IT Quality and Software Test

Lesson 6
Test Design Techniques
Dynamic Testing II
Quiz
V1.0

Uwe Gühl

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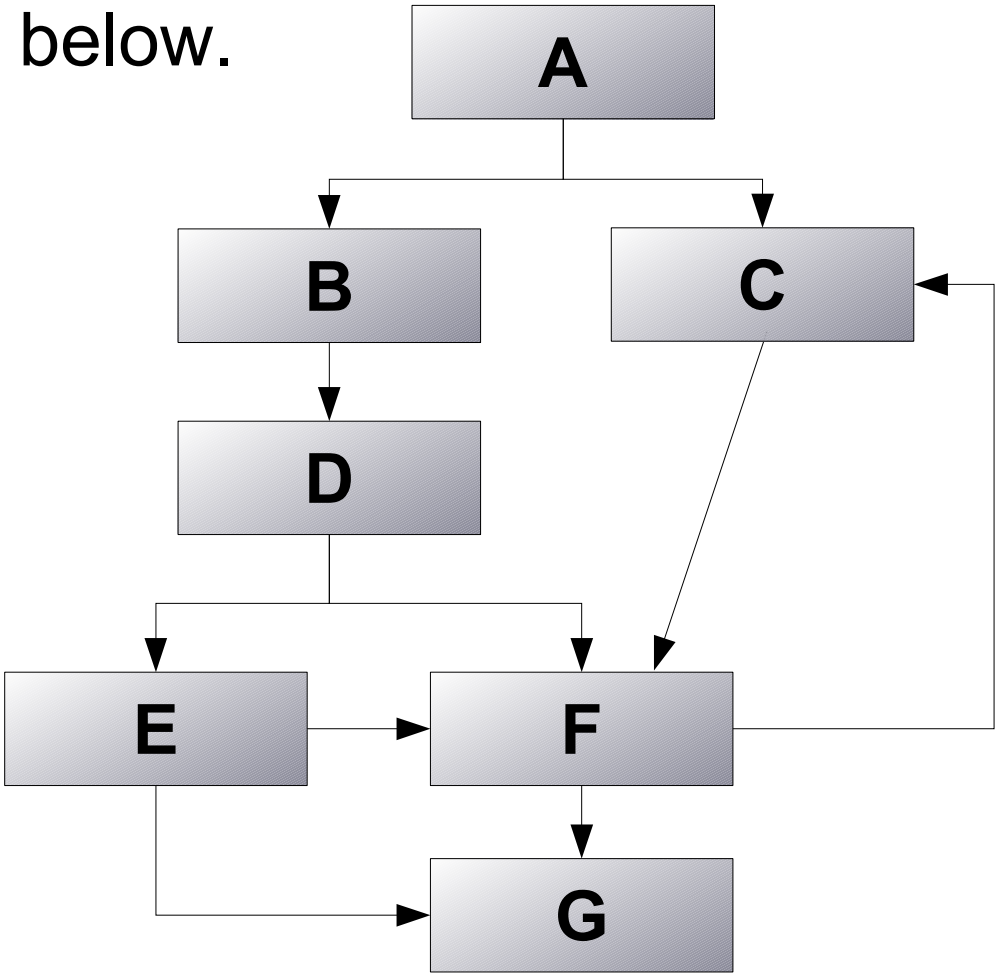
1. Dynamic Testing II
Decision Coverage (1/2)

Test goal is to have 100% decision coverage. Following three tests have been executed for the control flow graph shown below.

Test A covers path:
A, B, D, E, G.

Test B covers path:
A, B, D, E, F, G.

Test C covers path:
A, C, F, C, F, C, F, G.



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1. Dynamic Testing II
Decision Coverage (2/2)

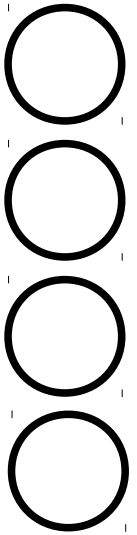
Which of the following statements related to the decision coverage goal is correct?

a) Decision D has not been tested completely.

b) 100% decision coverage has been achieved.

c) Decision E has not been tested completely.

d) Decision F has not been tested completely



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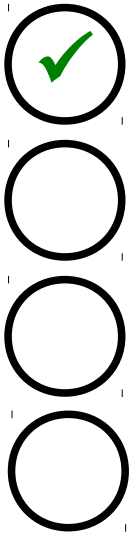

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2. Dynamic Testing II
Types of Testing (1/2)

A defect was found during testing. When the network got disconnected while receiving data from a server, the system crashed.

The defect was fixed by correcting the code that checked the network availability during data transfer.

The existing test cases covered 100% of all statements of the corresponding module.

To verify the fix and ensure more extensive coverage, some new tests were designed and added to the test suite.

