Software Engineering Lab 6

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Assignment 2: Design Tests

- **Input space partition**

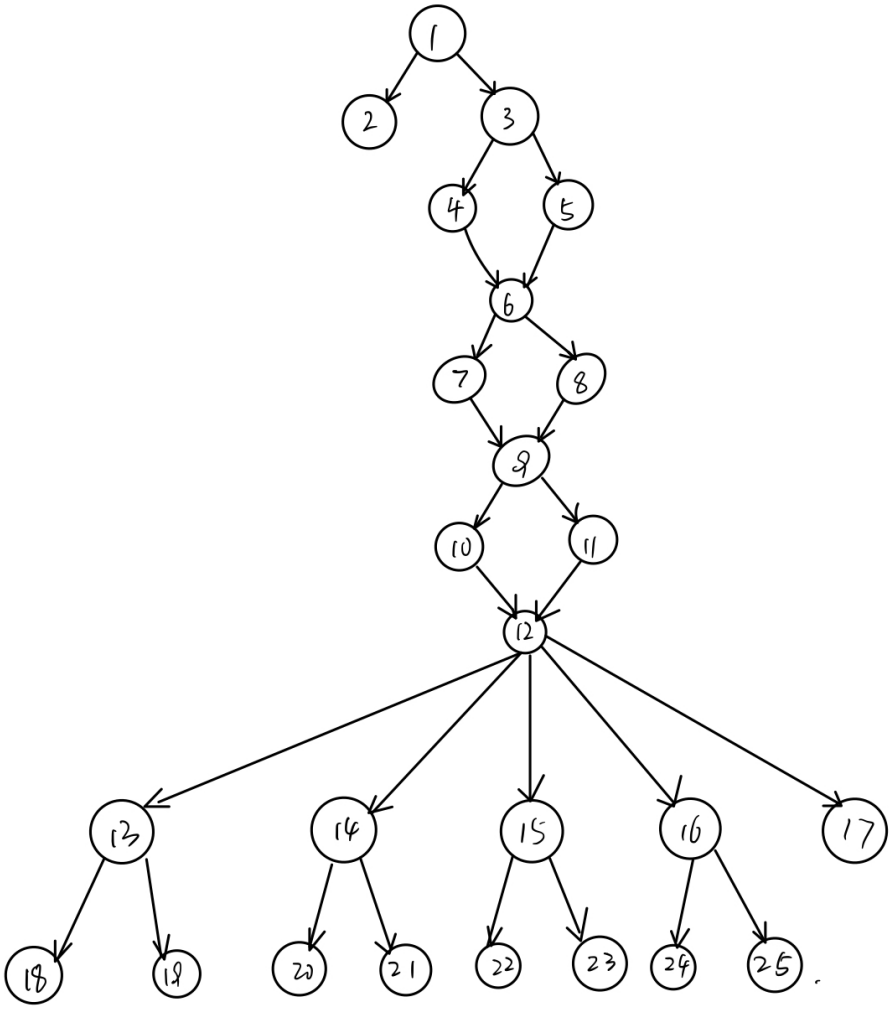
  1. Each choice coverage

A	B	C
1	1	1
2	2	2
0	0	0
-1	-1	-1

  2. Pair-wise coverage

A	B	C
1	1	1
1	2	2
1	0	0
1	-1	-1
2	1	2
2	2	0
2	0	-1
2	-1	1
0	1	0
0	2	-1
0	0	1
0	-1	2
-1	1	-1
-1	2	1
-1	0	2
-1	-1	0

- **Graph coverage**



The control flow diagram for this case is top-down without loops, the test cases for edge coverage, node coverage, and prime path coverage can be used in general.

TR: [1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,19,20,21,22,23,24,25]

1. Node coverage

A	B	C
1	0	1
1	1	1
2	2	3
2	3	2
3	6	3
3	2	2
6	3	3
1	3	4
2	3	4
2	3	3

2. edge coverage

A	B	C
1	0	1
1	1	1
2	2	3
2	3	2
3	6	3
3	2	2
6	3	3
1	3	4
2	3	4
2	3	3

3. prime path coverage
   There are totally 81 main Paths

A	B	C
1	0	1
1	1	1
2	2	3
2	3	2
3	6	3
3	2	2
6	3	3
1	3	4
2	3	4
2	3	3

4. all-use coverage

   take triout = 4:

A	B	C
1	0	1
3	6	3
6	3	3
1	3	4
-1	0	1

- **Logic coverage**

1. Predicate coverage

A	B	C
1	1	1
2	3	6

2. clause coverage

A	B	C
2	2	3
2	3	2

3. Correlated Active Clause Coverage

A	B	C
0	1	1
1	1	1
1	0	1
2	3	6
2	3	4
7	2	3
1	3	4
2	2	3
2	3	3
5	2	2
3	2	2

- **mutation testing**

  ☐ For TritypMutantOne:

A	B	C
2	2	4

  Should be: 4 Actual result: 2

  ☐ For TritypMutantTwo:

A	B	C
2	2	4

  Should be: 4 Actual result: 2