

Name/Surname:

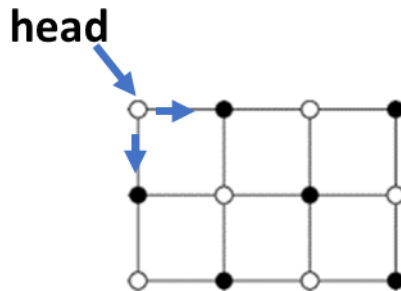
Number:

EHB208E

Data Structures & Programming
1st Homework

Autumn 2023

- 1) Write a “C” program that reads the **square** matrix data (integer numbers) from a given file (input.csv) and builds this matrix using a linked-list data structure as shown below. The size of the matrix is not known. **Do not use an array to define and store this matrix. Directly define the linked list from the given input.csv file.** Each node can have a maximum of three members in your linked list.



- (a) Print the matrix defined by a linked list to the “output_print.txt” file.
- (b) Print the diagonal elements of the given **square** matrix from the defined linked list to the “output.txt” file as the first line of the file.
- (c) Visit all the nodes of this linked list column by column and from top to bottom. Print the visiting result as a second line in the output.txt file as shown below.

The content of “input.csv” should be (*we will test your code by different input.csv files*):

2,9,4

0,4,0

9,0,12

The content of the “output_print.txt” file should be:

2,9,4

0,4,0

9,0,12

The content of the “output.txt” file should be:

2,4,12

2,0,9,9,4,0,4,0,12

Note 1: Turnitin can be used to check for any cheating. Please submit your own work!

Note 2: The **text** in the output files and **names of the output files** should be correctly typed. Not even extra spaces and characters are allowed. In such cases, you may not get any grade.

Note 3: “C” language code is expected. **C++ codes will be graded out of 50 points.**

Note 4: A single “C” code file is allowed to upload Ninova.

Note 5: Your code should be properly commented on. Uncommented code will get partial credit.

Important: You have to do your assignment alone. Code sharing among students or using code from any other sources are not allowed.

Upload your project’s C source files to “EHB208E Homework” field in your Ninova system.