**CS150 – Introduction to Computer Science I**

**Assignment 3 (30 pts)**

Topics: control structures (selection and repetition)

**Problem 1**: Guessing Game (15 pts)

Save your file as *lastnameGuessGame.py* and submit by the due date.

**Directions:**

Write a program for a guessing game. The program should randomly pick a number between 1 and 50 (inclusive). The user will try to guess the number. The program will give hints to the user if the guess is too high or too low. The program will continue until the user guesses the number, keeping track of how many guesses it takes for the user to get the number correct. For this problem you may write all code in the main function and then call the main function.

Note: If the user guesses in one try, the word ‘**try’** in the output message should be singular. If the user takes more than one guess, it should be plural “**tries**”.

**Comments**:

* Include comments at the beginning to include purpose, author, date, filename, etc.
* Include comments throughout the program to explain segments of code. For example, each function should have a brief comment explaining the purpose of the function

Sample run 1: User input in bold

\*\*\*\*\* NUMBER GUESSING GAME \*\*\*\*\*

Guess a number between 1 and 50: **25**

You got it in 1 try.

Sample run 2: User input in bold

\*\*\*\*\* NUMBER GUESSING GAME \*\*\*\*\*

Guess a number between 1 and 50: **25**

Too high - Try again: **10**

Too high - Try again: **2**

Too low - Try again: **7**

Too high - Try again: **5**

Too high - Try again: **4**

Too high - Try again: **3**

You got it in 7 tries.

Test your code with various times to make sure it is working correctly.

Save your file as *lastnameGuessGame.py* and submit by the due date.

**Problem 2**: Salary Option (15 pts)

Save your file as *lastnameSalaryOption.py* and submit by the due date.

**Directions:**

Suppose you are given the following two salary options:

* Option 1: $20000 per year, with a raise of $1000 at the end of each year.
* Option 2: $10000 per half-year, with a raise of $250 at the end of each half-year.

Write a program to calculate the amount you would receive for the next ten years under each option to determine the best choice. Your program should implement 3 functions:

* calcOption1
* calcOption2
* main

The program output is shown in the Sample run below.

**Comments**:

* Include comments at the beginning to include purpose, author, date, filename, etc.
* Include comments throughout the program to explain segments of code. For example, each function should have a brief comment explaining the purpose of the function

Sample run 1: User input in bold

Option 1 earns $245,000

Option 2 earns $247,500

Save your file as *lastnameSalaryOption.py* and submit by the due date.