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Graph Coverage Prime Paths

Graph coverage prime paths is a software tool that generates test paths to satisfy graph coverage test criteria.

Graphs are essential data structures for representing connections between various entities.

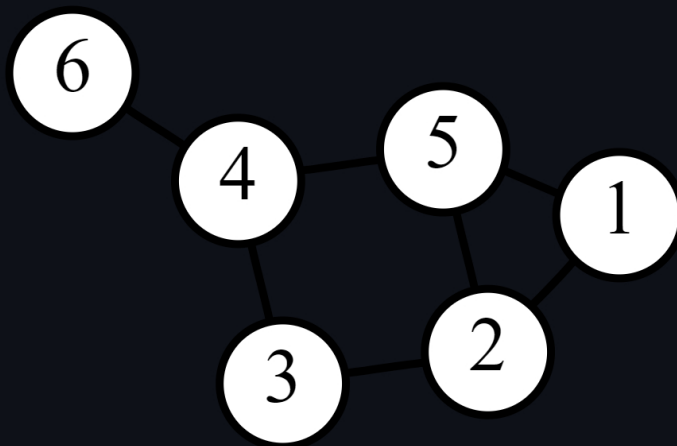
Some keywords related to graphs include nodes, edges, algorithms, etc.

Algorithms related to graph coverage include Depth-First Search (DFS) and Breadth-First Search (BFS).

Node coverage ensures reaching every node at least once, edge coverage ensures reaching every edge at least once, and prime path coverage focuses on simple paths with no loops.

Graph Concepts

- A graph is a mathematical structure consisting of nodes (vertices) and edges (connections). It is used to model pairwise relationships between objects.
- Types of Graphs:



- Directed Graph (Digraph):** A graph where edges have a direction.
- Undirected Graph:** A graph where edges have no direction.
- Weighted Graph:** A graph where edges have weights (e.g., distance, cost).
- Cyclic Graph:** A graph containing a cycle (i.e., a closed loop).
- Acyclic Graph:** A graph with no cycles.
- Connected Graph:** A graph where there is a path between every pair of vertices.
- Disconnected Graph:** A graph with at least two vertices that are not connected by a path.

Graph Algorithms

- Graph algorithms are procedures or formulas for solving problems on graphs.
- Some common graph algorithms include:

Depth-First Search (DFS)

To demonstrate DFS, please enter the graph and specify the start and end nodes.

Enter the graph for DFS (format: {'node': ['neighbor1', 'neighbor2', ...]})

```
{ 'A': ['B', 'C'], 'B': ['D'], 'C': ['E'], 'D': ['F'], 'E': ['F'], 'F': [] }
```

Enter the starting node for DFS

A

Enter the ending node for DFS

F

Run DFS

Breadth-First Search (BFS)

To demonstrate BFS, please enter the graph and specify the start and end nodes.

Enter the graph for BFS (format: {'node': ['neighbor1', 'neighbor2', ...]})

```
{'A': ['B', 'C'], 'B': ['D'], 'C': ['E'], 'D': ['F'], 'E': ['F'], 'F': []}
```

Enter the starting node for BFS

A

Enter the ending node for BFS

F

Run BFS

Coverage Criteria

- **Node Coverage:** Node coverage aims to design a test path that reaches every node at least once.
- **Edge Coverage:** Edge coverage ensures that test paths reach every edge at least once.
- **Prime Path Coverage:** Prime path coverage focuses on simple paths with no loops that are not sub-paths of another prime path.