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1  /*****
2  * Program Name:      Guessing Game! v0 (highcard.exe)
3  * Course:           CIS-61, C++ Language Programming
4  * Instructor:       C. Polen
5  * Project:          Assignment 4
6  * Created Date:     October 28th, 2010
7  * Due Date:         October 29th, 2010
8  * Created By:       Chad Philip Johnson
9  * Purpose:          Guess a random number between 1 and 100 in five tries or less
10 * Editor/IDE:       Notepad++
11 * Resoluton:        1024x768
12 * Compiler:         MinGW C++
13 * Acknowledgements: None
14 *****/
15
16 #include <iostream>
17 #include <conio.h> //for getch()
18 #include <cstdlib> //for rand() and srand() functions
19 #include <ctime>
20 using namespace std;
21
22 //declare functions (see descriptions below)
23 void fncCreateMagicNumber(int&);
24 bool fncGameLogic(int, int, int, int);
25
26 /*****
27 * Function Name:     main()
28 * Parameters:        None
29 * Return Value:      int
30 * Purpose:           Main program
31 *****/
32
33 int main()
34 {
35
36     srand( time(NULL) ); //Initiate random seed
37
38     //declare variables
39     int     intMagicNumber, intGuessedNumber; //variables for the random number and guessed number
40     int     intCount; //loop counter
41     const int MAXTURNS = 5; //modify this value to increase/decrease the number of tries the player has to win
42     bool    bInResult; //result of game logic (win or try again)
43     char    chrPrompt; //user input value to choose to play again
44
45     cout << endl << endl << "Welcome to the Guessing Game! (v0)" << endl << endl; //Description of the game and rules
46     cout << "The rules:" << endl;

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47 cout << "1) A number will be picked at random between 0 and 100." << endl;
48 cout << "2) You will have " << MAXTURNS << " attempts to guess this number." << endl;
49 cout << "3) For incorrect answers, a clue will be given to help with your next guess." << endl << endl;
50 cout << "...and you can play as many times as you want!" << endl << endl;
51
52 cout << "Press any key to continue..." << endl << endl;
53 getch(); //Pause to display the results until user presses any button to continue
54
55 do {
56
57     fncCreateMagicNumber(intMagicNumber); //call fncCreateMagicNumber function to create a random number
58
59     for(intCount = 0; intCount < MAXTURNS; intCount++) //loop for number of player guesses
60     {
61
62         do {
63             cout << "Enter a number between 0 and 100. (You have " << (MAXTURNS - intCount) << " tries left)" << endl <<
endl;
64             cin >> intGuessedNumber; //user input of guessed number
65
66             if(intGuessedNumber > 100 || intGuessedNumber < 0) //check for value outside of 0-100 range
67                 cout << endl << "The number must be between 0 and 100! Try again..." << endl << endl;
68
69             } while (intGuessedNumber > 100 || intGuessedNumber < 0); //prompt for new value when outside of range
70
71             //uncomment line below to display random number while guessing
72             //cout << intMagicNumber << endl << endl;
73
74             //call fncGameLogic function to test whether user value is too high, too low, or correct
75             blnResult = fncGameLogic(intMagicNumber, intGuessedNumber, intCount, MAXTURNS);
76
77             if(blnResult) //break loop when fncGameLogic returns TRUE (player guessed the correct number)
78                 break;
79
80             }
81
82             if(blnResult) //display congratulations message when fncGameLogic returns TRUE
83                 //NOTE: message only changes according to the number of attempts made (value for intCount variable +1)
84                 cout << "Congratulations! You guessed the correct number in " << ++intCount << " tries!" << endl << endl;
85             else
86                 //display losing message and correct number when fncGameLogic returns FALSE
87                 cout << "Sorry, you lose! The correct number is " << intMagicNumber << "!" << endl << endl;
88
89             cout << "Would you like to play again? (y/n) "; //Prompt user if he/she would like to play again
90             cin >> chrPrompt; //prompt for user input
91             cout << endl << endl << endl << endl;
92
93         } while (chrPrompt != 'n' && chrPrompt != 'N'); //continue playing so long as the player does not input 'n' or 'N'
94
95     return 0;

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96
97     }
98
99  /*****
100  * Function Name:      fncCreateMagicNumber()
101  * Parameters:        None
102  * Return Value:      None
103  * Purpose:           Create a random number between 0 and 100
104  *****/
105  void fncCreateMagicNumber(int& intRandomNumber)
106  {
107      //valid numbers are 0 through 100 (including 0 and 100)
108      intRandomNumber = (rand() % 101);
109
110  }
111
112  /*****
113  * Function Name:      fncGameLogic()
114  * Parameters:        None
115  * Return Value:      Boolean
116  * Purpose:           Determine whether player's guess is too high, too low, or correct
117  *****/
118  bool fncGameLogic(int intCorrectNumber, int intPlayerNumber, int intCurrentTurn, int intMaximumTurns)
119  {
120
121      //add 1 to intCurrentTurn (turn values start at 0)
122      ++intCurrentTurn;
123
124      if(intPlayerNumber > intCorrectNumber) { //report too high when player's guess is greater than the random number value
125          cout << "Your number is too high!" << endl << endl;
126          return 0; //return FALSE (game continues)
127      }
128      else if(intPlayerNumber < intCorrectNumber) { //report too low when player's guess is less than the random number value
129          cout << "Your number is too low!" << endl << endl;
130          return 0; //return FALSE (game continues)
131      }
132      else
133          return 1; //return TRUE, correct! (game ends)
134
135  }
136

```