**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;

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

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

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

cin>>a[i][j];

}

}

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

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

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

cin>>b[i][j];

}

}

cout<<"The a matrix is :"<<endl;

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

cout<<endl;

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

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

}

}

cout<<endl;

cout<<"The b matrix is :"<<endl;

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

cout<<endl;

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

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

}

}

cout<<endl;

// Strassen's Algorithm Multiplication

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]);

// Calculate the result matrix

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

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

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

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

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:

