==========

--- Processing file: large_cyclic_1.json ---

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1. Running Kosaraju's Algorithm to find SCCs...

Found 8 Strongly Connected Components:

- Component (size 5): [0, 4, 3, 2, 1]

- Component (size 5): [5, 9, 8, 7, 6]

- Component (size 5): [10, 14, 13, 12, 11]

- Component (size 5): [15, 19, 18, 17, 16]

- Component (size 5): [20, 24, 23, 22, 21]

- Component (size 5): [25, 29, 28, 27, 26]

- Component (size 5): [30, 34, 33, 32, 31]

- Component (size 5): [35, 39, 38, 37, 36]

Performance: {dfs_visits=80}, Time: 1117500 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 8 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0, 1, 2, 3, 4, 5, 6, 7]

Performance: {queue_pushes=8, queue_pops=8}, Time: 823200 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0, 1=10, 2=20, 3=30, 4=40, 5=50, 6=60, 7=70}

Performance: {relaxations=7}, Time: 51800 ns

Longest path (critical path) length: 70

Performance: {relaxations_longest=7}, Time: 18300 ns

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--- Processing file: large_dag_1.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 30 Strongly Connected Components:

- Component (size 1): [0]
- Component (size 1): [6]
- Component (size 1): [7]
- Component (size 1): [8]
- Component (size 1): [9]
- Component (size 1): [10]
- Component (size 1): [16]
- Component (size 1): [17]
- Component (size 1): [18]
- Component (size 1): [19]
- Component (size 1): [20]
- Component (size 1): [26]
- Component (size 1): [27]
- Component (size 1): [28]
- Component (size 1): [1]
- Component (size 1): [2]
- Component (size 1): [3]
- Component (size 1): [4]
- Component (size 1): [5]
- Component (size 1): [11]
- Component (size 1): [12]

- Component (size 1): [13]

- Component (size 1): [14]

- Component (size 1): [15]

- Component (size 1): [21]

- Component (size 1): [22]

- Component (size 1): [23]

- Component (size 1): [24]

- Component (size 1): [25]

- Component (size 1): [29]

Performance: {dfs_visits=60}, Time: 183100 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 30 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0, 14, 1, 15, 2, 16, 3, 17, 4, 18, 5, 19, 6, 20, 7, 21, 8, 22, 9, 23, 10, 24, 11, 25, 12, 26, 13, 27, 28, 29]

Performance: {queue_pushes=30, queue_pops=30}, Time: 105300 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0, 1=1, 2=3, 3=6, 4=10, 5=15, 6=16, 7=18, 8=21, 9=25, 10=30, 11=31, 12=33, 13=36, 14=2, 15=5, 16=9, 17=14, 18=20, 19=21, 20=23, 21=26, 22=30, 23=35, 24=36, 25=38, 26=41, 27=45, 28=50, 29=40}

Performance: {relaxations=29}, Time: 89000 ns

Longest path (critical path) length: 55

Performance: {relaxations_longest=30}, Time: 154700 ns

==========

--- Processing file: large_dag_dense.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 35 Strongly Connected Components:

- Component (size 1): [0]
- Component (size 1): [1]
- Component (size 1): [2]
- Component (size 1): [3]
- Component (size 1): [4]
- Component (size 1): [5]
- Component (size 1): [6]
- Component (size 1): [7]
- Component (size 1): [8]
- Component (size 1): [9]
- Component (size 1): [10]
- Component (size 1): [11]
- Component (size 1): [12]
- Component (size 1): [13]
- Component (size 1): [14]
- Component (size 1): [15]
- Component (size 1): [16]
- Component (size 1): [17]
- Component (size 1): [18]
- Component (size 1): [19]
- Component (size 1): [20]
- Component (size 1): [21]
- Component (size 1): [22]
- Component (size 1): [23]

- Component (size 1): [24]

- Component (size 1): [25]

- Component (size 1): [26]

- Component (size 1): [27]

- Component (size 1): [28]

- Component (size 1): [29]

- Component (size 1): [30]

- Component (size 1): [31]

- Component (size 1): [32]

- Component (size 1): [33]

- Component (size 1): [34]

Performance: {dfs_visits=70}, Time: 203400 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 35 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34]

Performance: {queue_pushes=35, queue_pops=35}, Time: 96600 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0, 1=10, 2=15, 3=24, 4=26, 5=51, 6=64, 7=15, 8=21, 9=24, 10=43, 11=27, 12=29, 13=58, 14=8, 15=9, 16=19, 17=30, 18=40, 19=35, 20=53, 21=12, 22=19, 23=24, 24=42, 25=29, 26=40, 27=64, 28=20, 29=32, 30=40, 31=52, 32=48, 33=59, 34=68}

