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//DSATUR alg
#include <iostream.h>
#include <stdio.h>
#include <values.h>
#include <iomanip.h>

void readfile();
void output();
void process();

const int max=501;
int c[max][max];
int bac[max];
int mau[max][max];
int dinh[max];
int n;

int main()
{
    readfile();
    process();
    output();
}

void readfile()
{
    FILE *f;
    f=fopen("color.inp","rt");
    fscanf(f,"%d",&n);
    for (int i=1;i<=n;i++)
        for (int j=1;j<=n;j++)
            fscanf(f,"%d",&c[i][j]);
    fclose(f);
}

void process()
{
    int maxtemp,i0,m;
    // xem nhu ban dau cac dinh co danh sach mau la 1
    for (int i=1;i<=n;i++)
        { for (int j=1;j<=n;j++)
            mau[i][j]=1;
          dinh[i]=0;
        }

    //tinh bac cua moi dinh
    for (int i=1;i<=n;i++)
        for (int j=1;j<=n;j++)
            if (c[i][j]==1) bac[i]++;

    for(int i=0;i<n;i++)

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{
    //tim dinh (CHUA XET) co bac cao nhat
    maxtemp=-1;
    for (int j=1;j<=n;j++)
        if (bac[j]>maxtemp && dinh[j]==0)
        {
            maxtemp=bac[j];
            i0=j;
        }

    //tim va to mau cho dinh co bac cao nhat- mau m
    int j=1;
    while (mau[i0][j]==0) j++;

    //ha bac va ngan cam to mau cac dinh ke voi dinh da duoc to mau i0
    for (int k=1;k<=n;k++)
        if (c[i0][k]==1)
        { //c[i0][k]=0;c[k][i0]=0;
            bac[k]--;
            mau[k][j]=0;
        }
    dinh[i0]=j;
    bac[i0]=0;
}

}

void output()
{
    cout<<"Ket qua to mau theo thuat toan 3:\n";
    int max=0;
    for (int i=1;i<=n;i++)
    {
        cout<<dinh[i]<<" ";
        if (dinh[i]>max) max=dinh[i];
    }

    cout<<endl;
    cout<<"sac so: "<<max;
}

```