Knowledge-Based Module Planner

A better way to plan your university course

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Abstract

Module planning is a difficult task for undergraduates as there are various factors to be considered. The *Knowledge-Based Module Planner* (KBMP) aims to intelligently assist Computer Science undergraduates with module planning. KBMP gathers information from the student such as their focus area(s) and completed modules, and uses these information with its internal database to recommend modules and advise the student on fulfilling course requirements. It generates a specific module plan according to student's preference, that also fulfils the faculty's requirements. KBMP takes into account of course requirements, module mounting plan, as well as modules' prerequisites and co-requisites.

Objective / Motivation

Motivation

Planning modules as a Computer Science student can be confusing. There are many complications during planning, such as module dependencies, module availability, requirements for focus areas and graduation. Without proper planning, students often miss the opportunity to take the desired modules or even worse, cannot graduate within the expected time of 4 years. Yet, it is difficult for the faculty advisors to help every single students.

Objectives

Provide NUS Computer Science students assistance in module planning across their course while taking into account some details such as graduation requirements, personal preferences, and advices from the experts.

Domain

Module planning for NUS Computer Science students

Scope

To assist building module plans, the KBMP will take into account the following factors:

- Computer Science course requirements
- Module prerequisites
- Module co-requisites
- Module mounting plans
- User input
    - Focus area(s)
    - Completed modules
    - Target modules to complete or avoid over the whole course
    - Specified modules to be completed in particular semesters
    - Programme membership such as Turing Programme and University Scholars Programme
- Module planning advices given by experts

The modules in the knowledge base are limited to modules necessary for fulfilling NUS Computer Science (CS) course requirements. This include CS-coded modules, specific non-CS modules and other abstracted non-CS modules. The specific non-CS modules refer to modules, specified in the course requirements, that are not CS-coded such as ST2334 and IS2101; other abstracted non-CS modules represent baskets of necessary modules such as science modules and university level requirements.

Source of Expertise

- NUS API for module information, dependency
- SoC course website for module mounting plan
- SoC advisors / senior CS students for module planning advices

Proposed Schedule

Week 7   Interview experts, gather necessary information needed to code facts and rules
Research on how to design rules for planning schedule
Prototyping

Week 8   Implement basic GUI
Code the rules
Parsing of modules information, dependencies, mounting plan into proper data
structure as facts

Week 9   Code the rules

Week 10   Implement advanced features in GUI
Complete coding of rules for the system
Integrate facts into the system

Week 11   Complete the first version of product with GUI

Week 12   User acceptance test, gather feedback from users

Week 13   Improve the system based on feedback

Reading   Presentation Preparation (ex. poster)

Distribution of Workload

Note: **Underlined <u>X</u>** indicates person in charge of the area

	Seokmin	Zhu Liang	Yan Qin	Ruofan
GUI development				**X**
Designing Rules	X	**X**	X	
Report writing and collating			**X**	
Designing Knowledge Representation	**X**			X
User acceptance testing and feedback gathering		**X**		X
Parsing of initial facts			**X**	
System development	**X**	X		