1. **Condition coverage**

For first condition, a>0 and a<=0, b>0 and b<=0.

|  |  |  |
| --- | --- | --- |
| test | A>0 | B>0 |
| Ta | true | true |
| Tb | false | false |

For the second condition, a<=1 and a>1, c>1 and c<=1.

|  |  |  |
| --- | --- | --- |
| test | A>1 | C>1 |
| Tc | true | true |
| Td | false | false |

So we can design the test cases as follows:

T1: {a=2,b=2,c=4} (satisfy ta and tc, the c is reassign the value 4/2=2)

T2: {a=-1,b=-1,c=-1} (satisfy tb and td, the c is still -1)

1. **Decision Coverage**

To cover every path, we can design the test cases as follows:

T1: {a=2,b=2,c=3} (first right, second right)

T2: {a=1,b=2,c=-1} (first right, second wrong)

T3: {a=2,b=-2,c=3} (first wrong, second right)

T4: {a=1,b=-2,c=-1} (first wrong, second wrong)

1. **Modified C/D Coverage**

|  |  |  |  |
| --- | --- | --- | --- |
| test | a>0 | b>0 | First path |
| Ta | true | true | true |
| Tb | true | false | false1 |
| Tc | false | true | false2 |

It can be concluded that t1 and t2 cover that “b>0” and t1 and t3 cover that “a>0”, in order to make Decision coverage, we need to consider first path.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| test | First path | a>1 | c>1 | Second path |
| T1 | true | false | true | true |
| T2 | true | false | false | false |
| T3 | true | true | false | true |
| T4 | false1 | false | true | true |
| T5 | false2 | false | false | false |

So the final test case can be :

T1: {a=1,b=1,c=2}

T2: {a=1,b=1,c=1}

T3: {a=2,b=1,c=1}

T4: {a=1,b=-1,c=2}

T5: {a=-1,b=1,c=1}