Final Assignment Report

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MODULE: Data Mining

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RULES:

1. I have added tips and required learning resources for each question, which helps you to solve the exercise.
2. Finish the assignment in **group of two students (Any group find copying/sharing from other group or internet will get '0' points!!!)**
3. Once you finish the Assignment **convert your .ipynb file into PDF** (both .ipynb and .pdf file will be required)
4. Create **.zip** file and include your two files:
   A. Your Jupyter Notebook file (**002_Python_Assignment_02.ipynb**)
   B. Your PDF converted file of 002_Python_Assignment_02.ipynb (**002_Python_Assignment_02.pdf**)
5. Name your .zip file as your student numbers and names.

example: **03180210907632 03180210907633 Milou Nikos**和三 宋朝**.zip**

Python Assignment 02

Question: Hangman Game

Write a python program to create a Hangman game.

About Game: Going back to our old school days, some of the pen-paper games were always a top for our leisure time. In Hangman user has to guess words according to the guesses determined and as soon as they lost all their wrong guesses, they were hanged (not really, but can put 🙂). In the game of Hangman, the player only has 7 incorrect guesses (head, body, 2 legs, and 2 arms, hang before they lose the game.

Structure:

1. In Part 1, you will require to load a random word from a **dictionary**.
2. In Part 2, you will require the logic for guessing the letter and displaying that information to the user.

After completing part 1 and part 2 you will need to add the following features:

Features:

- Only let the user guess 7 times, and tell the user how many guesses they have left. Example: "You have 6 guesses left"
- No restriction to uppercase and lowercase letters.
  - Example: user can guess "a" and it will be equal to "A" or vice-versa.
- If user guesses a number or a special character, don't penalize them - ask them again to choose only letter.
  - Example: user guess "9" or "?" then ask user again to choose a letter.
- If the guess letter appears more than one time in the word display it.
  - Example: Word is "Apple" and user guess the word 'p' so -> **P P ...**
- Keep track of the letters the user guessed incorrectly. If the user guesses a letter they already guessed, don't penalize them - let them guess again.
- Display some picture art for the Hangman. This is challenging - do the other parts of the exercise first!
- When the player wins or loses, let them start a new game.

Expected/Similar Output:

```
**********************
Welcome to Hangman!
**********************
Guess one letter at a time
Game is not case sensitive

_ _ _ _ _ _ _ _ _ _

What is your guess?: a

_ _ A _ _ _ A _ _ _

What is your guess?: b
Please chose just a letter: e
e is not in this word!
  ___ |
  |   |
  |

You have 6 guesses left!
your previous wrong guesses: ['E']

_ _ A _ _ _ A _ _ _

What is your guess?: a
You have already guessed a!

_ _ A _ _ _ A _ _ _

What is your guess?: h
h is not in this word!
  ___ |
  |   |
  |   O
  |

You have 5 guesses left!
your previous wrong guesses: ['E', 'H']

_ _ A _ _ _ A _ _ _

What is your guess?: d
d is not in this word!
  ___ |
  |   |
  |   O
  |   /|\

You have 4 guesses left!
your previous wrong guesses: ['E', 'H', 'D']

_ _ A _ _ _ A _ _ _

What is your guess?: b
b is not in this word!
  ___ |
  |   |
  |   O
  |   /|\\

You have 3 guesses left!
your previous wrong guesses: ['E', 'H', 'D', 'B']

_ _ A _ _ _ A _ _ _

What is your guess?: k

K _ A _ _ _ A _ _ _

What is your guess?: r

R _ A _ _ _ A R _ _

What is your guess?: t
t is not in this word!
  ___ |
  |   |
  |   O
  |   /|\\
  |   / \

You have 2 guesses left!
your previous wrong guesses: ['E', 'H', 'D', 'B', 'T']

R _ A _ _ _ A R _ _

What is your guess?: l
l is not in this word!
  ___ |
  |   |
  |   O
  |   /|\\
  |   / \ \

You have 1 guesses left!
your previous wrong guesses: ['E', 'H', 'D', 'B', 'T', 'L']

R _ A _ _ _ A R _ _

What is your guess?: p
p is not in this word!
  ___ |
  |   |
  |   O
  |   /|\\
  |   / \ \
_ |_

You have 0 guesses left!
You lose!
your previous wrong guesses: ['E', 'H', 'D', 'B', 'T', 'L', 'P']

The word was ['R', 'A', 'N', 'D', 'A', 'R', 'D', 'O']

Would you like to play again? [y/n]: n
```

