**Array Implementation**

**Bahadur Khan**

Concordia University

January 20, 2022

CSC- 543

**Self-Assessment**

1. I finished the job in a little more than a week. I put all of my work on programming the programs..
2. I'll be looking for an A on this project. Each and every coding solution is correct. So, I anticipate receiving an A.
3. So, I anticipate receiving an A. Coding became simple after learning the basics of C++. The primary problem I had w
4. as when I tried to run the code. As I do each of the weekly assignments, I get better at seeing mistakes and running the software. The general knowledge was quite good..

**Array Implementation**

**An Array Implementation for Sparse Matrices:**

#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;

}

**Final answer**

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

**GitHub repository Link**

https://github.com/Bahadurk/12lang.git