Algorithm for edge partitioning in bipartite graphs

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1 Status report

1.1 Proposal

1.1.1 Motivation

The motivation is as follows: Suppose a senior lecturer wants to assign p lecturers to q modules. However, a lecturer can only teach in certain modules that are their competence area. The senior lecturer wants to assign as many lecturers as possible to utilise the resources fully. He also wants to find out the lecturer-module combinations affecting the maximum allocation. This project will implement an algorithm for edge partitioning in bipartite graphs, solving the assignment problem in linear time complexity.

1.1.2 Aims

This project aims to create a website for the algorithm that everyone can use. Professors, recruiters, researchers, and students can use the website to find the assignments for maximum matching and the different combinations that will affect the maximum matching.

1.2 Progress

- understood the motivation of the project
- implemented the algorithm based on the thesis paper
- performed system testing between two solutions
- created two personas and two scenarios
- created MoSCoW analysis
- implemented a prototype on Figma
- uploaded the project onto Github

1.3 Problems and risks

1.3.1 Problems and solutions

Problem 1
One of the biggest problems is not spending enough time per week on the project due to the overwhelming coursework in the last few weeks of semester one.
Solution 1
The solution is to catch up the progress by implementing the website during winter break.

1.3.2 Risks and strategies

Risk 1
Have never used React for implementing a website might take longer than the estimated time to learn and implement.
Strategy 1
Spend extra time to research and learn React during Winter Break.

1.4 Plan

Week	Date	Task
Winter Break	23rd DEC 2021	Start creating front-end using React
Winter Break	30th DEC 2021	Continue creating front-end using React
Winter Break	6th JAN 2022	Continue creating front-end using React
Week 1	13th JAN 2022	Deploy onto Heroku
Week 2	20th JAN 2022	Perform front-end testing
Week 3	27th JAN 2022	Start writing dissertation
Week 4	3rd FEB 2022	Continue writing dissertation
Week 5	10th FEB 2022	Continue writing dissertation
Week 6	17th FEB 2022	Continue writing dissertation
Week 7	24th FEB 2022	Continue writing dissertation
Week 8	3rd MAR 2022	Continue writing dissertation
Week 9	10th MAR 2022	Continue writing dissertation
Week 10	17th MAR 2022	Continue writing dissertation
Week 11	24th MAR 2022	Continue writing dissertation

Table 1: Planning