Changes to SWUM

Manual Analysis

Research Question

How can the SWUM implementation be generalized for other programming languages?

Current Focus: C++ method signatures

SWUM Overview

SWUM Phrases for C++ Program

SWUM Information Collector

1. Take a C++ program and parse it to make an abstract syntax tree (AST)

2. Give the AST to the SWUM information collector, which produces the raw input for SWUM

3. Run the SWUM extractor on this information; this gives SWUM phrases for the C++ program

4. Analyze each phrase and note the changes that must be made and which SWUM components can remain unchanged

Outcomes

- Developed C++ information collector for input to SWUM extractor
- Suggested SWUM modifications

Next Steps and Future Work

- Expand SWUM to include more features of C++
- Create an Eclipse plug-in from the SWUM for C++ implementation
- Investigate other programming languages
  - Loosely typed languages, e.g. Python

Preliminary Observations

Keywords

- C++ has additional keywords, e.g. virtual.
- Public and private are not explicit for each statement in C++.

Classes

- Many functions are not contained within a class, unlike Java.
- Some class methods are defined outside the class.

Return types

- Similar implications as Java, no major differences

Constructors

- C++ also has destructors, which have a similar signature as constructors.

Parameters

- C++ AST visitor does not visit parameters under functions, which are necessary to extract relevant information.