**Take Home Program 10– Due on or before Sunday 5/26**

**Lottery.cpp –** Objective: Parallel Array

Write a program to randomly generates a lottery of a five-digit number ranging from 0 to 9 and store in W**inningDigits** array. The program asks the user to enter a five-digit number in a range from 0-9 and store in P**layerDigits** array.

Example of matching digits -

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Computer | 7 | 4 | 9 | 1 | 3 |
| User | 1 | 2 | 9 | 5 | 3 |

If a matching digit is 5, display “Congratulations! You won $10,000”

else if a matching digit is 4, display “You have 4 matching digits. You won $4,000”

else if a matching digit is 3, display “You have 3 matching digits. You won $3,000”

else if a matching digit is 2, display “You have 2 matching digits. You won $2,000”

else if a matching digit is 1, display “You have 1 matching digits. You won $1,000”

else display “Sorry, no match!”

**Sample output 1:**

Enter the 5 digits of your lottery number, separated by blanks: 5 4 8 1 32

Only digits between 0 and 8 are allowed.

Re-enter the 5 digits of your lottery number, separated by blanks: 5 4 8 1 3

Winning number: 11388

Your number : 54813

Sorry, no match!

**Sample output 2:**

Enter the 5 digits of your lottery number, separated by blanks: 0 8 5 6 6

Winning number: 02236

Your number : 08566

You have 2 matching digits. You won $2,000

**// Function prototypes**

**bool PlayerDigits(int[]);**

Called by main; to reads in the digits of the player and stores in an array that is passed to it.

If all digits are valid (within the range), return true. If not, false is returned.

**void WinningDigits(int[]);**

Called by main; to randomly generate the digits of the winning lottery number and stores in an array that is passed to it.

**int countMatches(int[], int[]);**

Called by main; counts the number of digits that matched in the user array and random array passed to it.

**Copy and paste your program (source) code and the outputs after this line**

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**\* Erik Gonzalez**

**CO SCI 575**

**Lottery.cpp**

**program to randomly generates a lottery of a five-digit number ranging from 0 to 9 and store in WinningDigits array. The program asks the user to enter a five-digit number in a range from 0-9 and store in PlayerDigits array.**

**\*/**

**#include <iostream>**

**#include <ctime>**

**using namespace std;**

**const int SIZE = 5;**

**void WinningDigits(int[]);**

**bool PlayerDigits(int[]);**

**int main()**

**{**

**int winningDigits[SIZE];**

**int userNums[SIZE];**

**int match = 0;**

**srand(time(NULL)); // Give the random generator**

**// a seed to start with**

**WinningDigits(winningDigits);**

**// Get 5 random digits and store them in winningDigits**

**PlayerDigits(userNums);**

**// Compare the corresponding elements in two arrays and**

**// count how many digits match.**

**for (int i = 0; i < 5; i++)**

**{**

**if (winningDigits[i] == userNums[i])**

**match++;**

**}**

**// Display winning digits**

**cout << "Winning digits : ";**

**for (int i = 0; i < 5; i++)**

**{**

**cout << winningDigits[i] << " ";**

**}**

**cout << endl;**

**// Display player's digits**

**cout << "player digits : ";**

**for (int i = 0; i < 5; i++)**

**{**

**cout << userNums[i] << " ";**

**}**

**cout << endl;**

**// Display number of matching digits**

**cout << "Matching digits: " << match << endl;**

**if (match == 1)**

**{**

**cout << "You have 1 matching digits.You won $1, 000" << endl;**

**}**

**else if (match == 2)**

**{**

**cout << "You have 2 matching digits.You won $2, 000" << endl;**

**}**

**else if (match == 3)**

**{**

**cout << "You have 3 matching digits. You won $3,000" << endl;**

**}**

**else if (match == 4)**

**{**

**cout << "You have 4 matching digits. You won $4,000" << endl;**

**}**

**else if (match == 5)**

**{**

**cout << "Congratulations! You won $10,000" << endl;**

**}**

**else**

**{**

**cout << "Sorry, no match!" << endl;**

**}**

**return 0;**

**}**

**bool PlayerDigits(int digits[])**

**{**

**bool found = false;**

**cout << "Enter the 5 digits of your lottery number, separated by blanks :";**

**for (int i = 0; i < SIZE; i++)**

**{**

**cin >> digits[i];**

**}**

**{**

**for (int i = 0; i < SIZE; i++)**

**{**

**if (digits[i] < 0 || digits[i] > 8)**

**{**

**found = true;**

**}**

**else if (digits[i] < 0 || digits[i] > 8)**

**{**

**cout << "Enter the 5 digits of your lottery number, separated by blanks :";**

**for (int i = 0; i < SIZE; i++)**

**{**

**cin >> digits[i];**

**}**

**found = false;**

**}**

**}**

**return found;**

**}**

**}**

**void WinningDigits(int winningDigits[])**

**{**

**for (int i = 0; i < 5; i++)**

**{**

**winningDigits[i] = 0 + rand() % 9;**

**}**

**}**

**Enter the 5 digits of your lottery number, separated by blanks :7 6 4 3 5**

**Winning digits : 4 1 6 6 7**

**player digits : 7 6 4 3 5**

**Matching digits: 0**

**Sorry, no match!**

**Press any key to close this window . . .**