COMP61021 Modelling and Visualization of High Dimensional Data

Examination Performance Feedback (AY2019-2020)

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In general, nearly all the students attempted all the questions in two sections. Overall, their marks are roughly subject to a normal distribution.

For multiple choice questions in Sect. A, the average of this section is 19.91 out of 30 marks with standard deviation of 3.34 overall, where the highest one is 29 marks but the lowest one is only 9 marks. Apart from few hard questions (less than 30% students gave the correct answers to those questions), the mistakes made seem diversified across the remaining questions. All those hard questions are related to the important concepts on dimensionality reduction and the nature of those manifold learning algorithms delivered in this course unit. Nevertheless, the performance in this section suggests that most of students master the essentials of this course unit very well.

Regarding Sect. B, I am pleased to see most of students generally performed well for question B.1 and B.2, two questions regarding the book knowledge and those answers can be found directly from the lecture notes. A common mistake spotted for Question B.1 is that quite a few students did not give the accurate answer; e.g., the disparity is the *absolute* difference between two distances in the source and the target spaces. For Question B.2, several students did not fully understand the roles of cost functions in the LLE algorithm and failed to give the essential hyper-parameter used to decide the size of a local neighbourhood. Regarding the formal analysis question in B.3, most of students made an attempt and quite a few students are able to provide a proper proof in their answers, which is a good indicator for attaining one of the most important goals set in the learning outcome. However, the proof made by several students is only applicable to the scalar case (i.e., a single variable) rather than what is asked (multivariate cases) in high dimension. Overall, the performance on this formal analysis question seems to be the best since this course unit was launched in 2010, which suggests quite a number of students master the solid formal analysis skills and transferable knowledge, a goal set for only those very much top-tier students.

In summary, the overall performance this year appears to be considerably better than that in last year although there were an unprecedented number of students enrolled in this course unit this year. It is worth mentioning that the distribution of examination marks looks quite consistent with that of the lab coursework assessment although the performance in examination seems a bit poorer than that in coursework.