

CS-231 PROGRAMMING LANGUAGE PARADIGMS

GAME OF HANGMAN

Basics of C, Arrays, Functions and Strings

Requirements and Assumptions:

The game Hang Man would be almost exactly like the contemporary game of Hang Man. The program generates a secret word and the user has N (=6) turns to guess a letter of that word until all the letters of the word are revealed. Every time the user guesses a letter that is not in the word, the user loses a chance. If the user fails to reveal all the letters of the word within N chances, the game ends with program winning. If the user guesses all the letters of the secret word before N chances are lost, the user wins the game.

The name of the dictionary file is read into the program via a prompt. The program chooses a word from the given dictionary, and the program tells the user how many letters are in the word by displaying corresponding number of dashes (-). In addition, the program also tells the user the number of words in the dictionary that match the currently revealed letters. The program prints all the letters already guessed by the user so that the user does not pick the same letter again. When the user guesses a letter that is in the word, every occurrence of that letter is displayed.

You must have arrays and functions in your program to demonstrate your ability to use these constructs. At least two arrays must be used one for storing the word which initially contains dashes and the other for storing the words from the dictionary. Once the dictionary words are loaded, you must have functions to count number of words in the dictionary with partial matches.

Sample Run 1:

```
Welcome to Hang Man. Please provide the name of the input file:
```

```
dictionary.txt
```

```
Opened dictionary.txt and loaded the words.
```

```
Word:  - - - - -
```

```
You have 6 chances left
```

Letters you have used:
Number of matches in the dictionary 3422

Your Guess: **a**

Sorry, There is no a in the word.
Word: - - - - -
You have 5 chances left
Letters you have used: a
Number of matches in the dictionary 3422

Your Guess: **e**

Yes, There is an e in the word.
Word: - - - - e
You have 5 chances left
Letters you have used: a e
Number of matches in the dictionary 1455

Your Guess: **o**

Sorry, There is no o the word.
Word: - - - - e
You have 4 chances left
Letters you have used: a e o
Number of matches in the dictionary 1455

Your Guess: **i**

Yes, There is an i the word.
Word: - - i - e
You have 4 chances left
Letters you have used: a e o i
Number of matches in the dictionary 608

Your Guess: **b**

Sorry, There is no b the word.
Word: - - i - e
You have 3 chances left
Letters you have used: a e o i b
Number of matches in the dictionary 608

Your Guess: **t**

Yes, There is a t the word.
Word: - - i t e
You have 3 chances left
Letters you have used: a e o i b t
Number of matches in the dictionary 304

Sorry, There is no r the word.
Word: - - i t e
You have 2 chances left
Letters you have used: a e o i b t r
Number of matches in the dictionary 304

Your Guess: **n**

Sorry, There is no n the word.
Word: - - i t e
You have 1 chances left
Letters you have used: a e o i b t r n
Number of matches in the dictionary 304

Your Guess: **l**

Sorry, There is no l the word.
Word: - - i t e
You have lost all of your chances
Letters you have used: a e o i b t r n l
Number of matches in the dictionary 304

The secret word was --- spite -----

Sample Run 2:

Welcome to Hang Man. Please provide the name of the input file:

dictionary.txt

Opened dictionary.txt and loaded the words.

Word: - - - - -
You have 6 chances left
Letters you have used:
Number of matches in the dictionary 1800

Your Guess: **a**

Sorry, There is no a in the word.

Word: - - - - -

You have 5 chances left

Letters you have used: a

Number of matches in the dictionary 1800

Your Guess: **e**

Yes, there is an e in the word

Word: : - - - - - e -

You have 5 chances left

Letters you have used: a e

Number of matches in the dictionary 145

Your Guess: **r**

Yes, there is an r in the word

Word : - - - - - e r

You have 5 guesses left

Letters you have used: a e r

Number of matches in the dictionary 25

Your Guess: **s**

Sorry, There is no s in the word.

Word : - - - - - e r

You have 4 guesses left

Letters you have used: a e r s

Number of matches in the dictionary 25

Your Guess: **t**

Yes, there is a t in the word

Word : - - - - - t e r

You have 4 guesses left

Letters you have used: a e r s t

Number of matches in the dictionary 4

Etc.

INTERNAL REQUIREMENTS:

1. No recursion, structures, and linked lists can be used in this assignment.
2. You can use the functions in the string package by including <string.h>.
3. Use the following code to open and read from a file.

```
FILE *inputFile;
inputFile = fopen ("data.txt", "r");
int num1;

if ( inputFile == NULL )
    printf (" input file could not be opened.\n");
else
    fscanf(inputFile, "%d", &num1);

fclose (inputFile);
```