

UG Exam Performance Feedback

Second Year

2017/2018 Semester 1

COMP24111 Machine Learning and Optimisation

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Comments For multiple choice questions in Sect. A, the averaging mark is around 72.3% with a standard deviation of 17.4%. While a number of questions appeared easy (i.e., over 90% of students gave the correct answers to those questions), no question stood out to be extremely hard in general. This suggests that most of the students well understood those essential concepts and knowledge delivered in this CU.

Question 1 in Sect. B was answered very well, with an average greater than 7 out of 10. Most of the students were able to derive the formula and calculate the coefficients correctly. A number of answers incorrectly assumed that the desired linear model needed two input variables. Some answers incorrectly calculated the partial derivative for the linear coefficient weight that corresponds to the input variable, e.g., w_1 in $y = w_1x + w_0$. Question 2 in Sect. B was answered less well than Question 1, with an average around 3 out of 5. The most common mistake is that many answers did not explain how to compute the final performance estimation from the k obtained accuracies/errors. Some answers did not specify correctly which folds should be used for training and which for testing.

Two questions in Sect. C are regarding the K-means algorithm for clustering analysis. The first question is regarding applying this algorithm to a 2-D toy dataset. A vast majority of students made an attempt to answer this question and most of the students achieved a full mark on this question while some students did not complete this question due to various reasons. The second question tests the understanding on what has been learned by the K-means algorithm in terms of generalisation (i.e., how those learned can be applied to unseen data), an ultimate goal of machine learning regardless of learning paradigms. Although the implication of K-means output appears in the lecture note and was explained with an example during the lecture, only a few of the students gave the correct answer. In general, the performance in this part suggests that the students be able to apply the K-mean algorithm to a given dataset but lack the deep understanding of this clustering analysis algorithm, a goal set for only those exceptional top-tier students.
