13016209 Object-Oriented Concepts and Programming

Lab 5

Start your program with your information using the following format:

/*

ID:

Name:

Lab No:

Question No:

Date:

*/

1. Write a C++ program to that has a menu that allows a user to choose to do the matrix addition and matrix multiplication. The programs must allow the user to specify the size of each matrix at runtime. You need to use the pointer to integer (assuming that the values store in the matrix are integer) to represent the matrix (do not use array or vector). At least these functions need to be defined in your program:
   int *createMatrix(int numRows, int numCols);
   void setMatrixByIndex(int *matrix, int rowIndex, int colIndex, int numCols, int value);
   int getMatrixByIndex(const int *matrix, int rowIndex, int colIndex,int numCols);
   void deleteMatrix(int *matrix);

   Where the createMatrix() function is used to create a matrix based on the specified number of rows and columns. The function setMatrixByIndex() is used to set the value at the specified index (rowIndex and colIndex). The numCols parameter is used to specified number of columns in a row. The value parameter is the value that you need to assign to the array. The function getMatrixByIndex() is used to retrieved the value based on the specified index. The

The examples output of the program are as follows:

The program to do the matrix addition or multiplication

This program will ask you the information of Matrix A and B and show the result in Matrix C

1.Matrix Addition

2.Matrix Multiplication

0.Exit

Your choice: 1

Enter rows and cols for Matrix A separated By space 2 2

Enter rows and cols for Matrix B separated By space 2 2

A[1][1] 1

A[1][2] 2

A[2][1] 3

A[2][2] 4

B[1][1] 5

B[1][2] 6

B[2][1] 7

B[2][2] 8

A[1][1] 1 A[1][2] 2

A[2][1] 3 A[2][2] 4

B[1][1] 5 B[1][2] 6

B[2][1] 7 B[2][2] 8

C[1][1] 6 C[1][2] 8

C[2][1] 10 C[2][2] 12

The program to do the matrix addition or multiplication

This program will ask you the information of Matrix A and B and show the result in Matrix C

1.Matrix Addition

2.Matrix Multiplication

0.Exit

Your choice: 2

Enter rows and cols for Matrix A separated By space 2 3

Enter rows and cols for Matrix B separated By space 3 2

A[1][1] 5

A[1][2] 6

A[1][3] 7

A[2][1] 4

A[2][2] 8

A[2][3] 9

B[1][1] 6

B[1][2] 4

B[2][1] 5

B[2][2] 7

B[3][1] 1

B[3][2] 1

A[1][1] 5 A[1][2] 6 A[1][3] 7

A[2][1] 4 A[2][2] 8 A[2][3] 9

B[1][1] 6 B[1][2] 4

B[2][1] 5 B[2][2] 7

B[3][1] 1 B[3][2] 1

C[1][1] 67 C[1][2] 69

C[2][1] 73 C[2][2] 81

The program to do the matrix addition or multiplication

This program will ask you the information of Matrix A and B and show the result in Matrix C

1.Matrix Addition

2.Matrix Multiplication

0.Exit

Your choice: 0

Good bye