

Question 3

Decision table:

	Rule 1	Rule 2	Rule 3	Rule 4
Conditions				
200.0 <= distance (feet) <= 1,000.0	Y			
100.1 <= distance (feet) <= 199.9		Y		
75.0 <= distance (feet) <= 100.0			Y	
0.0 <= distance (feet) <= 74.9				Y
Actions				
greenLight	TRUE	FALSE	FALSE	FALSE
yellowLight	FALSE	TRUE	FALSE	FALSE
redLight	FALSE	FALSE	TRUE	TRUE
caution	FALSE	FALSE	TRUE	FALSE
warning	FALSE	FALSE	FALSE	TRUE
Table implements "first-of" rule				

Test case table:

Test Case Number	Inputs			Expected Outputs						Basis Path	MCDC stmt 22-26
	distance (ft.)	cruise Requested	speed (mph)	redLight	yellowLight	greenLight	caution	warning	cruiseEngaged		
1	200.0	TRUE	40.1	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	9-10-22-23-24-25-26-27	
2	100.1	FALSE	40.1	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	9-12-13-22-27	
3	75.0	FALSE	40.1	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	9-12-16-17-22-27	

4	74.9	FALSE	40.1	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	9-12-16-19-22-27	
5	49.9	TRUE	40.1	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	9-12-16-19-22-23-27	TFTT
6	50.0	TRUE	40.0	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	9-12-16-19-22-23-24-27	TTFT
7	50.0	TRUE	65.1	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	9-12-16-19-22-23-24-25-27	TTTF
8	50.0	TRUE	65.0	TRUE	FALSE	FALSE	FALSE	TRUE	TRUE	9-12-16-19-22-23-24-25-26-27	TTTT
9	50.0	FALSE	40.1	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	Missing MCDC	FTTT

10	0.0	TRUE	65.0	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	Extreme range test for distance	
11	1,000.00	TRUE	65.1	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	Extreme range test for distance	
12	199.9	TRUE	0.0	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	Extreme range test for speed	
13	100.0	TRUE	100.0	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	Extreme range test for speed	

Code coverage achieved is: full boundary coverage, full statement coverage, full decision coverage and extreme range coverage.

The test cases support the description (logical expression).