Performance: {relaxations=62}, Time: 97400 ns

Longest path (critical path) length: 725

Performance: {relaxations_longest=110}, Time: 127600 ns

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--- Processing file: medium_cyclic_1.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 4 Strongly Connected Components:

- Component (size 3): [0, 2, 1]

- Component (size 3): [3, 5, 4]

- Component (size 3): [6, 8, 7]

- Component (size 3): [9, 11, 10]

Performance: {dfs_visits=24}, Time: 53300 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 4 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0, 1, 2, 3]

Performance: {queue_pushes=4, queue_pops=4}, Time: 15800 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0, 1=8, 2=18, 3=30}

Performance: {relaxations=3}, Time: 7200 ns

Longest path (critical path) length: 30

Performance: {relaxations_longest=3}, Time: 9700 ns

==========

--- Processing file: medium_cyclic_dense.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 1 Strongly Connected Components:

- Component (size 20): [0, 2, 1, 3, 5, 4, 6, 8, 7, 9, 11, 10, 12, 14, 13, 15, 17, 16, 18, 19]

Performance: {dfs_visits=40}, Time: 94600 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 1 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0]

Performance: {queue_pushes=1, queue_pops=1}, Time: 14200 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0}

Performance: {}, Time: 3500 ns

Longest path (critical path) length: 0

Performance: {}, Time: 5200 ns

==========

--- Processing file: medium_dag_1.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 15 Strongly Connected Components:

- Component (size 1): [0]
- Component (size 1): [5]
- Component (size 1): [10]
- Component (size 1): [1]
- Component (size 1): [6]
- Component (size 1): [11]
- Component (size 1): [2]
- Component (size 1): [7]
- Component (size 1): [12]
- Component (size 1): [3]
- Component (size 1): [8]
- Component (size 1): [13]
- Component (size 1): [4]
- Component (size 1): [9]
- Component (size 1): [14]

Performance: {dfs_visits=30}, Time: 42500 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 15 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0, 3, 1, 6, 4, 2, 9, 7, 5, 12, 10, 8, 13, 11, 14]

Performance: {queue_pushes=15, queue_pops=15}, Time: 21500 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0, 1=3, 2=12, 3=2, 4=3, 5=4, 6=6, 7=14, 8=12, 9=11, 10=13, 11=14, 12=17, 13=24, 14=21}

Performance: {relaxations=17}, Time: 17400 ns

Longest path (critical path) length: 35

Performance: {relaxations_longest=18}, Time: 29000 ns

==========

--- Processing file: small_cyclic_1.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 1 Strongly Connected Components:

- Component (size 6): [0, 5, 4, 3, 2, 1]

Performance: {dfs_visits=12}, Time: 21700 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 1 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0]

Performance: {queue_pushes=1, queue_pops=1}, Time: 14400 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0}

Performance: {}, Time: 4100 ns

Longest path (critical path) length: 0

Performance: {}, Time: 3200 ns

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--- Processing file: small_dag_1.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 6 Strongly Connected Components:

- Component (size 1): [0]

- Component (size 1): [1]

- Component (size 1): [2]

- Component (size 1): [3]

- Component (size 1): [5]

- Component (size 1): [4]

Performance: {dfs_visits=12}, Time: 34500 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 6 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0, 1, 3, 2, 5, 4]

Performance: {queue_pushes=6, queue_pops=6}, Time: 26500 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0, 1=5, 2=3, 3=11, 4=5, 5=7}

Performance: {relaxations=7}, Time: 14000 ns

Longest path (critical path) length: 18

Performance: {relaxations_longest=6}, Time: 14300 ns

==========

--- Processing file: small_dense.json ---

==========

1. Running Kosaraju's Algorithm to find SCCs...

Found 8 Strongly Connected Components:

- Component (size 1): [0]

- Component (size 1): [1]

- Component (size 1): [2]

- Component (size 1): [3]

- Component (size 1): [4]

- Component (size 1): [5]

- Component (size 1): [6]

- Component (size 1): [7]

Performance: {dfs_visits=16}, Time: 36100 ns

2. Building the Condensation Graph (DAG)...

Condensation Graph has 8 vertices (nodes).

3. Running Kahn's Algorithm for Topological Sort...

Topological order of components: [0, 1, 2, 3, 4, 5, 6, 7]

Performance: {queue_pushes=8, queue_pops=8}, Time: 23900 ns

4. Calculating Shortest and Longest Paths on the DAG...

Shortest path distances from component 0: {0=0, 1=5, 2=9, 3=11, 4=8, 5=12, 6=15, 7=17}

Performance: {relaxations=10}, Time: 18300 ns

Longest path (critical path) length: 53

Performance: {relaxations_longest=14}, Time: 25000 ns