Overview

Using Python, write a simple text-based implementation of the popular word game, *Hangman*. You may work in groups with a maximum of 3 members.

Hangman is a game for two players. One player thinks of a word; and the other player tries to guess it. The word is initially represented by a row of dashes (one dash per letter). The guessing player successively suggests a letter that is believed to occur in the word.

If the suggested letter does occur in the word, the other player writes down the letter in all of its correct positions.

If the suggested letter does not occur in the word, the other player draws a part of a stick figure of a man hanged on gallows.

The game ends when the guessing player completes the word, or the other player completes the stick figure.

Simplifying Assumptions

To simplify the implementation, the following assumptions are given:
- Only capital letters will be used.
- The word to be guessed cannot contain spaces.
- The stick figure is **unnecessary**. Instead, only the number of remaining incorrect guesses will be shown to the guessing player.

Specifications

1. Save your Python script as **hangman.py**.

2. Your Python script file should contain header information in comments, containing your full names, your ID numbers, and the date you completed your program. It should also contain a comment block for the certification of authorship, directly following the header information. Follow this code certification template for project 1.

3. A scaffold file has been provided to serve as a guide for completing this project. You have the option to make use of this file either wholly or in part. You are NOT required to pattern your solution based on this scaffold. You may choose to define additional functions or remove existing ones. Or you may choose to ignore this completely and create your own implementation.

4. Place your Python script file in a folder named according to the convention:
   Project1-Surname1-Surname2-Surname3 (write surnames in alphabetical order)

5. In the folder created above, include a ***properly accomplished*** Certificate of Authorship named **Project1-COA-Surname1-Surname2-Surname3.pdf**.
   a. Title of Submission: Project 1 - Hangman
   b. Type of Submission: Program

6. Archive your folder in zip format. Properly archiving it will produce a file named **Project1-Surname1-Surname2-Surname3.zip**.

7. Submit it through Moodle by **Friday, 30 October 2020, 11:59 PM.**

Simulation

A sample execution of a working program is shown below. Lines in red are user input. Lines in blue are comments, and are not part of the output. Your program must follow the prompts and output format as seen in these simulations. Study them carefully.

```
LET'S PLAY HANGMAN!

Please enter a word for the other player to guess:
HELLO
```
(At this point, we assume that we are able to successfully hide the word from the other player.)

```
Guess the word, 6 guess(es) left: -----
Unused letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
E

Guess the word, 6 guess(es) left: -E---
Unused letters: ABCDFGHIJKLMNOPQRSTUVWXYZ
I

Guess the word, 5 guess(es) left: -E---
Unused letters: ABCDFGHJKLMNOPQRSTUVWXYZ
O

Guess the word, 5 guess(es) left: -E--O
Unused letters: ABCDFGHJKLMNPQRSTUVWXYZ
T

Guess the word, 4 guess(es) left: -E--O
Unused letters: ABCDFGHJKLMNPQRSUVWXYZ
S

Guess the word, 3 guess(es) left: -E--O
Unused letters: ABCDFGHJKLMNPQRUVWXYZ
R

Guess the word, 2 guess(es) left: -E--O
Unused letters: ABCDFGHJKLMNPQUVWXYZ
P

Guess the word, 1 guess(es) left: -E--O
Unused letters: ABCDFGHJKLMNQUVWXYZ
L

Guess the word, 1 guess(es) left: -ELLO
Unused letters: ABCDFGHJKMNQUVWXYZ
H

Guess the word, 1 guess(es) left: HELLO
Unused letters: ABCDFGJKMNQUVWXYZ
CONGRATULATIONS! YOU WIN!
```

