

Topics in SWE: Project Proposal

a. Topic and Approach

The topic I would like to focus on is **intelligent code completion systems**. I would first like to evaluate existing systems, such as the ones proposed in [1] (Python) and [2] (Java). I plan on doing this by testing them myself and noticing strengths and possible improvement opportunities. Then, I would like to use the approach presented in [1] to attempt a C++ code completion system.

b. Motivation

It was difficult to settle on a topic, but I found that when coding in C++ using Visual Studio Code I always have to scroll through suggestions of code completion (which usually appear in alphabetical order). I looked into the issue and found the papers mentioned above. I think it is a topic worth exploring both for my personal curiosity and possible time saved in the future. I also think it falls within the scope of this course, as many of the students are programmers who I am sure would like to dedicate more of their time to the logic of their code rather than debugging due to spelling errors.

c. Research Papers + Repos (tentative)

1. [Pythia: AI-assisted Code Completion System](#)
2. [Open Vocabulary Learning on Source Code with a Graph-Structured Cache](#)