YaleNUSCollege **Semester 1 Capstone Assessment**

Students should complete, electronically sign, and upload this form on Canvas. The capstone supervisor will then use Canvas to comment, and note a grade of S(atisfactory) or U(nsatisfactory). The capstone coordinator will collate and submit the S/U grades to registry. If a student's progress is Unsatisfactory, s/he must submit a work plan for the supervisor's approval, prior to the end of Week 2 of Semester 2. Only with this approval, may the student register for the Semester 2 capstone module. A grade of 'IP' will then be entered for Semester 1.

Capstone Project Title: **Learning Support for Writing Proofs in Coq**

Student Name: Jeremy Yew Ern Student ID: A0156262H

Supervisor Name: Prof Olivier Danvy Major: MCS

Student Self-Assessment
Which goals in your capstone proposal have been achieved thus far? Are you on track with your timeline? Which skills have you acquired or practiced? What problems, if any, have you encountered?
I have achieved the following goals: - Exploring history and context of related technologies. - Selecting specific syntax issues to prioritize and clearly stating problem. - Identifying different solutions, and their tradeoffs. - Selecting a solution. - Identifying different implementations, and their tradeoffs. - Exploring different types of parsers for different types of languages. - Defining a subset of Coq grammar. - Begin writing some Emacs code. - Implement first steps (run Coq shell on current buffer contents, call as command). In terms of my timeline: I am slightly behind my intended timeline. I need to make more progress on the following goals: - Use a specific parser generator to define a sublanguage of Coq. - Understand exactly what type of parser is needed for the sublanguage defined by my project. I have acquired the following skills: - Creating an effective short presentation, and delivering it. - Emacs editor: exploring internal documentation and source code. - Emacs lisp programming: basic syntax, writing Emacs lisp functions, creating Emacs hooks, creating Emacs commands, setting global variables. The problems I have encountered are: - Poor documentation for existing parser generators. Lack of clear examples or suitable existing implementations to follow. - Lack of familiarity with Emacs editor controls (rusty).
What goals will you tackle next semester? If you have faced challenges in Semester 1, how do you hope to overcome these in Semester 2? What academic skills do you aim to cultivate?
Next semester, I will tackle the following goals: - Use a specific parser generator to define a sublanguage of Coq. Start by defining a simpler sublanguage, like arithmetic expressions, and test that the generated parser prints the correct warnings. - Understand exactly what type of parser is needed for the sublanguage defined by my project. - Implement more syntax rules. Next semester, I will overcome problems faced so far by: - Spend more time reading the parser generator documentation and reading existing examples more carefully (the provided examples in the source code are complicated, overwhelming and undocumented, so I haven't looked very closely). - Deliberately practice Emacs editor controls more to rebuild muscle memory.

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I aim to cultivate:
- Better task decomposition. Break down overwhelming tasks into smaller subtasks that are easier to make progress on and evaluate.
- More consistency and focus. Sparse, intense intervals of work makes me lose context and procrastinate.

Student's Signature :  Date: 21/11/19