

Lab: Code Verification and Z3 Theorem Prover

(Week 7)

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Quiz-2, Exercise-2 and Assignment-2

- Quiz-2 with 25 questions (5 points), **due date: 23:59 Wednesday, Week 7**
 - Logical formula and predicate logic
 - Z3's knowledge and translation rules
- Lab-Exercise-2 (5 points), **due date: 23:59 Wednesday, Week 7**
 - **Goal:** Manually translate code into z3 formulas/constraints and verify the assertions embedded in the code.
 - **Specification:**<https://github.com/SVF-tools/Software-Security-Analysis/wiki/Lab-Exercise-2>
 - **SVF Z3 APIs:** <https://github.com/SVF-tools/Software-Security-Analysis/wiki/SVF-Z3-API>
- Assignment-2 (25 points) **due date: 23:59 Wednesday, Week 8**
 - **Goal:** automatically perform assertion-based verification for code using static symbolic execution.
 - **Specification:**<https://github.com/SVF-tools/Software-Security-Analysis/wiki/Assignment-2>

Methods to Be Implemented

You need to implement the following four functions in `Assignment-2.cpp`:

- `SSE::reachability`
- `SSE::collectAndTranslatePath`
- `SSE::handleCall`
- `SSE::handleRet`
- `SSE::handleNonBranch`
- `SSE::handleBranch`
- The required implementation parts are indicated with TODO comments and you only need to fill up the code template if a method is partially implemented.