Computer Programming A, B, E
FAST-NU, Lahore, Spring 2017

Homework 4

Matrices with Operators

Due on Saturday March 25 11:55 P.M.   Marked out of 50 points.

Create a class called Matrix which can store an n x m matrix of integers using two dimensional dynamic arrays. Your class should provide all the interface required for the proper execution of the following driver program.

Pay attention to the comments in this code to figure out what the functions are doing.

The text files containing the matrices should follow the following format:

num_rows

num_cols

comma_seperated_values of row 1…

comma_seperated_values of row 2…

comma_seperated_values of row 3…

…

Example:

2

3

0,1,5

6,9,3

```cpp
void printMatrix(const Matrix & m){
    for(int i=0;i<m.getNumRows();i++){
        for(int j=0;j<m.getNumCols;j++){
            cou<<m[i][j]<<" ";
        }
        cout<<endl;
    }
}


int main(){
    Matrix m1;//empty 0x0 matrix
    Matrix m2("mat1.txt"),m3("m3.txt");//read from files
    Matrix m5(5,7);//create a 5x7 matrix with random values
    m1=m2+m3;//add matrices
    Matrix m4=m2-m3;//subtract matrices

    if(m1==m4){
        cout<<"m1 and m4 are equal matrices";
    }
    m5=m1*m4;//matrix multiplication (assume compatability)
    m5.transpose();//convert nxm to mxn matrix
    m2=-m2;//negates all elements of m2
    m2+=5;//adds 5 to all elements of m2
    m2*=5;//multiplies 5 to all elements of m2
    printMatrix(m2);
    return 0;
}
```

THE END