

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	
2	false	false	true	
3	false	true	false	
4	false	true	true	
5	true	false	false	
6	true	false	true	
7	true	true	false	
8	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