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**P17-6102**

**Section: B**

**Question #01**

#include<iostream>

#include<fstream>

#include<math.h>

using namespace std;

int row,col;

int determinant( int matrix[10][10] , int n) {

int det = 0;

int submatrix[10][10];

if (n == 2)

return ((matrix[0][0] \* matrix[1][1]) - (matrix[1][0] \* matrix[0][1]));

else {

for (int x = 0; x < n; x++) {

int subi = 0;

for (int i = 1; i < n; i++) {

int subj = 0;

for (int j = 0; j < n; j++) {

if (j == x)

continue;

submatrix[subi][subj] = matrix[i][j];

subj++;

}

subi++;

}

det = det + (pow(-1, x) \* matrix[0][x] \* determinant( submatrix, n - 1 ));

}

}

return det;

}

bool matrix(){

int value;

cout<<"Enter a Number of rows nxn: ";

cin>>row;

col=row;

cout<<"Enter a real value: ";

cin>>value;

int a[10][10];

for(int i=0;i<row;i++){

for(int j=0;j<col;j++){

cin>>a[i][j];

}

}

int b[row][col];

for(int i=0;i<row;i++){

for(int j=0;j<col;j++){

b[i][j]=0;

if(i==j){

b[i][j]=1;

}

}

}

cout<<"Matrix A: "<<endl;

for(int i=0;i<row;i++){

for(int j=0;j<col;j++){

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

}

cout<<endl;

}

cout<<"Identity Matrix : "<<endl;

for(int i=0;i<row;i++){

for(int j=0;j<col;j++){

b[i][j]=value\*b[i][j];

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

}

cout<<endl;

}

cout<<"Subtract the Matrix A with Identity: "<<endl;

for(int i=0;i<row;i++){

for(int j=0;j<col;j++){

a[i][j]=a[i][j]-b[i][j];

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

}

cout<<endl;

}

cout<<"Determinant: "<<determinant(a,row)<<endl;

if(determinant(a,row)==0){

return true;

}

else{

return false;

}

}

int main(){

cout<<matrix();

}

**Question # 02**

#include<iostream>

#include<fstream>

#include<math.h>

using namespace std;

int matrix1(){

int row;

cout<<"Enter a number of row :";

cin>>row;

int a[row][row];

for(int i=0;i<row;i++){

for(int j=0;j<row;j++){

cin>>a[i][j];

}

}

cout<<"Second Matrix: "<<endl;

int b[row][1];

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

cin>>b[i][j];

}

}

cout<<"Matrix A print:"<<endl;

for(int i=0;i<row;i++){

for(int j=0;j<row;j++){

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

}

cout<<endl;

}

cout<<"Matrix B print: "<<endl;;

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

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

}

cout<<endl;

}

int c[row][1];

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

c[i][j]=0;

}

}

cout<<"Matrix multiplies: "<<endl;

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

for(int k=0;k<row;k++){

c[i][j]+=a[i][k]\*b[k][j];

}

}

}

cout<<"Multiplication done!! "<<endl;

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

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

}

cout<<endl;

}

cout<<"Common Factor !! "<<endl;

int max=c[0][0];

int min=c[0][0];

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

if(max<c[i][j]){

max=c[i][j];

}

}

}

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

if(min>c[i][j]){

min=c[i][j];

}

}

}

cout<<"Max: "<<max<<endl;

cout<<"Min: "<<min<<endl;

int common;

common=max-min;

cout<<common<<endl;

for(int i=0;i<row;i++){

for(int j=0;j<1;j++){

c[i][j]=c[i][j]/common;

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

}

}

return common;

}

int main(){

matrix1();

}

**THE……………………………………………………………….. END**