**DAA PRACTICAL**

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**STRASSEN’S ALGORITM PROGRAM**

#include<iostream>

using namespace std;

int main(){

int a[2][2], b[2][2], c[2][2] , i ,j;

int m1,m2,m3,m4,m5,m6,m7;

// Input elements of matrix a

cout<<"Enter the four elements of matrix a:"<<endl;

for(i = 0; i < 2; i++){

for(j = 0; j < 2; j++){

cin >> a[i][j];

}

}

// Input elements of matrix b

cout<<"Enter the four elements of matrix b:"<<endl;

for(i = 0; i < 2; i++){

for(j = 0; j < 2; j++){

cin >> b[i][j];

}

}

// Display matrix a

cout<<"Matrix a is:"<<endl;

for(i = 0; i < 2; i++){

cout << endl;

for(j = 0; j < 2; j++){

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

}

}

cout << endl;

// Display matrix b

cout<<"Matrix b is:"<<endl;

for(i = 0; i < 2; i++){

cout << endl;

for(j = 0; j < 2; j++){

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

}

}

cout << endl;

// Perform multiplication using Strassen's Algorithm

m1 = (a[0][0] + a[1][1]) \* (b[0][0] + b[1][1]);

m2 = (a[1][0] + a[1][1]) \* b[0][0];

m3 = a[0][0] \* (b[0][1] - b[1][1]);

m4 = a[1][1] \* (b[1][0] - b[0][0]);

m5 = (a[0][0] + a[0][1]) \* b[1][1];

m6 = (a[1][0] - a[0][0]) \* (b[0][0] + b[0][1]);

m7 = (a[0][1] - a[1][1]) \* (b[1][0] + b[1][1]);

// Compute elements of matrix c

c[0][0] = m1 + m4 - m5 + m7;

c[0][1] = m3 + m5;

c[1][0] = m2 + m4;

c[1][1] = m1 - m2 + m3 + m6;

// Display the result matrix after multiplication

cout << "After multiplication using Strassen's Algorithm\n";

for(i = 0; i < 2; i++){

cout << endl;

for(j = 0; j < 2; j++){

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

}

}

return 0;

}

//OUTPUT:

