**INTRODUCTION MACHINE LEARNING**

**EXERCISE 6**

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| **TEACHER:** |
| Johannes Kiesel |

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| **GROUP:** |
| Group 16 |
|  |
| **SUBMITTED BY:** |
| Aaron Perez Herrera |
| Cesar Fernando Gamba Tiusaba |
| Chun Ting Lin |
| Olubunmi Emmanuel Ogunleye |

Exercise 1 : Probability Basics (1 Points)

Which of the following statements are true?

* According to the Kolmogorov axioms the statement P(A) - P(A) = 0 holds.
* A function that fulfills the Kolmogorov axioms is a probability measure.
* Two events are statistically independent P(An B) = P(A) + P(B).
* Each subset A of a sample space 12 is an event.

The true statements are.

* A function that fulfills the Kolmogorov axioms is a probability measure. (true)
* Each subset A of a sample space 1 is an event. (true)

Exercise 3 : Bayes' Rule (2+3=5 Points)

A hospital database contains diagnoses (C1 ... C5) for 8 patients along with binary observations of

symptoms S1 ... S9:

(a) Compute based on the database the prior probabilities P(Ci) for each diagnosis.

(b) Compute based on the database the posterior probabilities P(Ci | S4) for each diagnosis.