California State University, Sacramento
College of Engineering and Computer Science

Computer Science 35: Introduction to Computer Architecture

Fall 2017 – Lab 4 – *Secret Number Game*

Overview

You have a wonderful job at a computer games company. Besides spending your days getting paid to play, you get to help write some simple games. For this lab, The Boss wants you to create a game based on the classic "Secret Number.

This game is also quite easy. The computer generates a random number (traditional from 1 to 100). Then the player will attempt to guess it. After each guess, the computer tells the player whether their guess is too high or too low. Once they get it correct, the game is complete.

Basically, you are going to write a loop that will continue until the guess is equal to the correct answer. Inside the loop, you need to check if the correct answer is too high or too low and display a message. The exact wording is up to you. Make sure to print a third message when the loop is complete.

The Game

The computer will generate a random number between 1 and 100. How do you do that? The csc35.o object library contains a subroutine called "random". Pass the range of numbers into %rax. It will return a random number from 1 to n-1 into %rax.

Please read the documentation!

Your solution doesn't to look exactly like the example below. But, make sure to fulfill all the requirements. You can use this output to test if your program is correct. The underlined text is user input.

```
Guess: 30
You are too low

Guess: 50
You are too high

Guess: 45
You are too high

Guess: 40
You are too low

Guess: 42
Correct!  It took you a total of 5 guesses!
```

You must think of a solution on your own. The requirements are as follows:

1. Generate a random number
2. Loop until they enter the correct answer
3. Display a message if their guess is too high or too low in there.
4. Display a message congratulating the player when they get the correct answer.
5. Display the total number of player guesses

Useful UNIX/Linux Commands

Command	Description
`nano` *filename*	Opens the specified file in the "nano" text editor
`mkdir` *foldername*	Creates a new folder with the specified name
`cd` *foldername*	Changes to (moves into) the specified folder
`cp` *oldfile newline*	Make a copy of an existing file
`ls`	Lists the files in current folder
`pine`	Opens the text-based e-mail application "Pine". You can e-mail your assignments it. You don't have to, but it is an option.
`as -o` *objectfile asmfile*	Assemble the file into an object file
`ld -o` *exefile objectfile*	Link and create an executable file from an object file