Software Testing Project
Test Requirements

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This file contains the Test Requirements for Edge Coverage and Prime Path Coverage for all the functions that are implemented in our Source code.

1. **Transpose -**
   a. **Edge coverage**
      TR = {[0,1], [1,2], [2,3], [3,2], [2,1], [1,4]}

   b. **Prime coverage**
      TR = { [0,1,2,3], [3,2,1,4], [1,2,1], [0,1,4], [2,3,2], [2,1,2], [3,2,3] }

2. **DFS –**
   a. **Edge coverage**
      TR = {[0,1], [1,2], [2,1], [1,3], [3,4], [4,5], [5,6], [6,7], [7,5], [6,8], [8,7], [7,9], [9,7], [9,10], [10,11], [11,7],[11,12],[12,7],[5,13]}

   b. **Prime path coverage -**
      TR =
      {[0,1,3,4,5,6,8,7,9,10,11,12],[2,1,3,4,5,6,8,7,9,10,11,12],[0,1,3,4,5,6,7,9,10,11,12],[2,1,3,4,5,6,7,9,10,11,12],[9,10,11,12,7,5,6,8],[9,10,11,7,5,6,8],[9,10,11,12,7,5,13],[0,1,3,4,5,13],[2,1,3,4,5,13], [10,11,12,7,9,10], [12,7,9,10,11,12], [11,12,7,9,10,11], [7,9,10,11,12,7], [9,10,11,7,5,13], [9,10,11,12,7,9], [7,5,6,8,7], [5,6,8,7,5], [6,8,7,5,6], [8,7,5,6,8], [6,8,7,5,13], [7,9,10,11,7], [11,7,9,10,11], [9,10,11,7,9], [9,7,5,6,8], [10,11,7,9,10], [6,7,5,13], [6,7,5,6], [7,5,6,7], [5,6,7,5], [9,7,5,13], [1,2,1], [0,1,2], [2,1,2], [7,9,7], [9,7,9]}

3. Bellman-Ford –

a. Edge coverage

TR =

{[1,2],[2,3],[3,2],[2,4],[4,5],[5,6],[6,7],[5,8],[8,5],[6,9],[9,6],[10,9],[11,10],[11,9],[9,12],[12,9],[12,11],[8,13],[13,8],[13,14],[14,13],[14,15],[15,13],[15,16],[16,13]}

b. Prime path coverage

TR =

{[14,15,16,13,8,5,6,9,12,11,10],[14,15,13,8,5,6,9,12,11,10],[3,2,4,5,8,13,14,15,16],[14,13,8,5,6,9,12,11,10],[3,2,4,5,6,9,12,11,10],[1,2,4,5,6,9,12,11,10],[1,2,4,5,8,13,14,15,16],[14,15,16,13,8,5,6,7],[14,15,13,8,5,6,7], [1,2,4,5,6,7], [3,2,4,5,6,7], [12,11,10,9,6,7], [14,13,8,5,6,7], [11,10,9,12,11], [10,9,12,11,10], [9,12,11,10,9], [14,15,16,13,14], [16,13,14,15,16], [15,16,13,14,15], [12,11,9,6,7], [12,11,10,9,12], [13,14,15,16,13], [11,9,12,11], [9,12,11,9], [14,15,13,14], [15,13,14,15], [12,11,9,12], [12,9,6,7], [13,14,15,13], [6,9,6], [8,5,8], [9,6,9], [5,8,5], [3,2,3], [2,3,2], [1,2,3], [14,13,14], [13,14,13], [12,9,12], [9,12,9], [13,8,13], [8,13,8]}

