**To understand the statement coverage in a better way let us take an example which is basically a pseudo-code. It is not any specific programming language, but should be readable and understandable to you, even if you have not done any programming yourself.**

**Consider code:  
READ X  
READ Y  
I F X>Y**

**THEN Z = 0  
ENDIF**

**ode sample 4.1**

**To achieve 100% statement coverage of this code segment just one test case is required, one which ensures that variable A contains a value that is greater than the value of variable Y, for example, X = 12 and Y = 10. Note that here we are doing structural test *design*first, since we are choosing our input values in order ensure statement coverage.**

**Now, let’s take another example where we will measure the coverage first. In order to simplify the example, we will regard each line as a statement. A statement may be on a single line, or it may be spread over several lines. One line may contain more than one statement, just one statement, or only part of a statement. Some statements can contain other statements inside them. In code sample 4.2, we have two read statements, one assignment statement, and then one IF statement on three lines, but the IF statement contains another statement (print) as part of it.**

**1 READ X  
2 READ Y  
3 Z =X + 2\*Y   
4 IF Z> 50 THEN  
5 PRINT large Z  
6 ENDIF**

**Although it isn’t completely correct, we have numbered each line and will regard each line as a statement. Let’s analyze the coverage of a set of tests on our six-statement program:**

**TEST SET 1  
Test 1\_1: X= 2, Y = 3 Z = 8  
Test 1\_2: X =0, Y = 25 Z=50   
Test 1\_3: X =47, Y = 1 Z = 49**

**Which statements have we covered?**

* **In Test 1\_1, the value of Z will be 8, so we will cover the statements on lines 1 to 4 and   line 6.**
* **In Test 1\_2, the value of Z will be 50, so we will cover exactly the same statements as Test 1\_1.**
* **In Test 1\_3, the value of Z will be 49, so again we will cover the same statements.**

**Since we have covered five out of six statements, we have 83% statement coverage (with three tests). What test would we need in order to cover statement 5, the one statement that we haven’t exercised yet? How about this one:**

**Test 1\_4: X = 20, Y = 25 Z=70**

**This time the value of Z is 70, so we will print ‘Large Z’ and we will have exercised all six of the statements, so now statement coverage = 100%. Notice that we measured coverage first, and then designed a test to cover the statement that we had not yet covered.**

**Note that Test 1\_4 on its own is more effective which helps in achieving 100% statement coverage, than the first three tests together. Just taking Test 1\_4 on its own is also more efficient than the set of four tests, since it has used only one test instead of four. Being more effective and more efficient is the mark of a good test technique.**