Black box testing:

Testing our Navigation Algorithm: Dijkstra Algorithm

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Causes** |  | **Value** | 1 | 2 | 3 | 4 |
| C1 | All Edges added | Y/N | **N** | **N** | **Y** | **Y** |
| C2 | Humps added | Y/N | **N** | **Y** | **N** | **Y** |
| **Effects** | | | | | | |
| E1 | Ideal Path Achieved |  |  |  | **X** | **X** |
| E3 | Error |  | **X** | **X** |  |  |

Reduced Table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Causes** |  | **Value** | 1-2 | 3 | 4 |
| C1 | All Edges added | Y/N | **N** | **Y** | **Y** |
| C2 | Humps added | Y/N | **-** | **N** | **Y** |
| **Effects** | | | | | |
| E1 | Ideal Path Achieved |  |  | **X** | **X** |
| E3 | Error |  | **X** |  |  |

Each Hump is **equal** to 1 cost.

Screenshots of output for 3 and 4:

|  |  |
| --- | --- |
| **3: (Without Humps)** | **4: (With Humps)** |
|  |  |
| Hump Map | Hump Map |
|  |  |

*Starting from 1 , destination is 18*

Test Scenario:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test Scenario** | **Test Case** | **Pre-Condition** | **Test Steps** | **Test Data** | **Expected Result** | **Actual Result** | **Pass/Fail** |
| Check Navigation function  (C1- All edges added, C2 – all Humps added, E1 – Ideal Path Achieved) | Check output whether Ideal path is achieved when all humps and edge added. | Edges added from  1-2,  1-6,  2-7,  2-3,  3-8,  3-4,  4-5,  5-10,  6-11,  7-12,  8-9,  10-15,  11-16,  12-13,  14-15,  15-20,  16-17,  17-18,  18-19,  19-20 | 1.Add humps from node  17-18,  11-16,  2-3,  5-10,  13-14 in main.c using add\_hump function  2. Run the program  3. see whether path is ideal. | Mapping.c  Mapping.h  Main.c | Path is 18 <- 19 <- 20 <- 15 <- 14 <- 13 <- 12 <- 7 <- 2 <- 1 | Path is 18 <- 19 <- 20 <- 15 <- 14 <- 13 <- 12 <- 7 <- 2 <- 1 | Pass |
| Check Navigation function  (C1- All edges added, C2 – no Humps added, E1 – Ideal Path Achieved) | Check output whether Ideal path is achieved when no humps added but edge added. | Edges added from  1-2,  1-6,  2-7,  2-3,  3-8,  3-4,  4-5,  5-10,  6-11,  7-12,  8-9,  10-15,  11-16,  12-13,  14-15,  15-20,  16-17,  17-18,  18-19,  19-20 | 1. Run the program  2. see whether path is ideal. | Mapping.c  Mapping.h  Main.c | Path is 18 <- 17 <- 16 <- 11 <- 6 <- 1 | Path is 18 <- 17 <- 16 <- 11 <- 6 <- 1 | Pass |
| Check Navigation function  (C1- No edges added, C2 – No Hump added, E3 – Error Achieved) | Check output whether Ideal path is achieved when no edge added. | - | 1. Run the program  2. see whether path is ideal. | Mapping.c  Mapping.h  Main.c | No output | No output | Pass |