**Graph coloring**

#include<stdio.h>

int n,e,g[20][20],m,x[20];

void nextValue(int k) {

int j;

do {

x[k]=(x[k]+1)%(m+1);

if(x[k]==0)

return;

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

if(g[k][j]==1&&x[k]==x[j])

break;

if(j==(n+1))

return;

}while(1);

}

void mcoloring ( int k ){

int i;

char a='A';

do {

nextValue (k);.

if ( x[k] == 0 )

return;

if (k == n) {

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

printf("%c ",a-1+x[i]);

}

printf("\n");

}

else

mcoloring (k + 1);

}while(1);

}

int main() {

int firstNode, secondNode, i;

char a='A';

printf("Enter number of nodes : ");

scanf("%d",&n);

printf("Enter number of edges : ");

scanf("%d",&e);

for (i = 1; i <= e; i++){

printf("Enter firstNode secondNode: ");

scanf("%d %d",&firstNode,&secondNode);

g[firstNode][secondNode] = 1;

g[secondNode][firstNode] = 1;

}

printf("\nEnter number of colours : ");

scanf("%d",&m);

printf("\nColours are : ");

for (i = 0; i < m; i++)

printf("%c ",a+i);

printf("\nOutcomes are : \n");

mcoloring(1);

return 0;

}

