

UG Exam Performance Feedback

Third Year

2017/2018 Semester 2

COMP36212 Advanced Algorithms 2

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Comments Q1: The question had been attempted by all students with various level of success. I believe that the major stumbling block is that a single, unified style question was designed to cover all the material from this part of the course. But this should not have been a problem, because the question was well structured and different parts could have been answered independently. A number of students was very successful, and on a positive side, I do not recall any abysmally bad answers. The average mark seems to be in the right ball part of the scale as well.

Q2: (marked by Oliver Blanthorn on behalf of Eva Navarro-Lopez) Generally this question was well answered. Marks followed a bi-modal distribution: people who were familiar with the algorithms did well; the few people who were not struggled to pick up many marks. A few students clearly ran out of time.

2 a) This was mainly a textbook question. Almost all students recognised the network described as a scale-free network and explained its structure well; some students had difficulties describing the network's formal properties:

- Many students did not mention growth, a key feature of the model.
- Very few students knew the terms heterogeneity or inhomogeneity.
- Few students mentioned the robustness of the network model despite it being mentioned in the question text.

2 b) Generally, this was well answered. A handful of students answered at great length and some clearly spent too much time answering this question, i.e., answered it at much greater length than required and indicated by the marks available for it.

2 c) This question was generally less well answered than parts a and b.

Around two-thirds to three-quarters of people chose the rewiring model; some students chose to answer both, in which case the higher scoring part counted towards the total. I would not recommend this strategy as most people who described both models only gained a single mark from one model compared to the other, but seemed to spend about equal time on each model. I suspect more marks would have been gained if twice the time had been spent on a single model.

Many people did not list inputs or initial conditions for their chosen algorithm, and most people neglected to mention that the algorithm would eventually halt when $t=T$.

Rewiring: Many students forgot the "isolated nodes" amendment to preferential attachment, where each node gains some chance of being chosen even if it has a degree of zero.

Fitness: The people who chose to answer this did better on average than those who answered the rewiring. Lots of students did not explain where μ_i , the fitness parameter of each node i , was drawn from.
