

Test

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Overview

1 Q 2.6: Control-flow testing: decisions and conditions

Control-Flow Testing

- White-box testing
- Control-Flow Graphs
- Good coverage

Decision Coverage

Each branch or each edge.

Condition Coverage

Test each atomic condition *True* or *False*.

```
if ((a>b) || (x+y>0) && (!d))  
{  
    // ...  
}
```

Decision/Condition Coverage

```
if (a && b)
{
    // path 1
}
else
{
    // path 2
}
```

- Condition coverage
 - ① $a = \text{false}, b = \text{true} \rightarrow \text{path2}$
 - ② $a = \text{true}, b = \text{false} \rightarrow \text{path2}$
- Decision coverage
 - ③ $a = \text{true}, b = \text{true} \rightarrow \text{path1}$

Atomic Conditions

- Modified condition / decision coverage
- Multiple condition coverage

Flawed because:

```
bool ab = a && b; if (ab) { } else { }
```

The End

“Testing shows the presence, not the absence of bugs.”
— *Edsger W. Dijkstra*