CSCI3240 Project 2: Reverse Engineering

1 Introduction

This project gives you a chance to reverse engineer a set of four mystery functions from disassembled machine code (Project2.s). Your task is to first identify what each mystery function does and then write an equivalent C code. You don't need to directly translate the assembly code to C.

2 Logistics

This is an individual project. All handins are electronic. Clarifications and corrections will be posted on the course D2L page.

3 Handout Instructions

Download the Project2.zip:
Goto D2L→ Course Page → Content tab → Table of Contents → Projects → Project 2 → Project2.zip

Start by copying Project2.zip to a (Protected) directory on a Linux machine in which you plan to do your work. Then give the following command:

```
\Project2$ unzip Project2.zip
```

This will cause two files to be unpacked in the directory: Project2.c and Project2.s. The only file you will be modifying is `Project2.c`.

The `Project2.c` file contains a skeletion for each of five mystery functions. The assembly code for each of the mystery functions are provided in the Project2.s file. Your assignment is to analyze the assembly code and identify what each mystery function intend to do. You will next, write the equivalent c code for each mystery function. Again, you don't need to directly translate the assembly code to C. Please don't include the main function in the Project2.c file. Graders will use a separate 'main.c' file containing the 'main' function to test your Mystery functions. If you'd like to test your code, you can create a 'main.c' file that includes the 'main' function, which calls the Mystery functions defined in this 'Project2.c' file. You don't need to submit the 'main.c' file.

4 Evaluation

Your score will be computed out of a maximum of 100 points based on the following distribution:

20 Correctly identifying the mystery functions.

20 Detailed documentation on your approach.

50 Correctness of the C codes.

10 Insightful comments and programming style.

5 Handin Instructions

1. You need to submit three files.

- **a.** `Project2.c`: You will write the c codes for the mystery function here. Make sure the main function is not included in the Project2.c file.
- **b.** `Project2Description.pdf`: In this document, you will provide:

    1. The description of what each mystery function does.
    Example:
    MysteryFunction1: Explain what MysteryFunction1 does here.
    MysteryFunction2:
    MysteryFunction3:
    MysteryFunction4:
    MysteryFunction5:

    2. Discussion on the approach(es) that you used to identify what the mystery function does.
- **c.** `AI_Disclaimer.pdf`: This file should contain your Honor Code AI Disclaimer as described in the course syllabus.

3. Provide adequate comments on your c code.

4. Upload the requested files in **"Project2"** dropbox in D2L.

5. Please refer to the **"Project2"** Dropbox for the deadline information.