INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, NAGPUR
Department of Computer Science and Engineering

CSL 210 – Data Structures with Applications

Assignment 3

Date: 22nd August 2023

Implementation of Sparse Matrix using Linked List

Sparse Matrix can be implemented using either a singly linked list or multi-linked list structure**.** You can use any representation of your choice.

Q1. Write a C program to read and display the linked list representation of the sparse matrix. Print the row, column, and value of each non-zero element.

Implementation of Multi-precision Arithmetic using Linked List

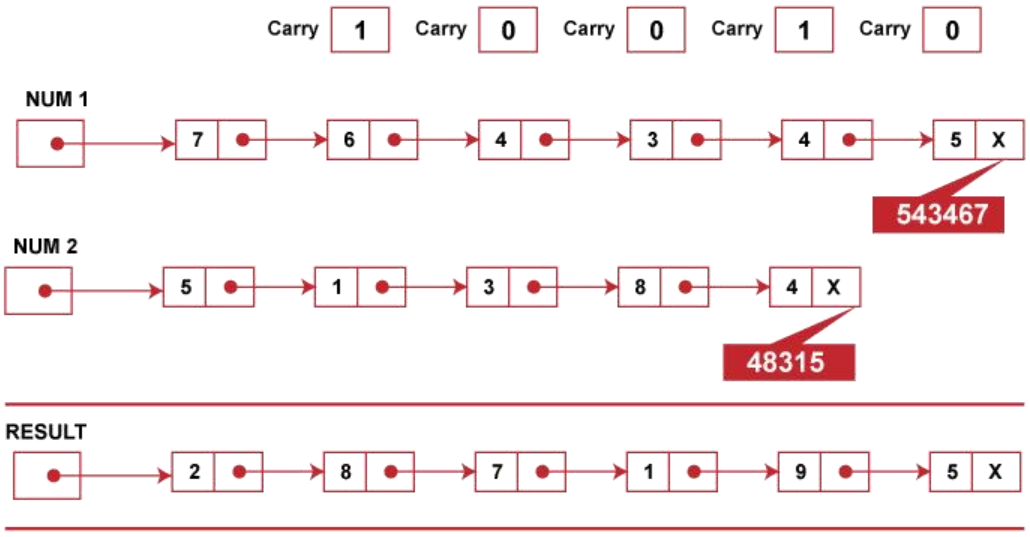
Q2. Write a C program to add 2 long integers which are represented using linked list and store the result in the resultant linked list.

Example:

Num1: 543467

Num2: 48315

Result: 591782



Practice Questions

Q1. Implement a function to add two sparse matrices represented as linked lists. Consider cases where the matrices have different sizes and demonstrate the addition operation.

Q2. Write a function to transpose a sparse matrix represented as a linked list. Create a new linked list that represents the transposed matrix.

SUBMISSION: Prepare a single document containing code, output and screenshots of your outputs. Save the document with Assignment#_RollNo. (Eg: **Assignment 3_BT22CSE001**). Upload it on moodle.