**FNU Hassan**

**Assignment 2**

GitHub Link:

<https://github.com/FNU-Hassan/Advance-Algorithm-Assignment-2>

***#Program to Implement an Array Implementation for Sparse Matrices***

// C++ program for Sparse Matrix Representation

// using Array

#include <iostream>

using namespace std;

int main()

{

// Assume 4x5 sparse matrix

int sparseMatrix[4][5] =

{

{0 , 0 , 3 , 0 , 4 },

{0 , 0 , 5 , 7 , 0 },

{0 , 0 , 0 , 0 , 0 },

{0 , 2 , 6 , 0 , 0 }

};

int size = 0;

for (int i = 0; i < 4; i++)

for (int j = 0; j < 5; j++)

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

size++;

// number of columns in compactMatrix (size) must be

// equal to number of non - zero elements in

// sparseMatrix

int compactMatrix[3][size];

// Making of new matrix

int k = 0;

for (int i = 0; i < 4; i++)

for (int j = 0; j < 5; j++)

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

{

compactMatrix[0][k] = i;

compactMatrix[1][k] = j;

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

k++;

}

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

{

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

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

cout <<"\n";

}

return 0;

}

