

Quiz 10. Support Vector Machines

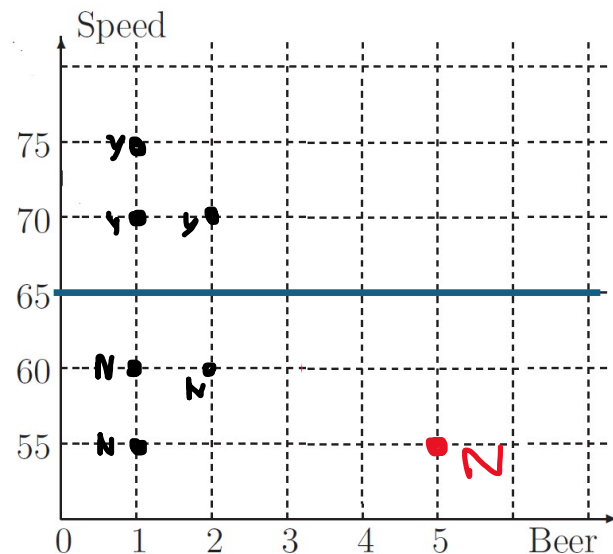
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Attempt (circle one): BEFORE AFTER

Exploring his own drink-and-drive habits, Eric recalls the last 6 parties that he attended. He records the number of cans of beer he drank, his highway speed on the way home, and whether he was stopped by police.

Party	1	2	3	4	5	6
Beer (cans)	1	1	1	1	2	2
Speed (mph)	70	75	55	60	60	70
Stopped by police	yes	yes	no	no	no	yes

- (a) At the next party, Eric drinks 5 cans of beer and plans to go 55 mph. Use the maximal margin classifier to predict whether he will be stopped by police. The exact equation(s) of separating hyperplanes is not required. Instead, mark the observed data points in the plot. Then make sketches that will help and explain your predictions.



Prediction for new data point: NO

- (b) When Eric shares his plan with friends, they remind him about yet another party that he forgot to include in the data set above. At that party, he drank 3 cans of beer, drove 60 mph, and was stopped by police. Add this observation to the data set (the sample size is now $n = 7$) and redo your prediction in question (a), using the new maximal margin classifier.

New prediction using new MMC: YES