4. Prims –

a. Edge coverage

TR =

{[0,1],[1,2],[2,3],[3,2],[2,1],[1,4],[4,5],[5,6],[5,7],[7,8],[8,9],[9,5],[9,10],[8,11],[11,8],[10,12],[12,5],[11,13],[13,11],[13,14],[14,15],[15,16],[14,18],[18,15],[15,19],[19,17],[17,11],[17,20],[20,11],[16,21],[16,22],[21,17],[22,17]}

b. Prime path coverage

TR =

{[3,2,1,4,5,7,8,11,13,14,18,15,16,21,17,20],[3,2,1,4,5,7,8,11,13,14,18,15,16,22,17,20],[3,2,1,4,5,7,8,11,13,14,18,15,19,17,20],[3,2,1,4,5,7,8,11,13,14,15,16,22,17,20],[0,1,4,5,7,8,11,13,14,18,15,16,21,17,20],[0,1,4,5,7,8,11,13,14,18,15,16,22,17,20],[3,2,1,4,5,7,8,11,13,14,15,16,21,17,20],[13,14,18,15,16,21,17,20,11,8,9,10,12,5,7],[13,14,18,15,16,22,17,20,11,8,9,10,12,5,6],[13,14,18,15,16,22,17,20,11,8,9,10,12,5,7],[13,14,18,15,16,21,17,20,11,8,9,10,12,5,6],[9,10,12,5,7,8,11,13,14,18,15,16,21,17,20],[9,10,12,5,7,8,11,13,14,18,15,16,22,17,20],[9,10,12,5,7,8,11,13,14,15,16,21,17,20],[9,10,12,5,7,8,11,13,14,15,16,22,17,20],[0,1,4,5,7,8,11,13,14,15,16,22,17,20],[0,1,4,5,7,8,11,13,14,15,16,21,17,20],[0,1,4,5,7,8,11,13,14,18,15,19,17,20],[3,2,1,4,5,7,8,11,13,14,15,19,17,20],[13,14,18,15,19,17,20,11,8,9,10,12,5,6],[13,14,18,15,16,22,17,11,8,9,10,12,5,7],[13,14,18,15,16,22,17,11,8,9,10,12,5,6],[13,14,18,15,19,17,20,11,8,9,10,12,5,7],[13,14,18,15,16,21,17,11,8,9,10,12,5,7],[9,10,12,5,7,8,11,13,14,18,15,19,17,20],[13,14,15,16,21,17,20,11,8,9,10,12,5,6],[13,14,15,16,22,17,20,11,8,9,10,12,5,7],[13,14,18,15,16,21,17,11,8,9,10,12,5,6],[13,14,15,16,22,17,20,11,8,9,10,12,5,6],[13,14,15,16,21,17,20,11,8,9,10,12,5,7],[9,5,7,8,11,13,14,18,15,16,2

