HACETTEPE UNIVERSITY

DEPARTMENT OF COMPUTER ENGINEERING BBM203

Name : Mehmet Taha

Surname : Usta

Number : 21527472

E~mail : b21527472@cs.hacettepe.edu.tr

Subject : Date Structures and Algorithms

Programming Language : C

1. Problem Definition

Find the hidden treasure within a treasure map designed as a matrix.

2. Methods and Solution

Firstly, the command line arguments are stored with variables. Then opens the input files and a blank output file is created. According to the user input, the 2d map matrix array is created using the malloc function. Then it starts to read the mapmatrix input file line by line. The "\ n" character at the end of the line is deleted when the file is read. The 2d map matrix array is filled by dividing each row. According to the user input, the 2d key matrix array is created using the malloc function. Then it starts to read the keymatrix input file line by line. The "\ n" character at the end of the line is deleted when the file is read. The 2d key matrix array is filled by dividing each row. After the 2d arrays are filled, the problem is solved by calling the recursion () function. After the problem is solved, the space covered by 2d sequences is released using the free () function in the for loop. Finally, the fclose () function closes the inputs and outputs, and the program ends.

3. Functions Implemented and not Implemented

Strtok() = Breaks string str into a series of tokens using the delimiter delim.

Fopen() = Function is used to open a file to perform operations such as reading, writing etc.

Atoi() = Converts the string argument str to an integer (type int).

Malloc()=Allocates the requested memory and returns a pointer to it.

Read_fill() = Reads file and fills 2d array with fgets() function.

While() = loop in C programming repeatedly executes a target statement as long as a given condition is true.

Fgets() = Function is used to read a file line by line.

Strlen() = Computes the length of the string str up to, but not including the terminating null character.

For() = A for loop is a repetition control structure that allows you to efficiently write a loop that needs to execute a specific number of times.

Recursion() = Recursion problem solving function.

Fprintf() = Function writes string into a file pointed by fp.

Free() = Deallocates the memory previously allocated by a call to calloc, malloc, or realloc.

Fclose() = Function closes the file that is being pointed by file pointer fp