**ROLL NO:-45**

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**PRACTICAL NO:-**

**PRACTICAL NAME :- IMPLEMENTATION OF MULTIDIMENSIONAL ARRAY (MATRICES)**

#include "iostream.h"

#include "conio.h"

class MATRIX

{

int r1,r2,r3,c1,c2,c3;

int A[5][5],B[5][5],C[5][5];

public:

void READ();

void SHOW();

void ADD();

void SUB();

void MUL();

};

void MATRIX::READ()

{

cout<<endl<<"enter the size of r1: ";

cin>>r1;

cout<<endl<<"enter the size of c1: ";

cin>>c1;

cout<<endl<<"enter the size of r2: ";

cin>>r2;

cout<<endl<<"enter the size of c2: ";

cin>>c2;

cout<<endl<<"enter the element of MATRIX 1: ";

for(int i=1;i<=r1;i++)

for(int j=1;j<=c1;j++)

cin>>A[i][j];

cout<<endl<<"enter the element of MATRIX 2 :";

for(i=1;i<=r2;i++)

for(j=1;j<=c2;j++)

cin>>B[i][j];

}

void MATRIX::SHOW()

{

cout<<endl<<"elements of MATRIX 1 are:"<<endl;

for(int i=1;i<=r1;i++)

{

for(int j=1;j<=c1;j++)

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

cout<<"\n";

}

cout<<endl<<"elements of MATRIX 2 are :"<<endl;

for(i=1;i<=r2;i++)

{

for(int j=1;j<=c2;j++)

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

cout<<"\n";

}

cout<<endl<<"elements of MATRIX 3 are :"<<endl;

for(int k=1;k<=r2;k++)

{

for(int j=1;j<=c2;j++)

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

cout<<"\n";

}

}

void MATRIX::ADD()

{

if(r1==r2 && c1==c2)

{

for(int i=1;i<=r2;i++)

for(int j=1;j<=c2;j++)

C[i][j] = A[i][j] + B[i][j];

}

}

void MATRIX::SUB()

{

if(r1==r2 && c1==c2)

{

for(int i=1;i<=r2;i++)

for(int j=1;j<=c2;j++)

C[i][j] = A[i][j] - B[i][j];

}

}

void MATRIX::MUL()

{

if(c1==r2)

{

for(int i=1;i<=r2;i++)

for(int j=1;j<=c2;j++)

{

C[i][j]=0;

for(int k=1;k<=c1;k++)

C[i][j] += A[i][j] \* B[i][j];

}

}

}

void MENU()

{

MATRIX m;

m.READ();

int ch;

do

{

cout<<endl<<"1 ADD";

cout<<endl<<"2 Substracton";

cout<<endl<<"3 Multiplication";

cout<<endl<<"4 Exit";

cout<<endl<<"Enter the option";

cin>>ch;

switch(ch)

{

case 1:

m.ADD();

m.SHOW();

break;

case 2:

m.SUB();

m.SHOW();

break;

case 3:

m.MUL();

m.SHOW();

break;

case 4:

return;

default:

cout<<endl<<"enter valid option";

}

}while(ch!=4);

}

void main()

{

clrscr();

MENU();

getch();

}