Assignment -2 : SparseMatrix

Raja Bharath Reddy Mahakala

Concordia University

Advanced Algorithms

Dr. Farah Kamw

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Assignment 1 : SparseMatrix

Example 1:

Example 2:

```cpp
     assignment2.cpp > ⊙ main()
4    struct Element {
         int col;    // Column index of the element
7        int value;  // Value of the element
8    };
9
10   int main() {
11       int rows, cols, nonZeroCount;
12
13       // Input matrix dimensions and number of non-zero elements
14       cout << "Enter the number of rows and columns of the matrix: ";
15       cin >> rows >> cols;
16       cout << "Enter the number of non-zero elements: ";
17       cin >> nonZeroCount;
18
19       // Create an array to store the non-zero elements
20       Element elements[nonZeroCount];
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**   PORTS

```
Assignments/"assignment2
Enter the number of rows and columns of the matrix: 4 6
Enter the number of non-zero elements: 4
Enter the row index, column index, and value of each non-zero element:
Element 1: 0 3 4
Element 2: 1 0 2
Element 3: 2 5 8
Element 4: 3 2 1

Sparse Matrix Representation:
Row     Column  Value
0       3       4
1       0       2
2       5       8
3       2       1

Full Matrix Representation:
0 0 0 4 0 0
2 0 0 0 0 0
0 0 0 0 0 8
0 0 1 0 0 0
```

1) **How long did you spend on this assignment ?**

   I spent approximately 3 hours working on this assignment, which included the time to understand the problem requirements, write the initial code, test the program, and troubleshoot errors that came up.

2) **Based on your effort, What letter grade would you say you earned ?**

   Considering the effort I put into this assignment, I would give myself a grade A. I worked diligently, spent a significant amount of time learning and applying the concept and made a strong effort to meet the assignment requirements.

3) **Based on your solution, what letter grade would you say you earned ?**

   Based on the functionality and completeness of my solution, I would rate it as a B. the program correctly implements the basic requirement and it runs without major issues.

However, there may be some minor inefficiencies or areas for improvement, such as optimizing the code for better performance.

4) **Provide a summary of what doesn't work in your solution, along with an explanation of how you attempted to solve the problem and where you feel you struggled ?**

My solution is working as per the requirements, but u faced minor struggle with understanding some of the more advanced C++ features that could potentially simplify the code, such as using dynamic data structures or implementing error handling to manage edge cases better.