2,17,20],[9,5,7,8,11,13,14,18,15,16,21,17,20],[9,10,12,5,7,8,11,13,14,15,19,17,20],[0,1,4,
5,7,8,11,13,14,15,19,17,20],[13,14,18,15,19,17,11,8,9,10,12,5,7],[13,14,18,15,19,17,11,8,
9,10,12,5,6],[13,14,15,16,22,17,11,8,9,10,12,5,7],[13,14,15,16,22,17,11,8,9,10,12,5,6],[1
3,14,15,19,17,20,11,8,9,10,12,5,6],[13,14,15,16,21,17,11,8,9,10,12,5,6],[13,14,15,16,21,
17,11,8,9,10,12,5,7],[13,14,15,19,17,20,11,8,9,10,12,5,7],[13,14,18,15,16,22,17,20,11,8,9
,5,6],[13,14,18,15,16,22,17,20,11,8,9,5,7],[13,14,18,15,16,21,17,20,11,8,9,5,6],[13,14,18,
15,16,21,17,20,11,8,9,5,7],[9,5,7,8,11,13,14,15,16,22,17,20],[9,5,7,8,11,13,14,15,16,21,1
7,20],[9,5,7,8,11,13,14,18,15,19,17,20],[13,14,15,16,21,17,20,11,8,9,5,6],[13,14,15,16,21
,17,20,11,8,9,5,7],[13,14,18,15,16,21,17,11,8,9,5,7],[13,14,18,15,16,21,17,11,8,9,5,6],[13
,14,18,15,16,22,17,11,8,9,5,6],[13,14,15,16,22,17,20,11,8,9,5,7],[13,14,15,16,22,17,20,11
,8,9,5,6],[13,14,15,19,17,11,8,9,10,12,5,7],[13,14,15,19,17,11,8,9,10,12,5,6],[13,14,18,15
,16,22,17,11,8,9,5,7],[13,14,18,15,19,17,20,11,8,9,5,7],[13,14,18,15,19,17,20,11,8,9,5,6],
[13,14,15,16,22,17,11,8,9,5,7],[13,14,15,19,17,20,11,8,9,5,7],[13,14,15,19,17,20,11,8,9,5
,6],[13,14,15,16,22,17,11,8,9,5,6],[13,14,15,16,21,17,11,8,9,5,7],[13,14,15,16,21,17,11,8,
9,5,6],[9,5,7,8,11,13,14,15,19,17,20],[13,14,18,15,19,17,11,8,9,5,7],[13,14,18,15,19,17,1
1,8,9,5,6],[13,14,15,19,17,11,8,9,5,6],[13,14,15,19,17,11,8,9,5,7],[11,13,14,18,15,16,22,1
7,20,11],[11,13,14,18,15,16,21,17,20,11],[13,14,18,15,16,21,17,20,11,13],[13,14,18,15,1
6,22,17,20,11,13],[3,2,1,4,5,7,8,9,10,12],[19,17,20,11,13,14,18,15,16,21],[19,17,20,11,13
,14,18,15,16,22],[20,11,13,14,18,15,16,21,17,20],[20,11,13,14,18,15,16,22,17,20],[17,20,
11,13,14,18,15,16,22,17],[17,20,11,13,14,18,15,16,21,17],[18,15,16,22,17,20,11,13,14,18
],[21,17,20,11,13,14,18,15,16,21],[21,17,20,11,13,14,18,15,16,22],[22,17,20,11,13,14,18,
15,16,22],[22,17,20,11,13,14,18,15,16,21],[16,22,17,20,11,13,14,18,15,19],[16,21,17,20,
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,14],[18,15,16,21,17,20,11,13,14,18],[14,18,15,16,22,17,20,11,13,14],[13,14,18,15,19,17,
20,11,13],[14,15,16,21,17,20,11,13,14], [13,14,18,15,16,22,17,11,13],
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[15,16,21,17,11,13,14,18,15], [13,14,15,16,21,17,20,11,13], [0,1,4,5,7,8,9,10,12],
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[21,17,20,11,13,14,15,16,21], [21,17,11,13,14,18,15,16,22],
[21,17,11,13,14,18,15,16,21], [17,20,11,13,14,15,16,21,17],
[18,15,16,21,17,11,13,14,18], [18,15,16,22,17,11,13,14,18],
[14,18,15,16,22,17,11,13,14], [14,18,15,19,17,20,11,13,14],
[19,17,20,11,13,14,15,16,22], [19,17,20,11,13,14,15,16,21],
[19,17,11,13,14,18,15,16,22], [19,17,20,11,13,14,18,15,19],
[17,11,13,14,18,15,16,22,17], [17,11,13,14,18,15,16,21,17],
[19,17,11,13,14,18,15,16,21], [18,15,19,17,20,11,13,14,18],
[15,19,17,20,11,13,14,18,15], [14,15,16,22,17,11,13,14], [14,15,19,17,20,11,13,14],
[14,15,16,21,17,11,13,14], [13,14,15,19,17,20,11,13], [13,14,18,15,19,17,11,13],
[14,18,15,19,17,11,13,14], [15,16,21,17,11,13,14,15], [15,16,22,17,11,13,14,15],
[13,11,8,9,10,12,5,6], [11,13,14,18,15,19,17,11], [13,11,8,9,10,12,5,7],
[13,14,15,16,22,17,11,13], [13,14,15,16,21,17,11,13], [11,13,14,15,19,17,20,11],
[11,13,14,15,16,22,17,11], [11,13,14,15,16,21,17,11], [16,22,17,11,13,14,15,16],
[16,22,17,11,13,14,15,19], [20,11,13,14,15,19,17,20], [16,21,17,11,13,14,15,19],
[16,21,17,11,13,14,15,16], [22,17,11,13,14,15,16,22], [22,17,11,13,14,15,16,21],
[21,17,11,13,14,15,16,22], [21,17,11,13,14,15,16,21], [15,19,17,11,13,14,18,15],
[15,19,17,20,11,13,14,15], [19,17,11,13,14,15,16,22], [19,17,11,13,14,15,16,21],
[18,15,19,17,11,13,14,18], [19,17,11,13,14,18,15,19], [17,11,13,14,18,15,19,17],
[17,20,11,13,14,15,19,17], [19,17,20,11,13,14,15,19], [17,11,13,14,15,16,21,17],
[17,11,13,14,15,16,22,17], [13,14,15,19,17,11,13], [14,15,19,17,11,13,14],
[7,8,9,10,12,5,6], [5,7,8,9,10,12,5], [7,8,9,10,12,5,7], [8,9,10,12,5,7,8],
[12,5,7,8,9,10,12], [10,12,5,7,8,9,10], [11,13,14,15,19,17,11], [9,10,12,5,7,8,9],
[15,19,17,11,13,14,15], [17,11,13,14,15,19,17], [19,17,11,13,14,15,19], [13,11,8,9,5,6],
[13,11,8,9,5,7], [3,2,1,4,5,6], [5,7,8,9,5], [0,1,4,5,6], [9,5,7,8,9], [8,9,5,7,8], [7,8,9,5,7],
[7,8,9,5,6], [0,1,2,3], [8,11,8], [11,8,11], [1,2,1], [2,3,2], [3,2,3], [2,1,2], [11,13,11],
[13,11,13]
}

5. IsReachable –

a. **Edge coverage**
TR = {[0,1],[1,3],[1,4],[4,2],[2,1],[2,8],[8,2],[6,2],[5,6],[5,2],[8,7],[7,3],[7,5]}

b. **Prime path coverage**
TR =
{[0,1,4,2,8,7,5,6],[0,1,4,2,8,7,3],[8,7,5,6,2,1,4],[8,7,5,6,2,1,3],[2,8,7,5,6,2],[6,2,8,7,5,6],[5,6,2,8,7,3],[5,6,2,8,7,5],[7,5,6,2,8,7],[8,7,5,2,1,4],[8,7,5,6,2,8],[8,7,5,2,1,3],[2,8,7,5,2],[7,5,2,8,7],[8,7,5,2,8],[5,2,8,7,5],[5,2,8,7,3],[2,1,4,2], [8,2,1,3], [8,2,1,4], [1,4,2,1],
[4,2,1,4], [4,2,1,3],[2,8,2],[0,1,3],[8,2,8]}

6. BFS –

a. **Edge coverage**
TR = {[0,1],[1,2],[1,4],[4,3],[3,1],[3,5],[5,3],[5,6],[6,7],[7,3]}

b. **Prime path coverage**
TR =
{[0,1,4,3,5,6,7],[5,6,7,3,1,2],[5,6,7,3,1,4],[3,5,6,7,3],[5,6,7,3,5],[6,7,3,5,6],[7,3,5,6,7],[4,3,1,4],[3,1,4,3],[4,3,1,2],[1,4,3,1],[5,3,1,2],[5,3,1,4],[0,1,2],[3,5,3],[5,3,5]}

7. Dijkstra –

a. **Edge coverage**
TR =
{[0,1],[1,2],[2,3],[3,2],[2,4],[4,5],[5,6],[5,7],[7,8],[10,8],[8,11],[11,12],[12,13],[13,12],[13,14],[14,12],[12,5],[8,9],[9,8],[9,10]}

b. **Prime path coverage**
TR =
{[0,1,2,4,5,7,8,11,12,13,14],[3,2,4,5,7,8,11,12,13,14],[0,1,2,4,5,7,8,9,10],[13,14,12,5,7,8,9,10],[3,2,4,5,7,8,9,10],[9,10,8,11,12,13,14],[9,10,8,11,12,5,6],[9,10,8,11,12,5,7],[11,12,5,7,8,9,10], [13,12,5,7,8,9,10], [13,14,12,5,7,8,11], [5,7,8,11,12,5], [7,8,11,12,5,6],
[7,8,11,12,5,7], [0,1,2,4,5,6], [9,8,11,12,13,14], [12,5,7,8,11,12], [9,8,11,12,5,6],
[9,8,11,12,5,7], [11,12,5,7,8,11], [8,11,12,5,7,8], [13,12,5,7,8,11], [3,2,4,5,6],
[13,14,12,5,6], [10,8,9,10], [0,1,2,3], [8,9,10,8], [9,10,8,9], [14,12,13,14], [12,13,14,12],
[13,12,5,6], [13,14,12,13], [2,3,2], [3,2,3], [8,9,8], [9,8,9], [12,13,12], [13,12,13]}

8. Floyd Warshall –

a. Edge coverage
TR - {[0,1],[1,2],[2,1],[2,3],[3,2],[1,4],[4,5],[4,6],[6,4],[6,7],[7,6],[7,8],[8,7],[8,9],[9,7]}

b. Prime path coverage
TR - {[3,2,1,4,6,7,8,9], [0,1,4,6,7,8,9],[8,9,7,6,4,5],[3,2,1,4,5],[8,7,6,4,5],[0,1,2,3], [0,1,4,5], [8,9,7,8],[9,7,8,9], [7,8,9,7],[3,2,3],[4,6,4],[2,3,2],[1,2,1],[2,1,2],[8,7,8], [7,8,7],[6,7,6],[6,4,6],[7,6,7]}

9. minEdgeBFS –

a. Edge coverage
TR - {[0,1],[1,2],[2,1],[1,3],[3,4],[4,5],[5,4],[6,7],[4,6],[7,8],[8,9],[9,7],[9,10],[10,9],[7,12],[10,11],[11,13],[13,9],[11,9]}

b. Prime path coverage
TR -
{[0,1,3,4,6,7,8,9,10,11,13],[2,1,3,4,6,7,8,9,10,11,13],[5,4,6,7,8,9,10,11,13],[2,1,3,4,6,7,12],[0,1,3,4,6,7,12],[10,11,13,9,7,8],[10,11,13,9,7,12],[5,4,6,7,12],[0,1,3,4,5], [2,1,3,4,5], [10,11,9,7,12], [13,9,10,11,13], [11,13,9,10,11], [10,11,9,7,8], [9,10,11,13,9], [10,11,13,9,10], [7,8,9,7], [8,9,7,8], [9,7,8,9], [8,9,7,12], [11,9,10,11], [10,9,7,12], [10,9,7,8], [9,10,11,9], [10,11,9,10], [5,4,5], [4,5,4], [1,2,1], [0,1,2], [2,1,2], [10,9,10], [9,10,9]}

10. printLexoSmall –

a. Edge coverage
TR - {[0,1],[1,2],[2,3],[2,4],[4,5],[5,2],[5,6],[6,5],[6,7],[7,8],[8,5],[8,9],[9,5]}

b. Prime path coverage
TR -
{[0,1,2,4,5,6,7,8,9],[6,7,8,9,5,2,4],[6,7,8,9,5,2,3],[5,6,7,8,9,5],[6,7,8,5,2,3],[6,7,8,5,2,4],[7,8,9,5,6,7],[8,9,5,6,7,8],[9,5,6,7,8,9], [6,7,8,9,5,6], [6,7,8,5,6], [5,6,7,8,5], [8,5,6,7,8], [7,8,5,6,7], [5,2,4,5], [4,5,2,4], [6,5,2,4], [6,5,2,3], [4,5,2,3], [0,1,2,3], [2,4,5,2], [5,6,5], [6,5,6]}