**Array Implementation**

**Sajid Iqbal Ishaq Mohammed**

Concordia University

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**Self-Assessment**

**1**. It took me just under a week to complete the assignment.

**2**. I put my entire effort into coding the programs. In this assignment, I will indeed expect an A Grade (100 on 100).

**3**. Every coding solution is correct. As a result, I would anticipate an A grade.

**4**. Learning the fundamentals of C++ produced coding simple. The main issue I encountered was in running the code. As I complete all of the weekly assignments, I am becoming more precise in detecting the errors and executing the program. The overall experience was excellent and will be best.

**Array Implementation**

**An Array Implementation for Sparse Matrices as described above.**

#include <iostream>

using namespace std;

int main()

{

int row ,column;

//Prompt user to enter rows and column of matrix

cout<<"Enter number of rows and columns of sparse matrix: ";

cin>>row>>column;

int mat[row][column];

//Prompt user to enter elements of matrix

cout<<"Enter element of matrix: ";

for(int i=0;i<row;i++)

{

for(int j=0;j<column;j++)

{

cin>>mat[i][j];

}

}

//Printing matrix

cout<<"Sparse matrix is: "<<endl;

for(int i=0;i<row;i++)

{

for(int j=0;j<column;j++)

{

cout<<mat[i][j]<<" ";

}

cout<<endl;

}

//Creating matrix representation of sparse matrix

int sparseMatrix[3][column];

int k = 0;

for (int i = 0; i < row; i++)

for (int j = 0; j < column; j++)

if (mat[i][j] != 0)

{

sparseMatrix[0][k] = i;

sparseMatrix[1][k] = j;

sparseMatrix[2][k] = mat[i][j];

k++;

}

cout<<"Representation of sparse matrix is: ";

//Displaying sparse matrix

for (int i=0; i<3; i++)

{

for (int j=0; j<column; j++)

cout <<" "<< sparseMatrix[i][j];

cout <<"\n";

}

return 0;

}

**OUTPUT:**

Enter number of rows and columns of sparse matrix: 3 3

Enter element of matrix: 4 5 0 0 0 0 1 0 9

Sparse matrix is:

4 5 0

0 0 0

1 0 9

Representation of sparse matrix is: 0 0 2

2 1 0

2 5 1

**Link to your GitHub repository:**