Proposal for Project in DAT530

Optimizing Task Assignment in Consultant Company

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The main idea is to make a system capable of matching work tasks to suitable employees. It will be assumed that bite-sized tasks are being fed into a task pool, and that we have a certain roster of employees available. From here the program should assign tasks based on priority and task requirements. An advanced version should be able to schedule all available tasks optimally. Features to include:

Certification

Tasks may require a certain certificate to be performed. These tasks must only be performed by employees with equal or higher certification level compared to the task.

Competency profile

Other than the required certificate, it is assumed that any employee can perform any task. Time taken to complete a task will depend on how well the competency profile of the employee matches with the task, along with a measure of the size of the task.

Priority

Some tasks may have higher priority than others. Time taken from receiving a high priority task until delivery, subtracted an optimal completion time, could be a good metric here.

Overtime

Increase the productivity of a single employee at an increased cost. This could be implemented by increasing the competency profile of the employee temporarily, which would make them complete tasks quicker.

Cooperation

Some tasks may require more than one person to be performed.

Other than being a tool for optimization, analysing the throughput of the simulation may help answering questions such as:

- What is the most desirable competency profile for a potential new hire.
- How much should we be willing to invest in improving the efficiency of our employees?

Figure below illustrates a possible architecture for modelling the system: