GRAPH COLOURING

#include<stdio.h>

#include<conio.h>

#include<iostream.h>

int a, number, G[20][20], c[20];

void mcoloring(int p);

int nextvalue(int p);

void mcoloring(int p)

{

int u;

while(1)

{

nextvalue(p);

if(c[p] == 0)

break;

if(p == number)

{

for(u = 1;u <= number;u++)

cout<<" "<<c[u];

cout<<"\n";

}

else

mcoloring(p + 1);

}

}

int nextvalue(int p)

{

int l;

while(1)

{

c[p] = (c[p] + 1) % (a + 1);

if(c[p] == 0)

return 0;

for(l = 1;l <= number;l++)

if(G[p][l] && c[p] == c[l])

break;

if(l == number + 1)

return 0;

}

}

void main()

{

int u, edges, x, y;

clrscr();

gotoxy(33,2);

cout<<"Graph Colouring"<<endl;

cout<<"Enter the number of Vertices In the Given Graph G:\n";

cin>>number;

cout<<"Enter the number of edges In the Given Graph G:\n";

cin>>edges;

for(u = 1;u <= edges;u++)

{

cout<<"Enter the edge In the Graph : \n";

cin>>x>>y;

G[x][y] = 1;

G[y][x] = 1;

}

for(u = 1;u <= number;u++)

c[u] = 0;

cout<<"Enter the number of colors available : \n";

cin>>a;

cout<<"Following are the different ways by which nodes can be colored\n";

mcoloring(1);

getch();

}