Another sample execution of a working program is shown below.

```
LET'S PLAY HANGMAN!

Please enter a word for the other player to guess:
WEATHER

Guess the word, 6 guess(es) left: -------
Unused letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
A

Guess the word, 6 guess(es) left: --A----
Unused letters: BCDEFGHIJKLMNOPQRSTUVWXYZ
C

Guess the word, 5 guess(es) left: --A----
Unused letters: BDEFGHIJKLMNOPQRSTUVWXYZ
D

Guess the word, 4 guess(es) left: --A----
Unused letters: BEFGHIJKLMNOPQRSTUVWXYZ
E

Guess the word, 4 guess(es) left: -EA--E-
Unused letters: BFGHIJKLMNOPQRSTUVWXYZ
B

Guess the word, 3 guess(es) left: -EA--E-
Unused letters: FGHIJKLMNOPQRSTUVWXYZ
K

Guess the word, 2 guess(es) left: -EA--E-
Unused letters: FGHIJLMNOPQRSTUVWXYZ
Z

Guess the word, 1 guess(es) left: -EA--E-
Unused letters: FGHIJLMNOPQRSTUVWXY
T

Guess the word, 1 guess(es) left: -EAT-E-
Unused letters: FGHIJLMNOPQRSUVWXY
L

Guess the word, 0 guess(es) left: -EAT-E-
Unused letters: FGHIJMNOPQRSUVWXY
SORRY, YOU ARE HANGED!
```

Another sample execution of a working program is shown below.

```
LET'S PLAY HANGMAN!

Please enter a word for the other player to guess:
BANANA

Guess the word, 6 guess(es) left: ------
Unused letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
2

Please choose a valid letter. (Invalid input will NOT lead to guess deduction.)

Guess the word, 6 guess(es) left: ------
Unused letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
A

Guess the word, 6 guess(es) left: -A-A-A
Unused letters: BCDEFGHIJKLMNOPQRSTUVWXYZ
G

Guess the word, 5 guess(es) left: -A-A-A
Unused letters: BCDEFHIJKLMNOPQRSTUVWXYZ
V

Guess the word, 4 guess(es) left: -A-A-A
Unused letters: BCDEFHIJKLMNOPQRSTUWXYZ
G

You have already used that letter. (Reused letters will NOT lead to guess deduction.)

Guess the word, 4 guess(es) left: -A-A-A
Unused letters: BCDEFHIJKLMNOPQRSTUWXYZ
B

Guess the word, 4 guess(es) left: BA-A-A
Unused letters: CDEFHIJKLMNOPQRSTUWXYZ
N

Guess the word, 4 guess(es) left: BANANA
Unused letters: CDEFHIJKLMOPQRSTUWXYZ
CONGRATULATIONS! YOU WIN!
```

Rubrics

Correct implementation of all the features will merit a highest possible grade of B (81-86), provided that:
- Project defense is successful
- Project is submitted on time and all submission instructions are followed

Successful implementation of any or all of these additional features will give students the chance to earn a higher grade:

- Case-insensitive comparison

- Set the number of guesses allowed

  ```
  Please enter a word for the other player to guess:
  LIGHT

  Please enter the number of guesses allowed:
  7

  Guess the word, 7 guess(es) left: -----
  Unused letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
  T
  ```

- Play again

  ```
  Guess the word, 1 guess(es) left: HELLO
  Unused letters: ABCDFGJKMNQUVWXYZ
  CONGRATULATIONS! YOU WIN!

  Would you like to play again? (Yes/No)
  Yes (If the player inputs No, the program ends.)

  Please enter a word for the other player to guess:
  GLASS

  Please enter the number of guesses allowed:
  5

  Guess the word, 5 guess(es) left: -----
  Unused letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
  Y
  ```

- Program chooses a random word from a list

  ```
  LET'S PLAY HANGMAN!

  Would you like me to choose a word for you? (Yes/No)
  Yes

  Here is your word: CHOCOLATE

  Please enter the number of guesses allowed:
  8

  Guess the word, 8 guess(es) left: ---------
  Unused letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
  C
  ```

The students may implement additional features for the chance at a higher grade, but note that these additional features will NOT serve as substitutes for the required features in this project. You must still implement the required features in the manner described in this specification.

Note that aside from implementing the features (both required and additional) the students must also be able to clearly explain their source code. This will be done during project defenses, which will count for 15 points of the total grade.

Project defense sign-up sheets will be released during the week of the submission deadline.

IMPORTANT REMINDERS:
- You must cite all of your sources in the Certificate of Authorship. This includes other individuals you have consulted with in any manner. You must explain in the citation the extent of the help you received from these individuals.
- There is no need to implement a formal citation style. You simply need to indicate your sources clearly.
- Do not implement anything that you are unable to understand, whether it is from outside sources or other individuals, because you will be asked to perform code tracing during the project defense.
- There is no need to cite the slides and videos provided in this course.
- There is no need to cite your instructor(s) for this course.