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BLM1552
BBG - II
Semester Project
(Due to the date of final exam)

Important Note: This document might be updated to answer your FAQ, so please frequently check website for updates and check the version number of document to see if it is updated.

SUBJECT

You will implement the NUMBER CRASH game. This game will be played only by one player. The details of the system are given below. Please read them carefully and strictly conform to these details while implementing the system.

NUMBER CRASH GAME

The player aims at making the best score. Your program will randomly produce a matrix consisting of numbers. In each step, the player would exchange the position of two numbers either in vertical or horizontal direction. Afterwards, the system would check for the given structures within the matrix. If any of the structure is found, the total of each cell would be added to the current score. Then, all numbers would be moved downwards to fill the empty cells. The empty cells that can not be filled should be filled with random generated numbers. Besides, your system should save the best score and update it when a better score is achieved as long as the program runs.

2. System Details

This section describes the inputs and the outputs of your implementation. You must design your implementation according to the rules mentioned in this section.

2.1 Initializing System Parameters

The program should ask several parameters to the player.

- The size of the matrix ($n \times n$, $n > 5$)
- The range of the numbers ($2 < \text{numbers} < 10$)
- The number and types of structures

2.2. Structures (I,T,L,C,E,F,O,U)

The available structures for the game are listed below

	X	
	X	
	X	

X	X	X
	X	
	X	

X		
X		
X	X	X

X	X	X
X		
X	X	X

X	X	X
X	X	
X	X	X

X	X	X
X	X	
X		

X	X	X
X		X
X	X	X

X		X
X		X
X	X	X

2.3 Menu

You need to design a menu regarding the game details. Do not forget to display the board after each match. See Demo Section.

2.4 How to get score?

After changing the position of two numbers, your system will make a search for the selected structures. You need to make a search in a meaningful order. You should search first for a structure with less probability (for example, the probability of E is less than F. Your program would assign a score for each type of structure based on their probability.

2.5 Messages During the Game

Note that displaying messages, such as ("You hit a T structure", " This match gives you 20 POINTS", "You current score is 123 etc.) is a part of your project.

2.6 Demo

1	2	1	2	2	1
2	2	3	1	6	6
2	1	5	2	5	5
6	4	3	3	4	4
5	6	5	2	2	2
6	5	5	1	1	1

Change 3,3,down

1	2	1	2	2	1
2	2	3	1	6	6
2	1	3	2	5	5
6	4	5	3	4	4
5	6	5	2	2	2
6	5	5	1	1	1

1	2	5	2	2	1
2	2	4	1	6	6
2	1	2	2	5	5
6	4	1	3	4	4
5	6	3	2	2	2
6	5	3	1	1	1

Change 4,3,right

1	2	5	2	2	1
2	2	4	1	6	6
2	1	2	2	5	5
6	4	3	1	4	4
5	6	3	2	2	2
6	5	3	1	1	1

1	2	1	2	2	1
2	2	4	1	6	6
2	1	3	2	5	5
6	4	5	1	4	4
5	6	4	2	2	2
6	5	2	1	1	1

3. TIPS AND HINTS

This term project requires the use of different functions of C programming language. You may implement your project using modules. However, it is **not** an **obligation**. If you implement it by functioning, you will get BONUS. You might have no information about some of these functions: You can still start to implement the project by partitioning it into modules and designing each module as flexible as possible.

This project can be partitioned into several modules and each module can be implemented separately, as long as you clearly define inputs and outputs of each module.