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LAB 1 — C Language and Linux Environment

In this first lab, you will re-familiarize yourself with C programming in a Linux environment. Your job is to write small c programs in Linux environment. In this class, we will use unbuntu, which is an old version operating system with unpatched holes. You can download the installation CD from no starch press at `https://www.nostarch.com/hackingCD.htm`.

As a student in an advanced course, this first assignment should be easy for you. If you have difficulty writing the programs or getting them to compile and run on the Linux machines, *please contact me for help as soon as possible!*

Due: 12:00am Thursday, October, 2017.

Problem 1. Guessing Game - Questioner

For this assignment, you will create a small program in C. The program will play a simple number-guessing game with the user via a text-based (command line) interface. The game goes like this: First, the questioner asks the user's name ("What is your name?"). Then it asks the user to guess the magic number, including the user's name in the question. If the user's guess is correct, the program prints "SUCCESS". If the guess was too high, it prints "TOO HIGH", and if the user guessed too low, it says "TOO LOW". After this, the questioner simply exits.

For example, if user Bob guesses 123 but the magic number is 12345, then the dialog looks like this: (Prompts from your program in **bold**, user input in *italics*)

What is your name?

Bob

What is the magic number, Bob?

123

TOO LOW

The correct answer for the magic number can be different for each user. Your program should load the answers from the file called **answers.txt**. The format for this file is very simple. Each line contains the information for one user; the first entry on the line is the user's name, followed by a space (a character with value 0x20), and finally the user's magic number as a decimal integer. If the user's name is not found in answers.txt, the default value for the magic number is 12345. For your development and debugging work, we will give you an example file for answers.txt.

Turn in this program as a single C source file called **questioner.c** via the hw1 submission link on moodle.

Problem 2. Guessing Game - Guesser

In this problem, your task is to write a simple C program that "plays" the guessing game run by your program questioner.c.

Your program must respond to the two prompts described above with appropriate answers, that is, a name and a number. It's OK if your program provides the same name and number each time; alternatively, you can make it guess a new random number on each invocation.

For example: (Output from your program in **bold**, its input in *italics*)

What is your name?
Bob
What is the magic number, Bob?
78901
TOO HIGH

If your program receives an input string other than the prompts described in Problem 2 above, it should reply with three question marks (**???**) and then exit. For example:

What is your name?
Bob
Do you like apples, Bob?
???

Turn in this program as a single C source file called **guesser.c** via the hw1 submission link on moodle.

Submitted by Dr. Yanwei Wu on October 1, 2017.