Workshop 3 (Week 4) – Structural Coverage

The purpose of this workshop is to practice and develop an understanding of various control flow based structural coverage metrics.

1. Concepts

- What is condition coverage? Give an example.
- What is condition/decision coverage? Give an example.
- What is multiple condition coverage? Give an example.
- What is modified condition/decision coverage? Give an example.
- How do you compare these coverage metrics?

2. Coverage Analysis

Assume we want to test the following code, where A, B and C represent three atomic boolean expressions:

```
if ( (A || B) && C ) {
   /* Some code  */
}
else {
  /* Other code */
}
```

- Design test cases that can achieve 100% statement coverage
- Design test cases that can achieve 100% branch decision coverage
- Design test cases that can achieve 100% condition coverage
- Design test cases that can achieve 100% condition/decision coverage
- Design test cases that can achieve 100% multiple condition coverage

3. Coverage Analysis

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4. jUnit Exercise (Continue with Workshop 2)

1) Implement the test cases for the PasswordTester program in jUnit and execute the test cases

2) Implement the test cases for the Compute Median program in jUnit and execute the test cases

If jUnit is not installed at your PC, install it from: https://junit.org/. You can also refer to a tutorial at: Prepare for testing—IntelliJ IDEA (https://www.jetbrains.com/help/idea/testing.html).