CSE102 - Introduction to Programming

Assignment #2, Due date: 5 May Sunday, at 23:59

Note: This assignment effects overall 20% of your final grade. So you should definitely submit this assignment.
Note that, **similarity test (jplag)** will be applied to all homeworks. Copying and cheating will cause getting zero grade.
*Assignment#2 must be prepared in C programming language. You must upload a file with .c extension.

Numbers Matching Game

In this project, you will write the code of a matching game using C programming language. The game should randomly generate a 4X4 matching numbers matrix with numbers between 0 and 9. There is only one player in the game.

"a" matrix is a sample 4X4 matrix. Each number has a pair in the matrix. There are two 1,2,3,4,5,6,7 and 8 in the matrix.	int a[4][4]={{5,7,8,6}, {4,5,2,4}, {2,8,7,6}, {3,3,1,1}};

1. (10 pts) The matrix must be generated randomly at the beginning. The generated matrix must have exactly the same properties. If you can not generate the matrix just give constant initial values to a matrix, to complete the rest of the assignment.
2. (5 pts) Print the game board at the beginning of the game. A sample UI may be as in Figure 1. The numbers are hidden at the beginning. 0,1,2,3 values are the x and y coordinates of each item.
3. (10 pts) Print the updated board in each iteration. Display the Game Board in **a separate function** other than main function.

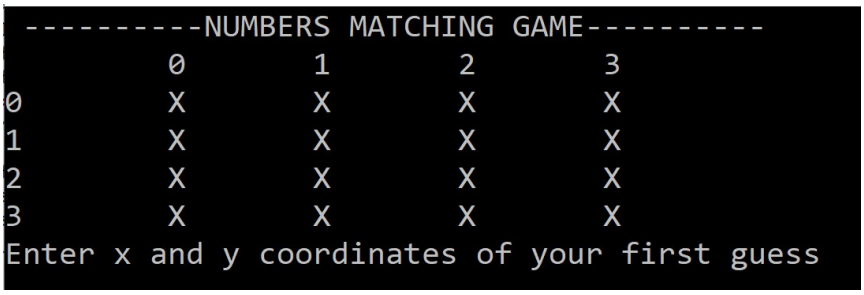

Figure 1- Number matching game sample user interface

The user must enter the x and y coordinates of the item that she/he wants to see. An example screenshot from game is in Figure 2. If the user/player enters 0,0 than the element at coordinate a[0][0] becomes visible and it is "5" in the example. The user enters 0,1 for the second guess and the element at coordinate a[0][1] becomes visible and it is "7".

4. (5 pts) Two elements in corresponding coordinates must become visible.
5. (10 pts) If two elements are not matching than turn them into invisible in the next iteration.

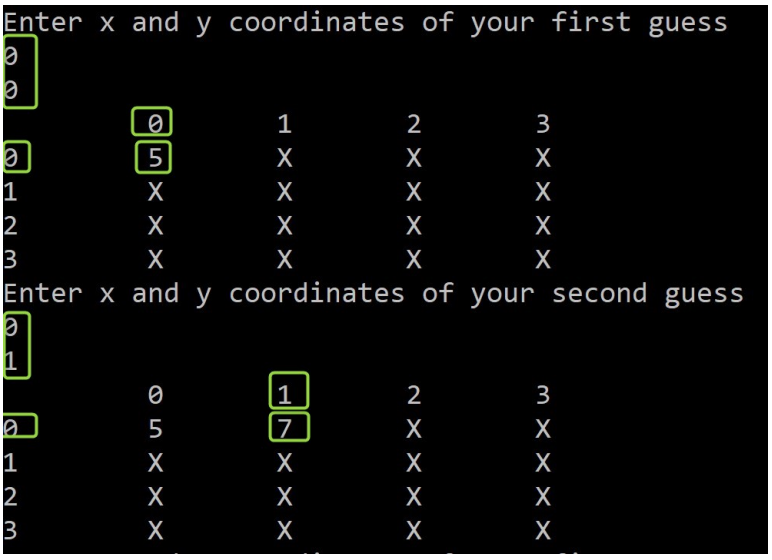

Figure 2- Sample screenshot from game

6. (15 pts) If two elements are matching, they must become invisible in the next iteration, until the end of the game.
7. (10 pts) All found numbers must be added to "found numbers" array. This array must be printed after each successful match as illustrated in Figure 3.

In Figure 3, the user types the coordinates of the number "5" and she/he is able to find a match. "CORRECT GUESS" screen is printed. Found numbers array is printed. 5 removed from the board and updated board is printed.

