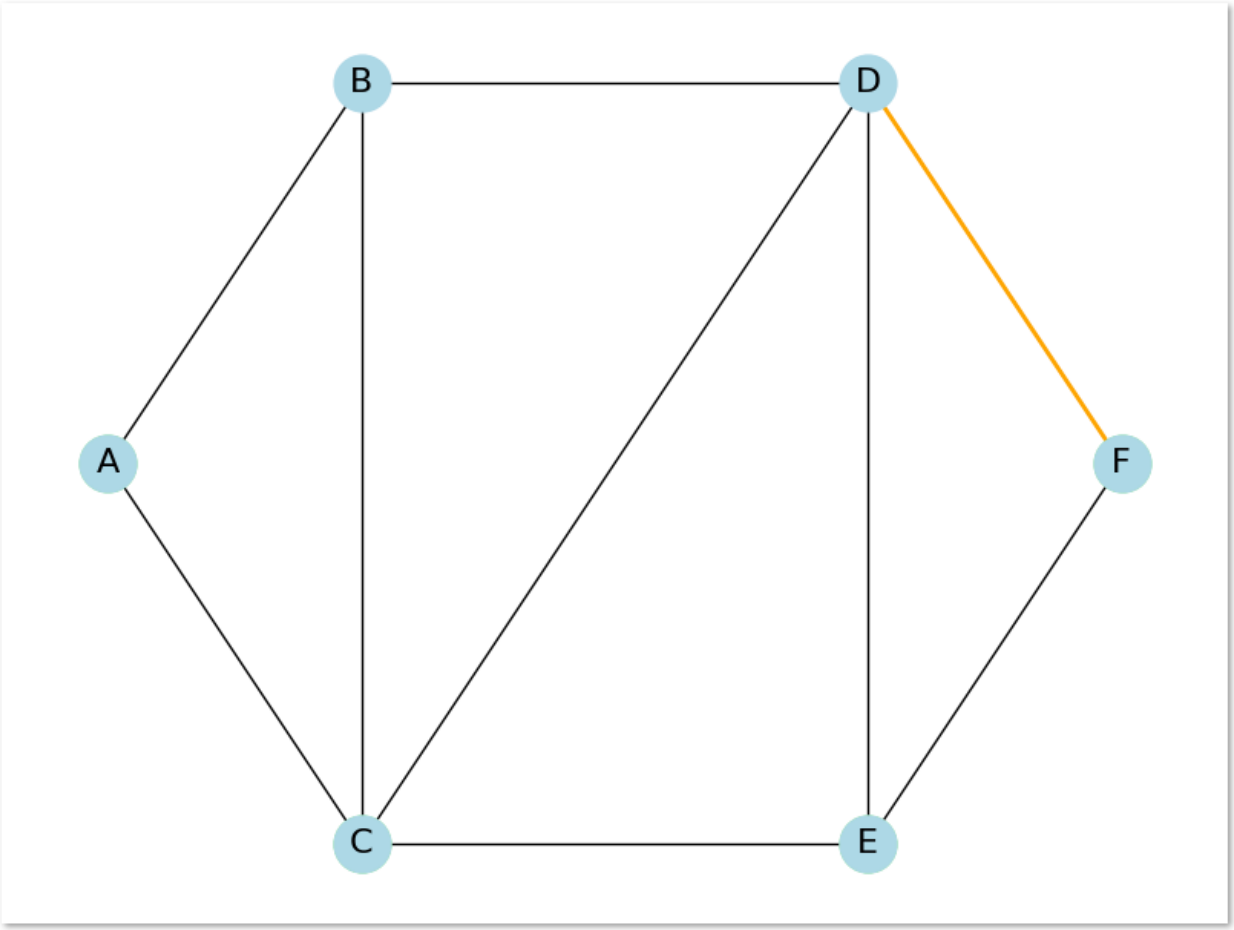
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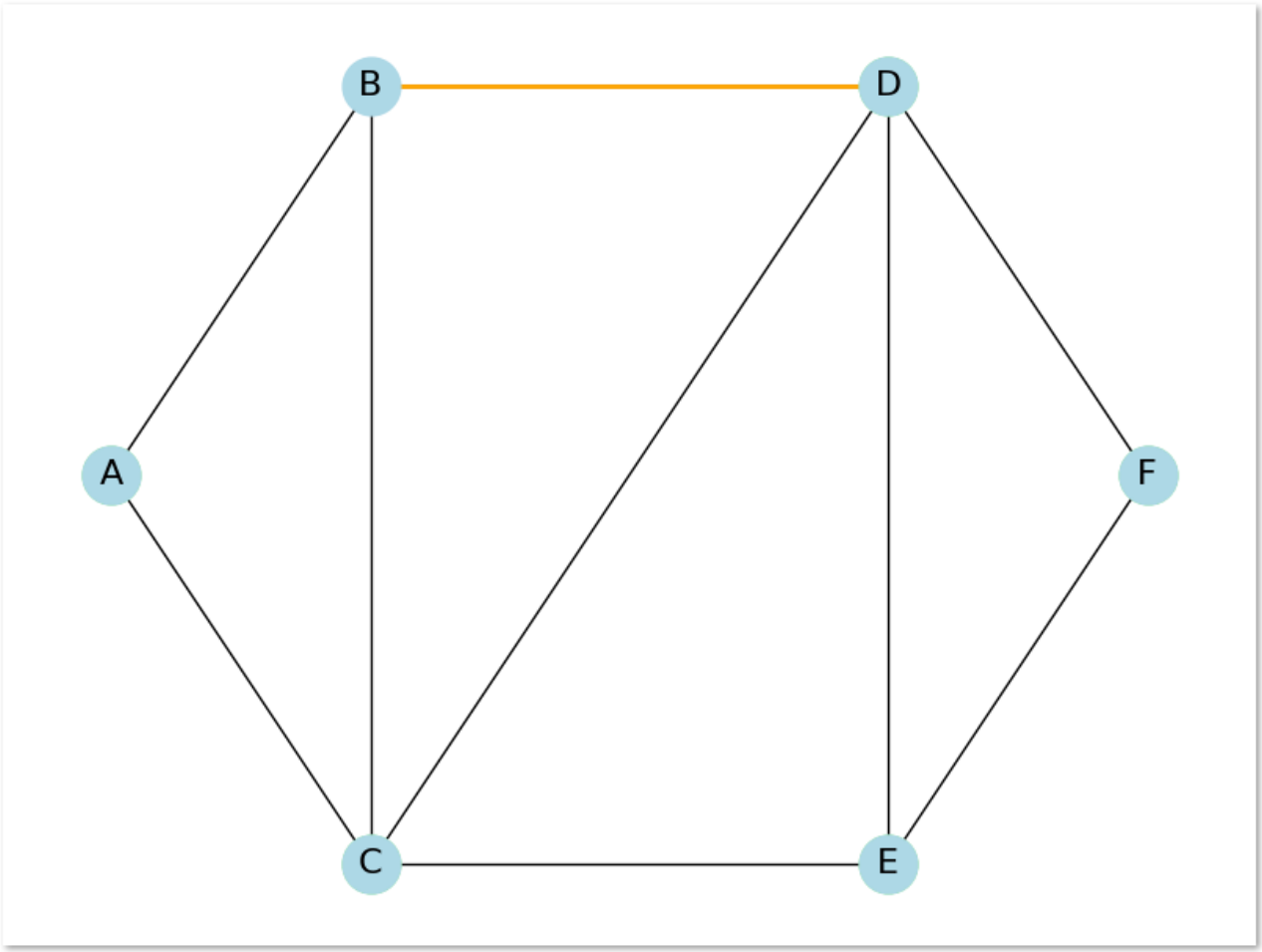
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