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2. Dynamic Testing II
Types of Testing (2/2)

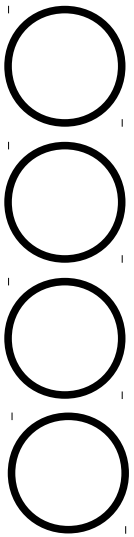
What types of testing are mentioned in the previous page?

a) Functional testing.

b) Structural testing.

c) Re-testing.

d) Performance testing.



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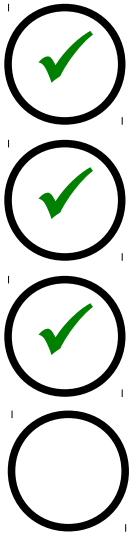

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3. Dynamic Testing II Experience-based Techniques

Which of the below would be the best basis for fault attack testing?

a) Experience, defect and failure data, knowledge about software failures.

b) Risk analysis performed at the beginning of the project.

c) Use Cases derived from the business flows by domain experts.

d) Expected results from comparison with an existing system.

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d) Expected results from comparison with an existing system. ○

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4. Dynamic Testing II White-box Techniques

Which one of the following techniques is structure-based?

a) Decision testing.

b) Boundary value analysis.

c) Equivalence partitioning.

d) State transition testing.

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Which one of the following techniques is structure-based?

a) Decision testing. ✓

b) Boundary value analysis.

c) Equivalence partitioning.

d) State transition testing.

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5. Dynamic Testing II
Decision Coverage

Given the following fragment of code, how many tests are required for 100% decision coverage?

```
if (width > length) {
    biggest_dimension = width;

    if (height > width)
        biggest_dimension = height;

} else {
    biggest_dimension = length;

    if (height > length)
        biggest_dimension = height;

}
```

a) 1 ◯

b) 2 ◯

c) 3 ◯

d) 4 ◯

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a) 1 ○

b) 2 ○

c) 3 ○

d) 4 ✓

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6. Dynamic Testing II White-box Techniques

Which of the following techniques is NOT a White box technique?

a) Statement Testing and coverage

b) Decision Testing and coverage

c) Condition Coverage

d) Boundary value analysis

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7. Dynamic Testing II
Decision Coverage

How many decisions should be tested in this code in order to achieve 100% decision coverage?

```
WHILE (condition A) DO B
END WHILE
```

a) 1 ○

b) 2 ○

c) 4 ○

d) Indefinite ○

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7. Dynamic Testing II
Decision Coverage

How many decisions should be tested in this code in order to achieve 100% decision coverage?

WHILE (condition A) DO B

END WHILE

a) 1 ○

b) 2 ✓

c) 4 ○

d) Indefinite ○

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8. Dynamic Testing II Coverage

Which of the following statements is / are TRUE?

a) 100% statement coverage guarantees 100% branch coverage. ○

b) 100% decision coverage guarantees 100% statement coverage. ○

c) 100% branch coverage guarantees 100% decision coverage. ○

d) 100% decision coverage guarantees 100% branch coverage. ○

e) 100% statement coverage guarantees 100% decision coverage. ○

8. Dynamic Testing II Coverage

Which of the following statements is / are TRUE?

a) 100% statement coverage guarantees
100% branch coverage. ○

b) 100% decision coverage guarantees
100% statement coverage. ✓

c) 100% branch coverage guarantees
100% decision coverage. ✓

d) 100% decision coverage guarantees
100% branch coverage. ✓

e) 100% statement coverage guarantees
100% decision coverage. ○

9. Dynamic Testing II
Cyclomatic Complexity

If L = the number of edges/links in a graph
N = the number of nodes in a graph
P = the number of disconnected parts of the graph (e.g. a called graph or subroutine)

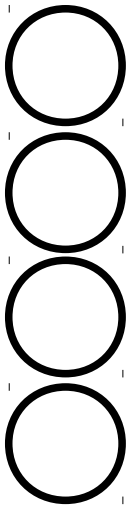
Then how is the cyclomatic complexity M defined?

a) M = L + N – P

b) M = L – N + 2P

c) M = L – N – P

d) M = L + N + 2P



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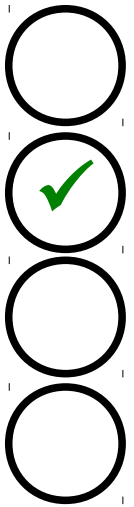


10. Dynamic Testing II Cyclomatic Complexity

Given the following program

```
IF X != Z
THEN Statement 2;
END
```

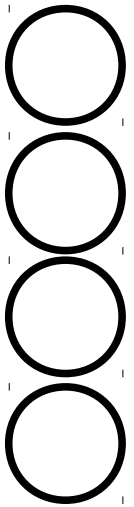
McCabe's Cyclomatic Complexity `M` is :

a) 2

b) 3

c) 4

d) 5



10. Dynamic Testing II Cyclomatic Complexity

Given the Following program

```
IF X != Z
THEN Statement 2;
END
```

If P (=number of connected components) is 1, then M = b + 1, where b is number of binary conditions

McCabe's Cyclomatic Complexity `M` is:

a) 2

b) 3

c) 4

d) 5