

Semana 10

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//----- busca valor -----
#include<iostream>
using namespace std;
#define T 5
void leitura(int mat[T][T]){
    int i,j;
    cout<<"Forneca "<<T<<" x "<<T<<" valores"<<endl;
    for (i=0;i<T;i++){
        for(j=0;j<T;j++){
            cin>>mat[i][j];
        }
    }
    return;
}

void busca(int mat[T][T], int x, int & lin, int & col){
    int i,j;
    lin=-1;
    for (i=0;i<T;i++){
        for(j=0;j<T;j++){
            if(mat[i][j]==x){
                lin=i;
                col=j;
            }
        }
    }
    return;
}

int main(){
    int val,vi,vj;
    int mat[T][T];
    leitura(mat);
    cout<<"Informe o valor a pesquisar "<<endl;
    cin>>val;
    busca(mat,val,vi,vj);
    if (vi==-1){cout<<"valor nao encontrado"<<endl;}
    else {cout<<"Linha: "<<vi<<"   coluna: "<<vj<<endl;}
}

//----- prndiagonais -----
#include<iostream>
using namespace std;
#define T 5
void leitura(int mat[T][T]){
    int i,j;
    cout<<"Forneca "<<T<<" x "<<T<<" valores"<<endl;
    for (i=0;i<T;i++){
        for(j=0;j<T;j++){
            cin>>mat[i][j];
        }
    }
    return;
}

int main(){
    int i;
    // int mat[T][T];
    // leitura(mat);
    int mat[T][T]={1,2,3,4,5},{6,7,8,9,10},{11,12,13,14,15},
    {16,17,18,19,20},{21,22,23,24,25}};
    cout<<"Diagonal principal"<<endl;
    for (i=0;i<T;i++){
        cout<<mat[i][i]<<" ";
    }
}
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    }
    cout<<endl;
    cout<<"Diagonal secundaria"<<endl;
    for (i=0;i<T;i++){
        cout<<mat[i][(T-1)-i]<<" ";
    }
    cout<<endl;
}
//----- trocaelems -----
#include<iostream>
using namespace std;
#define T 5
void leitura(int mat[T][T]){
    int i,j;
    cout<<"Forneca "<<T<<" x "<<T<<" valores"<<endl;
    for (i=0;i<T;i++){
        for(j=0;j<T;j++){
            cin>>mat[i][j];
        }
    }
    return;
}
int main(){
    int i,j,mai,salvaj,aux;
    // int mat[T][T];
    // leitura(mat);
    int mat[T][T]={1,2,3,4,5},{6,7,8,9,10},{11,12,13,14,15},
    {16,17,18,19,20},{21,22,23,24,25}};
    for (i=0;i<T;i++){
        mai=-9999999;
        for (j=0;j<T;j++){
            if (mat[i][j]>mai){
                mai=mat[i][j];
                salvaj=j;
            }
        }
        aux=mat[i][i];
        mat[i][i]=mai;
        mat[i][salvaj]=aux;
    }
    for(i=0;i<T;i++){
        for(j=0;j<T;j++){
            cout<<mat[i][j]<<" ";
        }
        cout<<endl;
    }
}
//----- somamatrizes -----
#include<iostream>
#include<iomanip>
#define M 3
#define N 4
using namespace std;

void leitura(int mat[M][N]){
    int i,j;
    cout<<"Forneca "<<M<<" x "<<N<<" valores"<<endl;
    for (i=0;i<M;i++){
        for(j=0;j<N;j++){
            cin>>mat[i][j];
        }
    }
    return;
}

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}
void somamat(int a[M][N], int b[M][N], int tm, int tn, int r[M][N]){
    int i,j;
    for (i=0;i<tm;i++){
        for (j=0;j<tn;j++){
            r[i][j]=a[i][j]+b[i][j];
        }
    }
}
}

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int main(){
    int ma[M][N]={ {1,2,3,4},{5,6,7,8},{9,10,11,12}};
    int mb[M][N]={ {1,1,1,1},{2,2,2,2},{3,3,3,3}};
    int mr[M][N];
    int i,j;
    // leitura(ma);
    //leitura(mb);
    somamat(ma,mb,2,3,mr);    // M e N ??
    for(i=0;i<2;i++){        //igual acima
        for(j=0;j<3;j++){    // idem
            cout<<mr[i][j]<<" ";
        }
        cout<<endl;
    }
}

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//-----somavizinhos -----

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#include<iostream>
using namespace std;
#define M 4
#define N 5
void leitura(int mat[M][N]){
    int i,j;
    cout<<"Forneca "<<M<<" x "<<N<<" valores"<<endl;
    for (i=0;i<M;i++){
        for(j=0;j<N;j++){
            cin>>mat[i][j];
        }
    }
    return;
}
int main(){
    int i,j,soma;
    // int mata[M][N];
    // leitura(mat);
    int mata[M][N]={ {1,2,3,4,5},{6,7,8,9,10},{11,12,13,14,15},
        {16,17,18,19,20}};
    int matb[M][N];
    for (i=0;i<M;i++){
        for(j=0;j<N;j++){
            soma=0;
            if (i>0){soma=soma+mata[i-1][j];}
            if (i<M-1){soma=soma+mata[i+1][j];}
            matb[i][j]=soma;
        }
    }
    for(i=0;i<M;i++){
        for(j=0;j<N;j++){
            cout<<matb[i][j]<<" ";
        }
        cout<<endl;
    }
}
// ----- media vizinhos -----

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#include<iostream>
#include<iomanip>
using namespace std;
#define M 4
#define N 5
void leitura(int mat[M][N]){
    int i,j;
    cout<<"Forneca "<<M<<" x "<<N<<" valores"<<endl;
    for (i=0;i<M;i++){
        for(j=0;j<N;j++){
            cin>>mat[i][j];
        }
    }
    return;
}
int main(){
    int i,j,qtos;
    float soma;
    // int mata[M][N];
    // leitura(mat);
    int mata[M][N]={1,2,3,4,5},{6,7,8,9,10},{11,12,13,14,15},
    {16,17,18,19,20}};
    float matb[M][N];
    for (i=0;i<M;i++){
        for(j=0;j<N;j++){
            soma=0.0;
            qtos=0;
            if (i>0){soma=soma+mata[i-1][j]; qtos++;}
            if (i<M-1){soma=soma+mata[i+1][j];qtos++;}
            if (j>0){soma=soma+mata[i][j-1];qtos++;}
            if (j<N-1){soma=soma+mata[i][j+1];qtos++;}
            matb[i][j]=soma/qtos;
        }
    }
    for(i=0;i<M;i++){
        for(j=0;j<N;j++){
            cout<<setw(10) << fixed <<matb[i][j]<<" ";
        }
        cout<<endl;
    }
}

```