**Project 2**

**<The Hangman>**

**CSC-5 48101  
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Date: 12/1/2016**

**Introduction**

Title: The Hangman

Rule:

- This is a very simple game, you have 6 times to guess for the secret word. If your guesses is wrong, the man got hang. Otherwise you win the game.

**Summary**

Project size: about 322 line  
The number of variables: about 30  
The number of method: 9

This project includes many concepts that we learned from the chapters in the book  
It took me almost two weeks because I had to do a lot of research for concept parts that we’ve not learned yet.  
I got many troubles and still haven’t find the way to fix it yet.

The project still need many more code because it is somewhat finish.  
I’m satisfied with this project, it was a good experience.

**Description**

The main point of this program is that it challenge the knowledge of the player by guessing and understanding the secret word.

**pseudocode:**

Display menu

Create a group of words

pick a random word from the group as the secret word

show player the letters he or she has guessed

show player how much of the secret word he or she has guessed

get player's guess

while player has entered a letter that he or she has already guessed

get player's guess

Add the new guess to the group of used letters

if the guess is in the secret word

tell the player the guess is correct

update the word guessed so far with the new letter otherwise

increment the number of incorrect guesses the player has made

Tell the player the guess is incorrect

drawing the hangman

if the player has made too many incorrect guesses

Tell the player that he or she has been hanged

otherwise

Congratulate the player on guessing the secret word

**Constructs & Concepts Utilized**

iostream Library



cstdlib Library



ctime Library



string Library



fstream Library



vector Library



algorithm Library



Data Types:



Conditional Statements:



Loops:



**Flowchart**

Because the flowchart is too big, so I will attach it in a separate file in the zip files.

**Program**

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File: main

Author: Minh Quan Tang

Created on December 1, 2016, 7:46 PM

Purpose: The Hangman Games

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//System Libraries

#include <iostream> //Input/Output objects

#include <string> //Function

#include <vector> //Vector

#include <algorithm> //Ranges of elements

#include <ctime> //Time

#include <cstdlib> //Random

#include <fstream> //I/O

using namespace std; //Name-space used in the System Library

//User Libraries

//Global Constants

//Function Prototypes

//Execution Begins Here!

vector<char> board;

vector<string> body (6);

vector<char> wrongChar (6);

int correct=-1;

void menu();

string wordSelect(vector<string>& wordBanktxt)

{

string word;

if (wordBanktxt.size()>0)

{

srand(time(0)); //Random number seed

int random=rand()%(wordBanktxt.size()+1)+0;

word=wordBanktxt[random];

}

else

{

string wordBank[10]={"videogames","program","computer","science","light","shark","waterpolo","password","blackjack","elephant"};

srand(time(0)); //Random number seed

int rD=rand()%(10+1)+0;

word=wordBank[rD];

}

return word;

}

void pressEnter(string conWord)

{

cout << string(3,'\n'); // Makes screen cleaner and more readable

cout << "Press 'Enter' to " << conWord << "." << endl; //conWord is the action

cin.get(); //Take user input

}

void help()

{

cout << "\*\*\*\*\*\*\*\*\*\*" << endl;

cout << "\*\*\*Help\*\*\*" << endl;

cout << "\*\*\*\*\*\*\*\*\*\*" << endl;

string(3,'\n');

cout << "\t The rule is very simple: \nYou have 6 guesses in order to figure out the secret word, if you got all the words, you win. Otherwise you got hang." << endl;

cin.ignore();

pressEnter("go back to menu");

}

void promptLose(string word)

{

//Draw the face

cout << " ###########" << endl;

cout << "| |" << endl;

cout << "| (X) (X) |" << endl;

cout << "| > |" << endl;

cout << "| \_\_\_\_\_ |" << endl;

cout << "|\_\_\_\_\_\_\_\_\_\_\_|" << endl;

cout << "Sorry... You got hang! The word was '" << word << "'!" << endl;

pressEnter("go back to menu");

}

void promptWin()

{

//Congrats user for winning

cout << string(3, '\n');

cout << "Congrats! You got the word so you didn't die!" << endl;

pressEnter("go back to menu");

}

char setBoard(int length)

{

for(int i=0; i<6; i++)

{

wrongChar[i]=' ';

}

board.resize(length);

for(int i=0; i<board.size(); i++)

{

board[i]='\_';

}

for(int i=0; i<body.size(); i++)

{

body[i]=' ';

}

}

//This section draw a hangman

void printBoard(int incorrect)

{

if (incorrect>0)

{

if (incorrect==1)

