Muse Design Document

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Motivation

Muse (or μSE) is a mutation-based soundness evaluation framework, which systematically evaluates Android static analysis tools to discover, document, and fix flaws by leveraging the well-founded practice of mutation analysis. Muse was originally written by Richard Bonnett in Fall 2017, and the motivation of this design document is to sketch out a refactoring of Muse so that it better reflects the design comments in its academic paper.

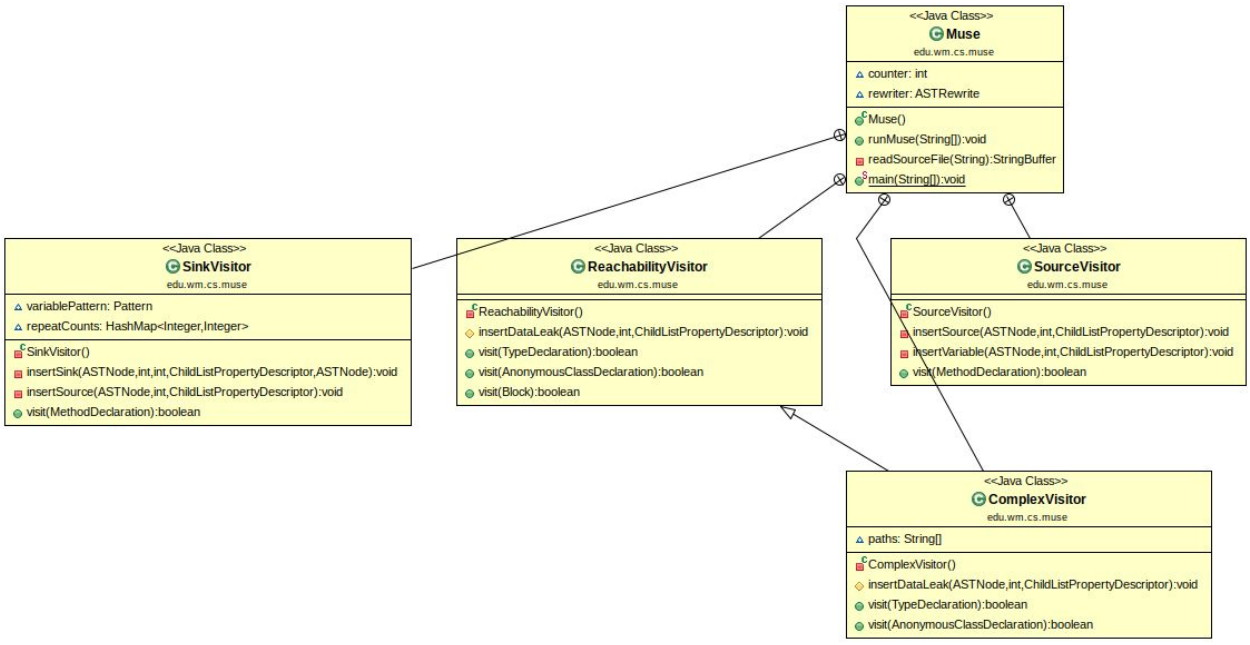
Key Terms

Security Operator: a description of the unwanted behavior that the security tool being analyzed aims to detect. For example, data leaks.

Mutant: code that represents the target unwanted behavior

Mutation Scheme: the specific methods for choosing where to apply security operators to inject mutations within Android apps.

Current Implementation Class Diagram



Implementation Details

[still under work]

Questions?

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