

White-Box Testing

The Cup of Coffee Example

- Imagine making a cup of coffee.
- To make a warm and tasty cup of coffee, we'd need ALL of the following: a kettle, a cup, and coffee.
- If any of the components were missing, we wouldn't be able to make our coffee.
- Or, to express this in C++:

```
if( kettle && cup && coffee ) {  
    return cup_of_coffee;  
}  
else {  
    return none;  
}
```

Test	Kettle	Mug	Coffee	Result
1	false	false	false	false
2	false	false	true	true
3	false	true	false	false
4	false	true	true	true
5	true	false	false	false
6	true	false	true	true
7	true	true	false	false
8	true	true	true	true

1. Fill-in the result column of the table.
2. Which test numbers would you use for Statement Coverage? Explain your answer.
3. Which test numbers would you use for Decision Coverage? Explain your answer.
4. Which test numbers would you use for Condition Coverage? Explain your answer.
5. Which test numbers would you use for Multiple Condition Coverage? Explain your answer.
6. Which test numbers would you use for Modified Condition/Decision Coverage (MC/DC)? Explain your answer.

1.

Test	Kettle	Mug	Coffee	Result
1	false	false	false	none
2	false	false	true	none
3	false	true	false	none
4	false	true	true	none
5	true	false	false	none
6	true	false	true	none
7	true	true	false	none
8	true	true	true	cup_of_coffee

2. For the if branch, we use test 8, for the else, we can use 1-7(ex. test 1)
3. For the true condition we use test 8, for the false outcome we can use any false test like test 1
4. Test 1 covers all false and Test 8 covers all true

5. 8 Combinations, the entire table, tests 1-8.

6. Test 4, Test 6, Test 7, Test 8