Modified Condition/Decision Coverage (MC/DC)

MC/DC criterion: For each basic condition C, there are two test cases in which the truth values of all conditions except C are the same, and the compound condition as a whole evaluates to True for one of those test cases and False for the other

MC/DC: Example

(a && b && c)

Test case	a	ь	С	outcome
1	True	True	True	True
2	True	True	False	False
3	True	False	True	False
4	True	False	False	False
5	False	True	True	False
6	False	True	False	False
7	False	False	True	False
8	False	False	False	False

(a && b && c)

Test case	α	Ь	С	outcome
1	True	True	True	True
2	True	True	False	False
3	True	False	True	False
4	True	False	False	False
5	False	True	True	False
6	False	True	False	False
7	False	False	True	False
8	False	False	False	False

MC/DC: Example

(a && b && c)

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2	True	True	False	False
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6	False	True	False	False
7	False	False	True	False
8	False	False	False	False

(<u>a</u> && b && c)

				<u> </u>	
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2	True	True	False	False	
3	True	False	True	False	
4	True	False	False	False	
5	False	True	True	False	
6	False	True	False	False	
7	False	False	True	False	
8	False	False	False	False	
1	True	True	True	True	
5	False	True	True	False	

MC/DC: Example

(<u>a</u> && b && c)

(<u>u</u> aa b aa c)					
Test case	α	Ь	С	outcome	
1	True	True	True	True	
2	True	True	False	False	
3	True	False	True	False	
4	True	False	False	False	
5	False	True	True	False	
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(<u>a</u> && b && c)

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MC/DC: Example

(<u>a</u> && <u>b</u> && c)

(<u>u</u> aa <u>b</u> aa c)					
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1	True	True	True	True	
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3	True	False	True	False	

(<u>a</u> && <u>b</u> && <u>c</u>)

		<u> </u>	<u> </u>	<u> </u>
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MC/DC: Example

(<u>a</u> && <u>b</u> && <u>c</u>)

(<u>u</u> aa <u>b</u> aa c)					
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(<u>a</u> && <u>b</u> && <u>c</u>)

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6	False	True	False	False
7	False	False	True	False
8	False	False	False	False
1	True	True	True	True
5	False	True	True	False
3	True	False	True	False
2	True	True	False	False

Modified Condition/Decision Coverage (MC/DC)

Tradeoff between number of required test cases and thoroughness of the test

Required by both US and European quality standards in aviation