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**Semester: 3rd**

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**Lab3 task3**

**Source code**

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#include <iostream>

using namespace std;

//printing the matrices

void Printing(int\* matrix, int no\_rows, int no\_columns){

int temp = 0; //temp is used for array index

for (int loopX = 0; loopX < no\_rows; loopX++){

cout << "| ";

for (int loopY = 0; loopY < no\_columns; ){

cout << matrix[temp];

loopY++;

if (loopY<no\_columns)

cout << "\t ";

temp++;

}

cout << " |";

cout << "\n";

}

} //end function Printing

void addition(int\* matrix\_A, int\* matrix\_B, int no\_rows, int no\_columns){

int length = no\_rows\*no\_columns; //formula for total size of a matrix

int \*production = new int[length];

int temp = 0;

for (int loopX = 0; loopX < no\_rows; loopX++){

for (int loopY = 0; loopY < no\_columns; loopY++){

production[temp] = matrix\_A[temp] + matrix\_B[temp];

temp++;

}

}

cout << "\n\A + B = ";

Printing(production, no\_rows, no\_columns);

delete[] production; //cleaning the value of production stored in memory.

} //end function addition

void subtraction(int\* matrix\_A, int\* matrix\_B, int no\_rows, int no\_columns){

int length = no\_rows\*no\_columns; //formula for total size of a matrix

int \*production = new int[length];

int temp = 0;

for (int loopX = 0; loopX < no\_rows; loopX++){

for (int loopY = 0; loopY < no\_columns; loopY++){

production[temp] = matrix\_A[temp] - matrix\_B[temp];

temp++;

}

}

cout << "\n\nA - B = " ;

Printing(production, no\_rows, no\_columns);

delete[] production; //cleaning the value of production stored in memory.

} //end functiion subtraction

//main function starts here

int main() {

int no\_rows, no\_columns;

int selection;

cout << "~~This is matrix addition and subtraction menu~~" << endl;

cout << "Give the numbers: " << endl;

cout << "rows = ";

cin >> no\_rows;

cout << "Columns = ";

cin >> no\_columns;

cout << "What would u like to do enter no of operation i-e" << endl;

cout << "Addition = 0\tsubtraction = 1\n";

cin >> selection;

int length = no\_rows \* no\_columns;

int \*matrix\_A = new int[length]; //here matrix\_A is the array having dynamic memory

int \*matrix\_B = new int[length]; //here matrix\_B is the array having dynamic memory

//Initializing matrix A

cout << "Enter the elements of 1st matrix: " << endl;

for (int loopX = 0; loopX < length; loopX++)

cin >> matrix\_A[loopX];

//Initializing matrix B

cout << "Enter the elements of 2nd matrix" << endl;

for (int loopX = 0; loopX < length; loopX++)

cin >> matrix\_B[loopX];

//Printing matrix A

cout << "\n\nMatrix A = " << endl;

Printing(matrix\_A, no\_rows, no\_columns);

//Printing matrix B

cout << "\n\nMatrix B = " << endl;

Printing(matrix\_B, no\_rows, no\_columns);

//Checking the condition of the printing of matrices.

if (selection == 0){

addition(matrix\_A, matrix\_B, no\_rows, no\_columns);

}

else if (selection == 1){

subtraction(matrix\_A, matrix\_B, no\_rows, no\_columns);

}

delete[] matrix\_A; //Removing the value of matrix\_A from memory.

delete[] matrix\_B; //Removing the value of matrix\_B from memory.

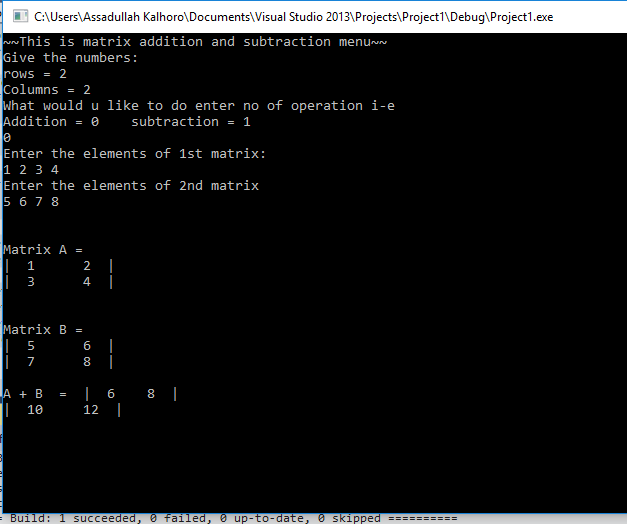
getchar();

getchar();

return 0;

} //end main

**Output**

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