

# SUTD 2021 50.003 Quiz 2

*James Raphael Tiovalen*

## Q1 – Input-Sign Coverage

All 3 of the given statements are false. The correct statements are:

- A test suite obtaining 100% input-sign coverage **cannot** reveal all the bugs revealed by a test suite obtaining 100% path coverage.
- A test suite obtaining 100% path coverage **cannot** reveal all the bugs revealed by a test suite obtaining 100% input-sign coverage.
- A test suite obtaining 100% path coverage and 100% input-sign coverage **cannot** reveal all the bugs in an arbitrary program.

Sample program:

```
1. void main(int a) {  
2.     int b = 0;  
3.     if (a >= 0) {  
4.         b = 1 / (a - 3);  
5.     }  
6.     else {  
7.         b++;  
8.     }  
9. }
```

Test cases for each statement:

- {a = -5, a = 5} (Obtains path coverage but does not reveal the bug.)
- {a = -5, a = 0, a = 5} (Obtains input-sign coverage but does not reveal the bug.)
- {a = -5, a = 0, a = 5} (Obtains both path coverage and input-sign coverage but does not reveal the bug.)

A counterexample test case that reveals the bug: {a = 3}.