

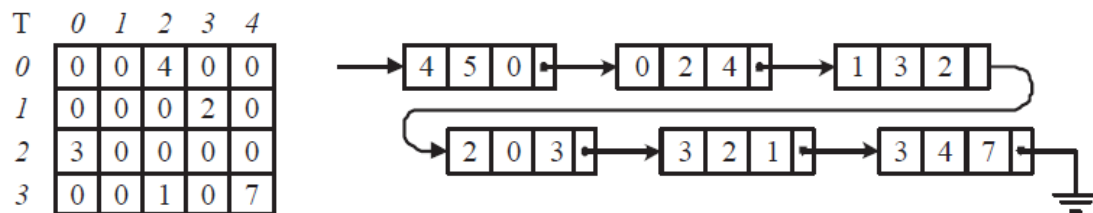
## ECE 321 Lab exercise - 10

Fall 2017

### Exercise

In computer science, a sparse array  $n \times m$  is an array in which most of the elements have the default value (usually 0 or null). The occurrence of zero-value elements in a large array is inefficient for both computation and storage. An array in which there is a large number of zero elements is referred to as being sparse.

A sparse table can be represented as a linked list where the nodes of the lists contain the non-zero values.



Write a program in C that transforms a sparse  $n \times m$  table to a linked list:

- Each node of the linked list will contain the position  $x$ , the position  $y$  and the non-zero value.
- The first node of the list will contain the dimensions of the sparse table and the value 0 as data.

The program should take as an input the sparse array, print the numbers, create the list and print it.