header.h

```
#ifndef HEADER_H_
#define HEADER_H_


typedef struct _INFO{
        double sumaTotala;
        int etaj, camera;
}INFO;

void* xmalloc(size_t nrOcteti);
double** aloca2d(size_t n, size_t m);
void dealoca2d(double** a, size_t n);
double** citireM(int n, int m);
void afisareM(double **a, int n, int m);

double sumaTotala(double** a, int n, int m, double pret);
double sumaLinie(double *a, int m);
int suprafeteEgale(double **a, int n, int m);
int* pozitieCamSuprMaxima(double** a, int n, int m);
INFO incarcaStruct(double** a, int n, int m, double pret);
void afisareStruct(INFO inf);


#endif /* HEADER_H_ */
```

functii.c

```
#include <stdio.h>
#include <stdlib.h>
#include "header.h"

void* xmalloc(size_t nrOcteti)
{
	void *p=0;
	p=malloc(nrOcteti);
	if(!p)
	{
		fprintf(stderr,"Memorie insuficienta");
		exit(EXIT_FAILURE);
	}
	return p;
}

double** aloca2d(size_t n, size_t m)
		{
	double **a;
	int i;
	a=(double**)xmalloc(n*sizeof(double*));
	for(i=0;i<n;i++)
		a[i]=(double*)xmalloc(m*sizeof(double));
	return a;
		}


void dealoca2d(double** a, size_t n)
{
	int i;
	for(i=0;i<n;i++)
	{
		free(a[i]);
		a[i]=0;
	}
	free(a);
}

double** citireM(int n, int m)
{
	double **a;
	int i,j;
	a=aloca2d(n,m);
	for(i=0;i<n;i++)
		for(j=0;j<m;j++)
		{
			printf("\nSuprafata camerei[%d][%d] = ",i,j);
			scanf("%lf",&a[i][j]);
		}
	return a;
}

void afisareM(double **a, int n, int m)
{
```

```
	int i,j;
	for(i=0;i<n;i++)
	{
		printf("\t");
		for(j=0;j<m;j++)
			printf("%.2lf ",a[i][j]);
		printf("\n");
	}
}

double sumaTotala(double** a, int n, int m, double pret)
{
	double s=0;
	int i,j;
	for(i=0;i<n;i++)
		for(j=0;j<m;j++)
			s+=a[i][j];
	s*=pret;
	return s;
}

double sumaLinie(double *a, int m)
{
	double s=0;
	int i;
	for(i=0;i<m;i++)
		s+=a[i];
	return s;
}

int suprafeteEgale(double **a, int n, int m)
{
	double s=sumaLinie(a[0],m);
	int i;
	for(i=1;i<n;i++)
		if(s!=sumaLinie(a[i],m));
			return 0;
	return 1;
}

int* pozitieCamSuprMaxima(double** a, int n, int m)
{
	int * v, i, j;
	double max;
	v=(int*)xmalloc(2*sizeof(int));
	max = a[0][0];
	for(i=0;i<n;i++)
		for(j=0;j<m;j++)
			if(max<a[i][j])
			{
				max=a[i][j];
				v[0]=i;
				v[1]=j;
			}
	return v;
}
```

```
INFO incarcaStruct(double** a, int n, int m, double pret)
{
	INFO inf;
	int *v;
	v=pozitieCamSuprMaxima(a,n,m);
	inf.sumaTotala=sumaTotala(a,n,m,pret);
	inf.etaj = v[0];
	inf.camera = v[1];
	return inf;
}

void afisareStruct(INFO inf)
{
	printf("\n Suma totala de plata pentru costurile de intretinere este %.2lf. ",inf.sumaTotala);
	printf("\n Camera cu suprafata maxima este a %d -a camera de pe nivelul %d. ", inf.camera+1,
inf.etaj+1);
}
```

main.c

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "header.h"

int main()
{
	double **a, pret;
	int n,m;
	char aux[100];
	char *denumire;
	INFO inf;
	int egale;

	printf("\n Introduceti denumirea firmei: ");
	fgets(aux, 99, stdin);
	aux[strlen(aux)-1]='\0';
	denumire = (char*)xmalloc(strlen(aux)*sizeof(char));
	strcpy(denumire, aux);

	printf("\n Introduceti numarul de niveluri: ");
	scanf("%d",&n);
	printf("\n Introduceti numarul de camere de pe un nivel: ");
	scanf("%d",&m);

	printf("\n Introduceti suprafetele camerelor: ");
	a=citireM(n,m);

	printf("\n Introduceti costul de intretinere pe metru patrat: ");
	scanf("%lf",&pret);

	printf("\n\t Firma \" %s \" detine o cladire de birouri cu %d niveluri. Pe fiecare nivel exista %d
camere. Suprafetele acestora sunt:", denumire, n, m);
	afisareM(a,n,m);
	printf("\tCostul pe metrul patrat este de %.2lf lei pe luna.",pret);

	inf = incarcaStruct(a,n,m,pret);
	afisareStruct(inf);

	egale = suprafeteEgale(a,n,m);
	if(egale == 1)
		printf("\n Suprafetele totale ale fiecarui nivel sunt egale pentru toate nivelurile cladirii.");
	else
		printf("\n Suprafetele totale ale fiecarui nivel NU sunt egale pentru toate nivelurile
cladirii.");

	dealoca2d(a,n);
	a=0;
	free(denumire);
	denumire=0;
	return 0;
}
```