Phase 1 Project Selection Status Report

Name: Edward James Arthur While

College: Fitzwilliam

User Identifier: ejaw2

Director of Studies: Dr. Robert Harle

1. My current project idea is to formalise the λμ-calculus in Agda, dealing with the issue of handling bound variables by using an intrinsically typed representation of lambda terms. Agda is a dependently typed functional programming language, that is also a proof assistant based on the propositions-as-types paradigm, my project will include research into how to use Agda effectively as I have no experience in using it prior to doing this project. I will then use this formalisation to prove certain theorems such as Type Preservation and Progress, for the calculus in Agda.

2. My current planned supervisor is Dima Szamozvancev

3. I plan to use my own computer for the bulk of the work, mainly for convenience. I may also use computers at my college if I need to. The software that I will need for the project, such as Agda and the Agda standard library is open source, I will also be using the open source agda-mode for VSCode for development.