Sommario

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| --- | --- | --- | --- |
| Coverage Type | Number of test cases needed to obtain 100% coverage | Coverage obtained with test cases defined (%) | Test cases defined |
| Node | 2 | 100% | T1-T2 |
| Edge | 2 | 100% | T1-T2 |
| Multiple Condition | In theory: Line 8 (4 test),Line 10(4 test), but we can cover them with 1 test using different values in loop iteration | 100% | T2 |
| Loop | Not feasible, since iteration does not depend on input | 33%  Only multiple iterations | T1 or T2 |
| Path | 2\*3^(4\*5) | More than six million test cases to obtain full path coverage |  |

T1 ([1,1,1,1,1,…],[1,1,1,1,1,…]) 🡺 grade = 15

T2 ([1,1,0,1,1,…],[0,0,1,0,0,…]) 🡺 grade = -4 🡺 0 is returned

…

# 2021 08 30

|  |  |  |  |
| --- | --- | --- | --- |
| Coverage Type | Number of test cases needed to obtain 100% coverage | Coverage obtained with test cases defined (%) | Test cases defined |
| Node Coverage | 1 | 100% | T1 |
| Edge Coverage | 1 | 100% | T1 |
| No Multiple Condition Here, so 100 % coverage | 1 | 100% | T1 |
| Loop Coverage | Loop iteration not input controlled, not feasible | 33%, only multiple iteration | T1 |
| Path Coverage | 4^6 | Not so much combination, coverage is feasible |  |

T1(1,2,3,4,5,6)

# 2022 06 29

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| --- | --- | --- | --- |
| Coverage type | Number of test cases to obtain 100 % coverage | Coverage obtained with the test cases defined | Test Cases Defined |
| Node | 2 | 100% | T1-T2 |
| Edge | 2 | 100% | T1-T2 |
| Multiple Decision | 4 | 100% | T1 FT  T2 FF  T3 TF  T4 TT |
| Loop Coverage line 4 | 3 | 100% (Try no enter, enter one, enter many) | T2 try no enter  T5 enter one  T6 enter many |
| Loop Coverage line 5 | 1 | 33% (only enter many, ,since depends on outer loop) | T5 enter many |
| Path Coverage | 2^(i\*(i-2)), depend on I so in the order of maxint\*maxint | Close to zero with test cases above  Not feasible |  |

T1(1,-1) T2(1,1) T3(-1,1) T4(-1,-1) T5(2,1) T6(4,1)

# 2022 07 11

FUNCTIONAL REQUIREMENTS

|  |  |
| --- | --- |
| **AUTHORIZE AUTHENTICATE** |  |
| REGISTER |  |
| LOGIN |  |
| LOGOUT |  |
| **APP** |  |
| SUBSCRIBE |  |
| **START USING THE SCOUTER** |  |
| UNLOCK THE SCOUTER |  |
| START COURSE TIMING |  |
| **FINISH USING THE SCOUTER** |  |
| LOCK THE SCOUTER |  |
| FINISH COURSE TIMING |  |
| PAY FOR THE SERVICE |  |
| **MAP** |  |
| SHOW MAP |  |
| SHOW AVAILABLE SCOUTERS WITH A MARKER |  |
| SHOW BATTERY PERCENTAGE WITH A NUMBER 0-100 |  |
| **SCOUTER** |  |
| SEND POSITION TO SERVER |  |
| SEND BATTERY INFORMATION TO THE SERVER |  |
| **TOUCHSCREEN** |  |
| SHOW MAP |  |
| INSERT/ CHANGE DESTINATION |  |
| SHOW SPEED |  |
| SHOW THE AMOUNT TO PAY |  |
| **ADMIN** |  |
| ADD SCOUTER |  |
| DELETE SCOUTER |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Coverage type | N of test to obtain 100% coverage | Coverage obtained with defined tests | Test Cases defined |
| Node | 2 | 100% | T1-T2 |
| Edge (decision) | 1 | 100% | T1 |
| Multiple Condition | 8 in theory, but not feasible (N.F.) since A[i] annot be digit comma and dot a the same time | 50% | TTT (N.F)  TTF (N.F.)  TFT (N.F)  TFF T4  FFF T1  FTF T3  FFT T2  FTT (N.F.) |
| Loop Coverage | 3 | 100% | Try no Enter T5  Enter 1 Time T1  Enter Many T6 |
| Path Coverage | 2^(n), not feasible if n is too large, potentially 2^(maxint) | Not feasible |  |

T1(“A”,1) T2(“.”,1) T3(“,”,1) T4(“2”,1) T5(“”,0) T6(“AER”,3)

Development 12\*3\*1 = 36 person months = 3 person years Maintenance: 12\*1.5\*7 = 126 person months = 10.5 person years Maintenance costs are (according to these estimates) the major cost source

# 2022 09 12

NF Requirements:  
Efficiency Response time <0.5s, since in 1 minute code will expire

Security Only authenticated users (student) can send code and only authenticated users (teacher) can generate it. Only teacher/office can analyse trendings.

Availability Downtime Time <5s, since in 1 minute code will expire

Usability Time to learn by a new user < than 1 hour

|  |  |  |  |
| --- | --- | --- | --- |
| Coverage type | N test to obtain 100% coverage | Coverage obtained with test case defined | Test case defined |
| Node | 3 | 100% | T1-T2-T3 |
| Edge | 3 | 100% | T1-T2-T3 |
| Multiple condition | 4 | 100% | TT T4  TF T1  FT T5  FF T2 |
| Loop Coverage | 3 (enter one not feasible) | 66% | T2 Try and no enter  T1 Enter many |
| Path Coverage | 2\*1\*2=4 feasible | 100% | T4-T6-T2-T3 |

T1(-1,-1,3) T2(3,0,3) T3(2,4,3) T4(2,2,2) T5(1,2,2) T6(3,-1,3)

# 2019 02 12

|  |  |  |  |
| --- | --- | --- | --- |
| Coverage Type | N of test cases to obtain 100% COVERAGE | Coverage Obtained with test cases defined | Test Cases |
| Node | 3 | 100% | T1-T2-T3 |
| Edge | 3 | 100% | T1-T2-T3 |
| Multiple Condition | 0 (No Multiple Condition) | \* | \* |
| Loop | Not Feasible since it is not input controlled | 33%, only enter many | Any Input |
| Path | (2^3)\*2\*2\*2=64, so it is feasible | Almost 100% | T1-T2-T3 |

T1(7000) T2(19000) T3(37000)

# 2018 09 17