In [ ]:

```
# Solution:

import random

word_filename = "wordlist.txt"
def loadWords():
    print("Loading word list from file...")
    inFile = open(word_filename, 'r')
    # line: string
    line = inFile.readline()
    # wordlist: list of strings
    wordlist = line.split()
    return wordlist

def getRandomWord(wordlist):
    # This function returns a random string from the passed list of strings.
    wordIndex = random.randint(0, len(wordlist) - 1)
    return wordlist[wordIndex]

def displayBoard(missedLetters,correctLetters,secretWord):
    if len(missedLetters) == 0:
        print('  ___ |')
        print('  |   |')
    if len(missedLetters) == 1:
        print('  ___ |')
        print('  |   |')
        print('  |   O')
    if len(missedLetters) == 2:
        print('  ___ |')
        print('  |   |')
        print('  |   O')
        print('  |   |')
    if len(missedLetters) == 3:
        print('  ___ |')
        print('  |   |')
        print('  |   O')
        print('  |  /|\')
    if len(missedLetters) == 4:
        print('  ___ |')
        print('  |   |')
        print('  |   O')
        print('  |  /|\')
        print('  |  / ')
    if len(missedLetters) == 5:
        print('  ___ |')
        print('  |   |')
        print('  |   O')
        print('  |  /|\')
        print('  |  / \')
    if len(missedLetters) == 6:
        print('  ___ |')
        print('  |   |')
        print('  |   O')
        print('  |  /|\')
        print('  |  / \ ')
        print('_ |_ ')
    print()
    if len(missedLetters) != 0:
        print('you previous wrong guesses', end= ':')
    for letter in missedLetters:
        print(letter.upper(), end= ',')
    print()

    blanks = '_ ' * len(secretWord)

    for i in range(len(secretWord)): # replace blanks with correctly guessed letters
        if secretWord[i] in correctLetters:
            blanks = blanks[:i] + secretWord[i] + blanks[i+1]

    for letter in blanks: # show the secret word with spaces in between each letter
        print(letter.upper(),end= ' ')
    print()

def getGuess(alreadyGuessed):
    # Returns the letter the player entered. This function makes sure the player entered a single letter and n
    while True:
        print('What is your guess?',end='')
        guess = input()
        guess = guess.upper()
        if len(guess) != 1:
            print('Please chose just a letter.')
        elif guess in alreadyGuessed:
            print('You have already guessed',guess.lower())
        elif guess not in 'ABCDEFGHIJKLMNOPQRSTUVWXYZ':
            print('Please enter a letter.')
        else:
            return guess

def playAgain():
    # This function returns True if the player wants to play again; otherwise, it returns False.
    print("Would you like to play again? [y/n]:")
    return input().lower().startswith('y')

for i in range(23):
    print("",end="")
print()
print("Welcome to Hangman!")
for i in range(23):
    print("",end="")
print()
print("Guess one letter at a time")
print("Game is not case sensitive")
words =loadWords()
missedLetters = ''
correctLetters = ''
secretWord = getRandomWord(words)
gameIsDone = False
for i in range(len(secretWord)):
    print('_ ',end="")
print()
while True:

    # Let the player enter a letter.
    guess = getGuess(missedLetters + correctLetters)

    if guess in secretWord:
        correctLetters = correctLetters + guess
        blanks = '_ ' * len(secretWord)

        for i in range(len(secretWord)): # replace blanks with correctly guessed letters
            if secretWord[i] in correctLetters:
                blanks = blanks[:i] + secretWord[i] + blanks[i+1]

        for letter in blanks: # show the secret word with spaces in between each letter
            print(letter.upper(),end= ' ')
        print()

        # Check if the player has won.
        foundAllLetters = True
        for i in range(len(secretWord)):
            if secretWord[i] not in correctLetters:
