Exploration #3

Due: May 2, 11:59pm

Overview

For this exploration you will examine constant folding and control flow optimizations performed by `gcc`.

Path 1

Generate an optimized version of the `path1.c` file (linked from the course website) on one of the department's 64-bit servers (`unix[11-14]`) using `gcc -S -O3 path1.c`.

In a file named `path1`, explain how the generated code properly determines the value that the function will return. In particular, explain the translation of the `if` statement.

Path 2

Generate an optimized version of the `path2.c` file (linked from the course website) on one of the department's 64-bit servers (`unix[11-14]`) using `gcc -S -O3 path2.c`.

In a file named `path2`, explain the differences between the code generated for this function and that generated for the function in the first part. Explain the reason for such differences and, again, explain the translation of the `if` statement.

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Submit your `path1` and `path2` files to the `431exploration3` directory for the `akeen` account.