8. (10 pts) The user must be prompted to enter new guesses till the end of the game.
9. (5 pts) Allow the user to play the game or quit the program in each step. If the user enters -1 the program must end.

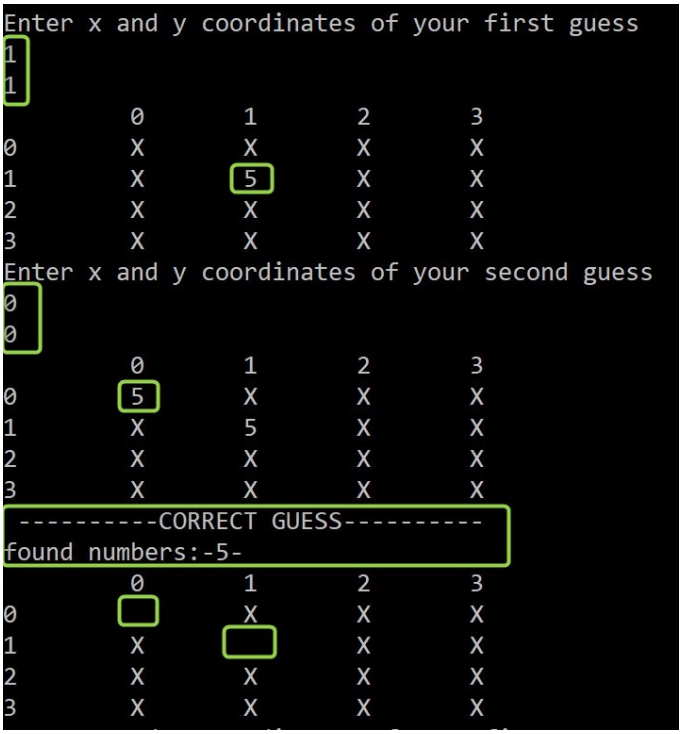

Figure 3- Sample correct guess screen

When the user finds all matching numbers the game ends. Print the empty board at the end of the game.

10. (10 pts)Print congratulations message and print the total number of tries as in Figure 4.

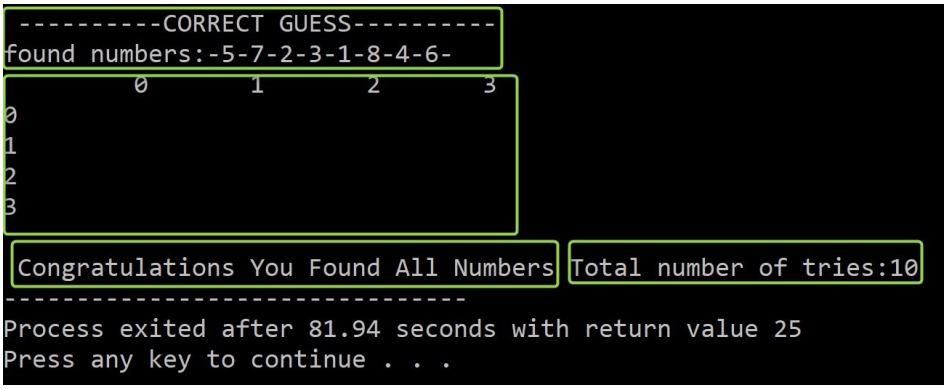

Figure 4- Final screen of the game

11. (10 pts) Prepare a report in docx or pdf format that contains the necessary screenshots. Include appropriate comments throughout your code to explain important steps. A sample report file is attached. Check and edit the file according to your project.

Important Remainders

- Please define all variables at top, otherwise i need to update every single definition in your code, because it does not work on my machine. Don't define variables like →(for(~~int~~ i=0;i<n;i++))
- The homework must overlap with the content explained in this document. Do not get a ready code from anywhere, the similarity test can recognise it easily.
- Try to do your best.

Submission Details

Please send your projects on time. If you submit your project late, you will lose 5 points for each late days. Please keep this in mind and promptly start working on your projects.

You are going to submit a single zip file that is composed of a .c file and a report fil via aduzem. Name the file as yournameyoursurname_studentnumber (example→ gozdealp_2007900011.rar or gozdealp_2007900011.zip)

You are required to exhibit an individual effort on this homework. In other word, everyone will send a separate homework for assignment#2. Similarity test (jplag) will be applied to all homeworks. In any forms of copying and cheating all parties will get zero grade from assignment#2.

Good Luck!