                foundAllLetters = False
                break
        if foundAllLetters:
            print('Yes! The secret word is "' + secretWord + '"! You have won!')
            gameIsDone = True
        else:
            print(guess.lower(),"is not in this word!")
            displayBoard(missedLetters, correctLetters, secretWord)
            missedLetters = missedLetters + guess
            print("You have", 7 - len(missedLetters), "guesses left!")

        # Check if player has guessed too many times and lost.
        if len(missedLetters) == 7:
            print("You ran out of guesses.")
            print("your previous wrong guesses:",list(missedLetters.upper()))
            print("The word was",list(secretWord.upper()))
            gameIsDone = True

        # Ask the player if they want to play again (but only if the game is done).
        if gameIsDone:
            if playAgain():
                missedLetters = ''
                correctLetters = ''
                gameIsDone = False
                secretWord = getRandomWord(words)
            else:
                break
```

```
**********************
Welcome to Hangman!
**********************
Guess one letter at a time
Game is not case sensitive

_ _ _ _ _ _ _ _ _ _
What is your guess?:B  _ _
Please enter a letter.
What is your guess?:e
e is not in this word!
  ___ |
  |   |

_ A _ _ _ _ _ _ _ _
You have 6 guesses left!
What is your guess?:a
You have already guessed a !
What is your guess?:h
h is not in this word!
  ___ |
  |   |
  |   O

_ A _ _ _ _ _ _ _ _
You have 5 guesses left!
What is your guess?:d
d is not in this word!
  ___ |
  |   |
  |   O
  |  /|\

_ A _ _ _ _ _ _ _ _
You have 4 guesses left!
What is your guess?:b
b is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\

_ A _ _ _ _ _ _ _ _
You have 3 guesses left!
What is your guess?:k

K A _ _ _ _ _ _ _ _
What is your guess?:r

R _ A _ _ _ _ R _ _
What is your guess?:t
t is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\
  |  / \

R _ A _ _ _ _ R _ _
You have 2 guesses left!
What is your guess?:l
l is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\
  |  / \ \

R _ A _ _ _ _ R _ _
You have 1 guesses left!
What is your guess?:p
p is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\
  |  / \ \
_ |_

R _ A _ _ _ _ R _ _
You have 0 guesses left!
You lose!
your previous wrong guesses: ['E', 'H', 'D', 'B', 'T', 'L', 'P']
The word was ['R', 'A', 'N', 'D', 'A', 'R', 'D', 'O']

Would you like to play again? [y/n]:
```

```
**********************
Welcome to Hangman!
**********************
Guess one letter at a time
Game is not case sensitive

_ _ _ _ _ _ _ _ _ _
What is your guess?:B  _ _
Please enter a letter.
What is your guess?:e
e is not in this word!
  ___ |
  |   |

_ A _ _ _ _ _ _ _ _
You have 6 guesses left!
What is your guess?:a
You have already guessed a !
What is your guess?:h
h is not in this word!
  ___ |
  |   |
  |   O

_ A _ _ _ _ _ _ _ _
You have 5 guesses left!
What is your guess?:d
d is not in this word!
  ___ |
  |   |
  |   O
  |  /|\

_ A _ _ _ _ _ _ _ _
You have 4 guesses left!
What is your guess?:b
b is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\

_ A _ _ _ _ _ _ _ _
You have 3 guesses left!
What is your guess?:k

K A _ _ _ _ _ _ _ _
What is your guess?:r

R _ A _ _ _ _ R _ _
What is your guess?:t
t is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\
  |  / \

R _ A _ _ _ _ R _ _
You have 2 guesses left!
What is your guess?:l
l is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\
  |  / \ \

R _ A _ _ _ _ R _ _
You have 1 guesses left!
What is your guess?:p
p is not in this word!
  ___ |
  |   |
  |   O
  |  /|\\
  |  / \ \
_ |_

R _ A _ _ _ _ R _ _
You have 0 guesses left!
You lose!
your previous wrong guesses: ['E', 'H', 'D', 'B', 'T', 'L', 'P']
The word was ['R', 'A', 'N', 'D', 'A', 'R', 'D', 'O']

Would you like to play again? [y/n]:
```