

AIM-VBS

AI-driven Modernization of Legacy Visual Basic Script



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MOTIVATION & GOALS

Translating **outdated or legacy software components** with **artificial intelligence** is increasingly straightforward. However, many AI-based approaches **do not verify whether the generated code preserves the original behavior**. The **AIM-VBS** project goes beyond simple translation by combining **AI-supported modernization** with **systematic verification** of the translated software. The project enables the **translation of legacy software components**, **verifies that the translated software preserves the intended behavior**, and **increases test coverage by automatically generating additional test cases**.

Project FactBox

Project Name AIM-VBS
Project ID MFP II O.1
Duration 10

Area 2
Area Orchestration

Project Lead
DI Dr. Ouidane Guiza

APPROACH

The approach uses the previously developed **Log Injection for Misbehavior Analysis (LIMA)** tool to **translate** legacy code and **verify** the generated output. Since LIMA relies on **test executions** and the existing system had only **13% test coverage**, the approach was divided into two phases.

- Phase 1: Translate and verify** methods for which test executions are available.
- Phase 2: Generate additional test cases** for the legacy system to **increase test coverage**.

CONTRIBUTION

Scientific contribution

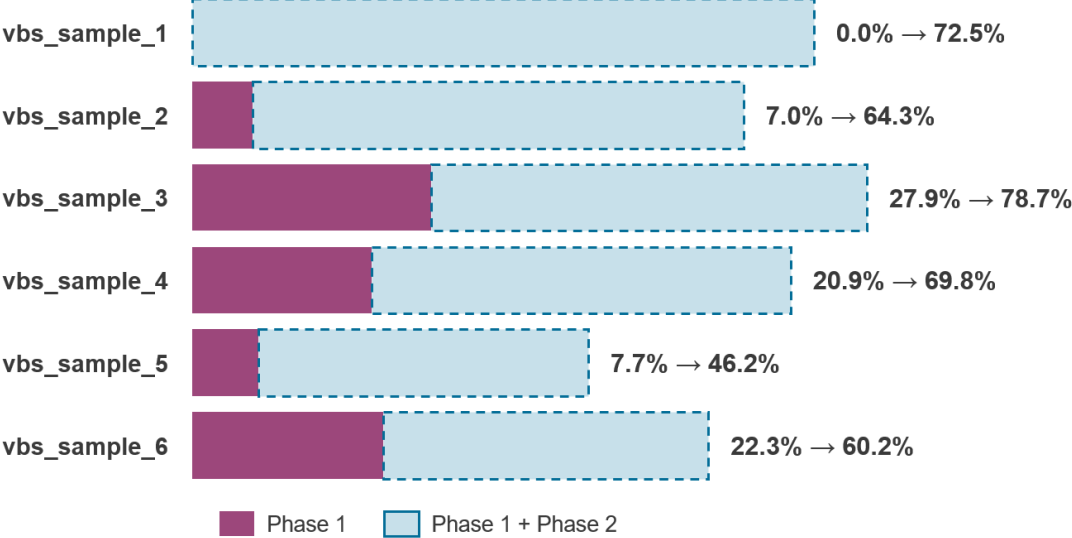
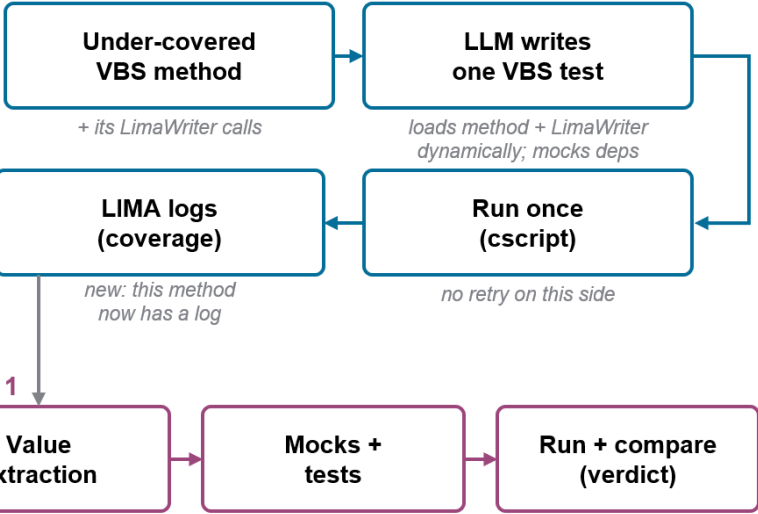
- Developed test generation strategies for increasing test coverage before the translation step
- Developed an automated translation pipeline from legacy code with integrated feedback loops based on behavioural comparison to ensure functional equivalence
- Evaluate the translation pipeline on Microsoft visual basic script to python

Economic contribution

- Streamlined modernization step of legacy software specifically for the translation step

SYSTEM ARCHITECTURE & RESULTS

PHASE 2



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