对抗搜索

#include<cstdio>

#include<algorithm>

#include<cmath>

#include<iomanip>

#include<iostream>

#include<cstring>

#include<map>

using namespace std;

const int INF=1000000007;

typedef long long ll;

int k;

int a[10][10];

int calc(int i,int j)

{

return a[i][j]+a[i+1][j]+a[i][j+1]+a[i+1][j+1];

}

void trans(int x,int y)

{

int t=a[x][y];

a[x][y]=a[x][y+1];

a[x][y+1]=a[x+1][y+1];

a[x+1][y+1]=a[x+1][y];

a[x+1][y]=t;

}

void ftrans(int x,int y)

{

int t=a[x][y];

a[x][y]=a[x+1][y];

a[x+1][y]=a[x+1][y+1];

a[x+1][y+1]=a[x][y+1];

a[x][y+1]=t;

}

int play(int t)

{

if(t==2\*k)

{

int score(INF);

for(int i=1;i<=3;i++)

for(int j=1;j<=3;j++)

score=min(score,calc(i,j));

return score;

}

else

if(t&1)

{

int score(0);

for(int i=1;i<=3;i++)

for(int j=1;j<=3;j++)

{

trans(i,j);

score=max(score,play(t+1)+calc(i,j));

ftrans(i,j);

}

return score;

}

else

{

int score(INF);

for(int i=1;i<=3;i++)

for(int j=1;j<=3;j++)

{

trans(i,j);

score=min(score,play(t+1)+calc(i,j));

ftrans(i,j);

}

return score;

}

//当前算的我必须要用到后面的结果

}

int main()

{

//freopen("input.txt","r",stdin);

int T;

cin>>T;

while(T--)

{

cin>>k;

for(int i=1;i<=4;i++)

for(int j=1;j<=4;j++)

cin>>a[i][j];

cout<<play(1)<<endl;

}

return 0;

}

#include<stdio.h>

#include<string.h>

#include<stdlib.h>

#include<iostream>

#include<algorithm>

#define INF 1e9+7

using namespace std;

int a[10][10];

int k;

void rev(int x,int y)//逆时针

{

int tmp=a[x][y+1];

a[x][y+1]=a[x+1][y+1];

a[x+1][y+1]=a[x+1][y];

a[x+1][y]=a[x][y];

a[x][y]=tmp;

}

void revrev(int x,int y)//顺时针

{

int tmp=a[x][y];

a[x][y]=a[x+1][y];

a[x+1][y]=a[x+1][y+1];

a[x+1][y+1]=a[x][y+1];

a[x][y+1]=tmp;

}

int sum(int x,int y)//以x,y为左上角的正方形数字的和

{

return a[x][y]+a[x+1][y]+a[x][y+1]+a[x+1][y+1];

}

int dfs(int pos)//pos是代表第几轮

{

int ans;

if(pos==2\*k)

{

ans=INF;

for(int i=0;i<3;i++)

for(int j=0;j<3;j++)

ans=min(ans,sum(i,j));

return ans;

}

else

{

ans=(pos&1?0:INF);//pos是奇数的话ans是0,否则是INF

for(int i=0;i<3;i++)

for(int j=0;j<3;j++)

{

rev(i,j);//逆

if(pos&1)

ans=max(ans,sum(i,j)+dfs(pos+1));

else ans=min(ans,sum(i,j)+dfs(pos+1));

revrev(i,j);//顺

}

return ans;

}

}

int main()

{

//freopen("input.txt","r",stdin);

int T;

cin>>T;

while(T--)

{

cin>>k;

for(int i=0;i<4;i++)

for(int j=0;j<4;j++)

cin>>a[i][j];

cout<<dfs(1)<<"\n";

}

return 0;

}