

## 20T1 : COMP9417 Machine Learning and Data Mining

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**Lectures:** Classification (2)

**Topic:** Questions from lecture

### Introduction

A question and an exercise from the course lecture on the Naive Bayes classifier. Do these then complete the accompanying notebook.

### Naive Bayes classifier

**Question 1** Consider the example application of Bayes Theorem on slides 22-25 in the lecture notes.

Now suppose the a second laboratory test is ordered for the same patient, and this test also returns a positive result. What are the posterior probabilities of *cancer* and  $\neg$ *cancer* following these two tests? Note: you can assume that the two tests are independent.

**Question 2** Work through the example of applying Naive Bayes to text on slides 71-77. Be sure you are clear on the difference between the multinomial and multivariate Bernoulli models.