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**Roll No:- 55**

**Assignment No:-**

**Assignment Name:- Write a program for matrix multiplication using Strassen’s matrix multiplication.**

#include<iostream.h>

#include<conio.h>

class MAT

{

private:

int A[3][3],B[3][3],C[3][3];

public:

MAT();

void READ();

void SHOW();

void ST\_MAT();

};

void MAT::MAT()

{

for(int i=1;i<=2;i++)

{

for(int j=1;j<=2;j++)

{

C[i][j] = 0;

}

}

}

void MAT::READ()

{

cout<<"\nEnter values for first matrix: ";

for(int i=1;i<=2;i++)

{

for(int j=1;j<=2;j++)

{

cin>>A[i][j];

}

}

cout<<"\nEnter values for second matrix: ";

for(i=1;i<=2;i++)

{

for(int j=1;j<=2;j++)

{

cin>>B[i][j];

}

}

}

void MAT::SHOW()

{

cout<<"\nThe first matrix: ";

for(int i=1;i<=2;i++)

{

cout<<endl;

for(int j=1;j<=2;j++)

{

cout<<A[i][j]<<"\t";

}

}

cout<<"\nThe second matrix: ";

for(i=1;i<=2;i++)

{

cout<<endl;

for(int j=1;j<=2;j++)

{

cout<<B[i][j]<<"\t";

}

}

cout<<"\nThe result matrix: ";

for(i=1;i<=2;i++)

{

cout<<endl;

for(int j=1;j<=2;j++)

{

cout<<C[i][j]<<"\t";

}

}

}

//------------------------------------------------------------------

void MAT:: ST\_MAT()

{

int P = (A[1][1] + A[2][2]) \* (B[1][1] + B[2][2]) ;

int Q = (A[2][1] + A[2][2]) \* B[1][1];

int R = A[1][1] \* (B[1][2] - B[2][2]);

int S = A[2][2] \* (B[2][1] - B[1][1]);

int T = (A[1][1] + A[1][2]) \* B[2][2];

int U = (A[2][1] - A[1][1]) \* (B[1][1] + B[1][2]);

int V = (A[1][2] - A[2][2]) \* (B[2][1] + B[2][2]);

C[1][1] = P + S - T + V;

C[1][2] = R + T;

C[2][1] = Q + S;

C[2][2] = P + R - Q + U;

}

//-----------------------------------------------------------------

void main()

{

clrscr();

MAT obj;

obj.READ();

obj.ST\_MAT();

obj.SHOW();

getch();

}