ShortestPathBinaryMatrix.java

```
1    package com.example;
2
3    import java.util.Arrays;
4    import java.util.LinkedList;
5    import java.util.Queue;
6
7    class tuple{
8        int a;
9        int b;
10       int c;
11       tuple(int _a,int _b,int _c){
12           this.a = _a;
13           this.b = _b;
14           this.c = _c;
15       }
16   }
17   public class ShortestPathBinaryMatrix {
18       public int shortestPathBinaryMatrix(int[][] grid) {
19        int n = grid.length;
20        int m = grid[0].length;
21 5      if(grid[0][0] != 0 || grid[n-1][n-1] != 0) return -1;
22 3      if(n-1 == 0) return 1;
23        int[][] dis = new int[n][m];
24        Queue<tuple> queue = new LinkedList<>();
25        for(int[] i:dis){
26 1          Arrays.fill(i,(int)1e9);
27        }
28        dis[0][0] = 1;
29        queue.add(new tuple(1,0,0));
30        int[] dr = {0,1,-1,0,1,-1,1,-1};
31        int[] dc = {1,0,0,-1,1,1,-1,-1};
32 1      while(!queue.isEmpty()){
33            tuple it = queue.poll();
34            int d = it.a;
35            int r = it.b;
36            int c = it.c;
37 3          for(int i=0; i<8; i++){
38 1              int nrow = r + dr[i];
39 1              int ncol = c + dc[i];
40 12             if(nrow >=0 && nrow <n && ncol >=0 && ncol < m && grid[nrow][ncol] == 0 && d+1 < dis[nrow][ncol]){
41 1                dis[nrow][ncol] = 1 + d;
42 6                if(nrow == n-1 && ncol == n-1) return d + 1;
43 1                queue.add(new tuple(d+1,nrow,ncol));
44               }
45           }
46       }
47 1    return -1;
48      }
49   }
```

Mutations

```
1. Replaced integer subtraction with addition → KILLED
2. Replaced integer subtraction with addition → KILLED
21  3. negated conditional → KILLED
4. negated conditional → KILLED
5. replaced int return with 0 for com/example/ShortestPathBinaryMatrix::shortestPathBinaryMatrix → KILLED
1. Replaced integer subtraction with addition → SURVIVED
22  2. negated conditional → KILLED
3. replaced int return with 0 for com/example/ShortestPathBinaryMatrix::shortestPathBinaryMatrix → NO_COVERAGE
26  1. removed call to java/util/Arrays::fill → KILLED
32  1. negated conditional → KILLED
1. changed conditional boundary → KILLED
37  2. Changed increment from 1 to -1 → KILLED
3. negated conditional → KILLED
38  1. Replaced integer addition with subtraction → SURVIVED
39  1. Replaced integer addition with subtraction → SURVIVED
1. changed conditional boundary → KILLED
2. changed conditional boundary → SURVIVED
3. changed conditional boundary → SURVIVED
4. changed conditional boundary → KILLED
5. changed conditional boundary → SURVIVED
6. Replaced integer addition with subtraction → SURVIVED
40  7. negated conditional → KILLED
8. negated conditional → KILLED
9. negated conditional → KILLED
10. negated conditional → KILLED
11. negated conditional → KILLED
12. negated conditional → KILLED
41  1. Replaced integer addition with subtraction → SURVIVED
1. Replaced integer subtraction with addition → KILLED
2. Replaced integer subtraction with addition → KILLED
42  3. Replaced integer addition with subtraction → KILLED
4. negated conditional → KILLED
```

```
    5. negated conditional → KILLED
    6. replaced int return with 0 for com/example/ShortestPathBinaryMatrix::shortestPathBinaryMatrix → KILLED
43  1. Replaced integer addition with subtraction → KILLED
47  1. replaced int return with 0 for com/example/ShortestPathBinaryMatrix::shortestPathBinaryMatrix → NO_COVERAGE
```

Active mutators

- BOOLEAN_FALSE_RETURN
- BOOLEAN_TRUE_RETURN
- CONDITIONALS_BOUNDARY_MUTATOR
- EMPTY_RETURN_VALUES
- INCREMENTS_MUTATOR
- INVERT_NEGS_MUTATOR
- MATH_MUTATOR
- NEGATE_CONDITIONALS_MUTATOR
- NULL_RETURN_VALUES
- PRIMITIVE_RETURN_VALS_MUTATOR
- VOID_METHOD_CALL_MUTATOR

Tests examined

- com.example.ShortestPathBinaryMatrixTest.testShortestPathBinaryMatrix(com.example.ShortestPathBinaryMatrixTest) (0 ms)

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