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/*
* Exercise for Lesson 4 : Hangman
*
* It is the simple word game, Hangman.
*/

#define _CRT_SECURE_NO_WARNINGS 1
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
#include <string.h>

#define true 1
#define false 0

// The list of words that the hangman game can choose from
// You can always add your own words just for fun.
char words[][20] = {
    "hangman",
    "computer",
    "programming",
    "microsoft",
    "visual",
    "studio",
    "express",
    "learning",
};

// This function returns true if the given letter is within the given word;
// it returns false otherwise.
int isletterinword(char
    word[], char letter)
{
    int i;
    for (i = 0; i < strlen(word); i++) {
        if (word[i] == letter) {
            return true;
        }
    }
    return false;
}


// This function returns true if the secret word has been guessed correctly.
// Otherwise, it will return false.
int iswordcomplete(char secretword[], char rights[])
{
    int i, j;
    for (i = 0; i < strlen(secretword); i++) {
        int CharInRight = false;
        for (j = 0; j < strlen(rights); j++) {
            if (secretword[i] == rights[j]) {
                CharInRight = true;
                break;
            }
        }
        if (CharInRight == false) {
            return false;
        }
    }
    return true;
}
```

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// This function prints the hangman based on the number of wrong guesses the
// player has made so far.
void printhangman(int numofwrongs)
{
    // Line 1
    printf("\t  ______\n");

    // Line 2
    printf("\t  |     |\n");

    // Line 3
    printf("\t  |     +\n");

    // Line 4 - left arm, head and right arm
    printf("\t  |");
    if (numofwrongs > 0) printf("    \\");
    if (numofwrongs > 1) printf("O");
    if (numofwrongs > 2) printf("/");
    printf("\n");

    // Line 5 - body
    printf("\t  |");
    if (numofwrongs > 3) printf("     |");
    printf("\n");

    // Line 6 - left leg and right leg
    printf("\t  |");
    if (numofwrongs > 4) printf("    /");
    if (numofwrongs > 5) printf(" \\");
    printf("\n");

    // Line 7
    printf("\t  |\n");

    // Line 8
    printf("\t__|__\n");
}

// This function prints an array of letters as a list of letters separated by
// spaces.
void printletters(char letters[])
{
    int i;

    for (i = 0; i < strlen(letters); i++) {
        printf("%c ", letters[i]);
    }
}

// This function prints the screen of the game.
// If a letter in the secret word has been guessed correctly, the
// letter will be shown; otherwise, the letter will be shown as '_'.
void printscreen(char rights[], char wrongs[], char secretword[])
{
    int i;

    // Clear the screen
    for (i = 0; i < 25; i++)
        printf("\n");

    // Print the hangman
    printhangman(strlen(wrongs));
    printf("\n");
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    // Print the correct and wrong guesses so far
    printf("Correct guesses: ");
    printletters(rights);
    printf("\n");
    printf("Wrong guesses: ");
    printletters(wrongs);
    printf("\n\n\n");

    // Print the secret word
    printf("\t");
    for (i = 0; i < strlen(secretword); i++) {
        if (isletterinword(rights, secretword[i])) {
            printf("%c ", secretword[i]);
        }
        else {
            printf("_ ");
        }
    }
    printf("\n\n");
}

int main()
{
    // This is the index of the secret word in the word list, which is defined
    // in the global variable words
    int secretwordindex;

    // This array stores the letters the player has guessed correctly so far
    char rights[20];

    // This array stores the letters the player has guessed incorrectly so far
    char wrongs[7];

    // This value is used to put the current guess from the player in the game
loop
    char guess;

    srand(time(0));
    secretwordindex = rand() % 7;
    //printf("The secret word is %s\n", words[secretwordindex]);

    int i;
    for (i = 0; i < 20; i++) {
        rights[i] = '\0';
    }
    for (i = 0; i < 7; i++) {
        wrongs[i] = '\0';
    }

    while (strlen(wrongs) < 6 && iswordcomplete(words[secretwordindex], rights)
== false) {
        // Print the hangman screen
        printscreen(rights, wrongs, words[secretwordindex]);

        // Ask for the guess
        printf("\nPlease enter your guess: ");
        scanf(" %c", &guess);

        if (isletterinword(words[secretwordindex], guess)) {
            rights[strlen(rights)] = guess;
        }
        else {
            wrongs[strlen(wrongs)] = guess;
        }
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    }

    // Print the final hangman screen
    printscreen(rights, wrongs, words[secretwordindex]);

    if (strlen(wrongs) < 6 && iswordcomplete(words[secretwordindex], rights) ==
true) {
        printf("You have won!\n");
    }
    else {
        printf("You have lost.\n");
    }
}
```