COMP61021 Modelling and Visualization of High Dimensional Data

Examination Performance Feedback (2013)

Ke Chen

All students attempted questions in three sections. Their marks are roughly distributed in a normal distribution. The highest mark is 77% and the lowest one is 30% while the vast majority of students got marks over 50%.

For short questions in Sect. A, nearly all students have a good understanding of basic concepts and book knowledge in general. As a result, around 90% students received at least eight out of 10 marks from this section. It was seen that a common problem appeared in question A.1 where a few students did not properly describe “curse of dimensionality” (they simply described some indication reflected in machine learning instead of the essence in multivariate data analysis).

For questions in Sect. B, almost all students generally performed well in B.1 and B.2. However, a few students neglected the question of “what is a stress function in MDS?” in B.1. For B.2, a number of students failed to give the LDA cost function and the between-class scatter for the multi-class case. For B.3, nearly all students described details of two algorithms to some extent for such an application. However, a number of students did not describe their answers properly; they simply described algorithms themselves in general without any justification and link to the application in the context. In addition, a number of students failed to address issues with critical analysis.

For Sect. C, it appears that students chose questions C.1 and C.2 evenly. Regarding questions on cost functions used in two nonlinear manifold learning algorithms asked in C.1(a) and C.2(a), most students gave correct answers but only few students could give a non-trivial application in terms of feature extraction and discussed relevant issues adequately. For the formal analysis questions C.1(b) and C.2(b), there were a number students making attempts. Unfortunately, most students who made an attempt failed to give correct answers although it can be seen that they mastered a certain amount of mathematical knowledge required in answering such questions.

In summary, the overall performance looks quite reasonable and accurately reflects what students actually achieved from this course unit. In addition, the distribution of examination marks looks consistent with that of the lab coursework assessment.