Mini-C Obfuscator (C Version) - Report

1. Introduction

This report describes the implementation and functionality of a Mini-C obfuscator written in C. The tool reads a Mini-C program and generates an obfuscated version using several code obfuscation techniques such as variable renaming, dead code insertion, and control flow flattening.

2. How to Run

To compile and run the Mini-C Obfuscator:

$ make

$ make run

3. Obfuscation Techniques Used

1. Variable/function renaming

2. Dead code insertion

3. Control flow flattening using while + switch

4. Code Summary

main.c

This is the entry point of the program. It calls the 'obfuscate' function defined in obfuscator.c.

obfuscator.c

Contains the core logic of the obfuscator. It opens the input Mini-C file, applies transformations, and writes the obfuscated code to an output file. Techniques include renaming identifiers, inserting dead code, and transforming control flow.

helpers.c

Provides utility functions, such as 'replace_word', which replaces variable names in a line of code.

5. Example Transformations

The obfuscator performs transformations such as replacing variable names (e.g., 'sum' becomes 'fxz'), inserting dummy code blocks that do not affect program semantics, and flattening control flow into a 'while' loop with 'switch' cases. These make the code harder to read and analyze statically.