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CS 283: Systems Programming

H1 – Practice Problems in C

1. General Description of Assignment

In this assignment, we were tasked with 3 problems as an introduction to programming in C. The first problem had us print a file backwards. The second problem had us convert a decimal number to it’s binary form. The third problem had us count the number of bits in a long int. These problems are stored in the files p1.c, p2.c, and p3.c respectively.

The first problem, p1.c, should be run with the file name as the only command line argument to the program. The program can be run with the command “./p1.c test.txt”. The second problem, p2.c, should be run with the decimal number to be converted to a binary as the only command line argument. The program can be run with the command “./p2.c 10”. The third problem, p3.c, should be run with the long integer as the only command line argument. This program can be run with the command “./p3.c 243432”.

1. Hardware/Software Used

This assignment was developed on a 64-bit Windows 10 machine, but also tested on the tux servers. The assignment was completed using the vim editor in the terminal.

1. Testing Activities

My programs were tested with multiple values for each of the programs. Boundary cases were tested in order to catch any potential errors that could arise during the running of my programs.

1. Review

Overall, this lab was a very helpful introduction to the C programming language. Each question, while relatively simple coding wise, still required a decent amount of debugging practice in order to achieve the correct output. I have not had any experience with C prior to this class, so it was a bit of a struggle to learn how to do manual memory allocation.

1. Improvements

The only improvement that I would make to this lab is a bit of a clarification for the third question. The wording of the question was a little ambiguous so it was not completely clear what the question was looking for.