{

body[0]="0";

}

if (incorrect==2)

{

body[1]="|";

}

if (incorrect==3)

{

body[2]="/";

}

if (incorrect==4)

{

body[3]="\b\\ ";

}

if (incorrect==5)

{

body[4]="/";

}

if (incorrect==6)

{

body[5]="\\";

}

}

cout << "\t " << "|========||" << endl;

cout << "\t " << "| ||" << endl;

cout << "\t " << body[0] << " ||" << endl;

cout << "\t" << body[2] << "";

cout << body[1] << " ";

cout << body[3] << " ||" << endl;

cout << "\t" << body[4] << " ";

cout << body[5] << " ||" << endl;

cout << "\t" <<" ||" << endl;

cout << "\t" <<" =========" << endl;

cout << endl;

for(int i=0; i<board.size(); i++)

{

cout << board[i];

cout << " ";

}

cout << endl;

cout << endl;

cout << "Incorrect Letters" << endl;

cout << "\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_" << endl;

cout << "| "<< wrongChar[0] <<"| "<< wrongChar[1] <<"| "<< wrongChar[2] <<"| "<< wrongChar[3] <<"| "<< wrongChar[4] <<"| "<<wrongChar[5]<<"| "<< endl;

cout << "-------------------" << endl;

}

int replaceChar(string word,char guess,int tempCorrect,int incorrect)

{

//This section initialize the input

int numLetter=0;

int length=word.length();

vector <char> guessRep (length);

for(int i=0; i<length; i++)

{

if (word[i]==guess)

{

numLetter++;

board[i]=guess;

}

}

if (numLetter==1)

{

cout << "There is " << numLetter << " " << guess << "!" << endl;

tempCorrect++;

correct=0;

}

if (numLetter==0)

{

cout << "There are no " << guess << "'s!" << endl;

correct=1;

if (incorrect<=6)

{

wrongChar[incorrect]=guess;

}

}

if (numLetter>=2)

{

cout << "There are " << numLetter << " " << guess << "'s!" << endl;

tempCorrect=tempCorrect+numLetter;

}

cin.ignore();

pressEnter("continue");

return tempCorrect;

}

int playGame()

{

//This section use wordBank

pressEnter("continue");

vector <string> wordBank;

ifstream fin;

string tempWord;

if (fin.is\_open())

{

cout << "Successfully opened Filed!" << endl;

pressEnter("continue");

while(fin >> tempWord)

{

wordBank.push\_back(tempWord);

}

fin.close();

wordSelect(wordBank);

}

else

{

cout << "No wordBank file found. Using default words!" << endl;

pressEnter("continue");

}

char guess;

string word=wordSelect(wordBank);

int length=word.length();

int tempCorrect=0;

int incorrect=0;

int counter=-1;

setBoard(length);

while(true)

{

printBoard(incorrect);

cout << "Guess: ";

cin >> guess;

tempCorrect=replaceChar(word,guess,tempCorrect,incorrect);

if (correct==1)

{

incorrect++;

}

if(tempCorrect==length)

{

promptWin();

break;

}

if(incorrect==6)

{

promptLose(word);

break;

}

}

//This section tell the problem

if(tempCorrect>length || tempCorrect<0)

{

cout << "Uh Oh..." << endl;

cout << "~~~~~~~~" << endl;

cout << "The program came across a problem." << endl;

cout <<"Exiting...";

cout << "tempCorrect: " << tempCorrect << endl;

cout << "---------------" << endl;

cout << "incorrect: " << incorrect << endl;

cout << "---------------" << endl;

exit(0);

}

}

void menu()

{

int tempChoice;

//This section for player choice

cout << "\*\*\*\*\*\*\*\*\*\*\*\*\*\*" << endl;

cout << "\*\*\*\*\*MENU\*\*\*\*\*" << endl;

cout << "\*\*\*\*\*\*\*\*\*\*\*\*\*\*" << endl;

string(3,'\n');

cout << "\t 1) Play" << endl;

cout << "\t 2) Help" << endl;

cout << "\t 3) Exit" << endl;

cin >> tempChoice;

if(tempChoice==1)

{

playGame();

}

if(tempChoice==2)

{

help();

}

if(tempChoice==3)

{

exit(0);

}

}

int main()

{

//Welcome the player

cout << "----------------------" << endl;

cout << "#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#" << endl;

cout << "# Welcome to Hangman #" << endl;

cout << "#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*#" << endl;

cout << "----------------------" << endl;

pressEnter("continue");

while(true)

{

menu();

}

//Exit

return 0;

}