UNIVERSIDADE FEDERAL DO CEARÁ

CK0109 2019.2 T02 - ESTRUTURAS DE DADOS

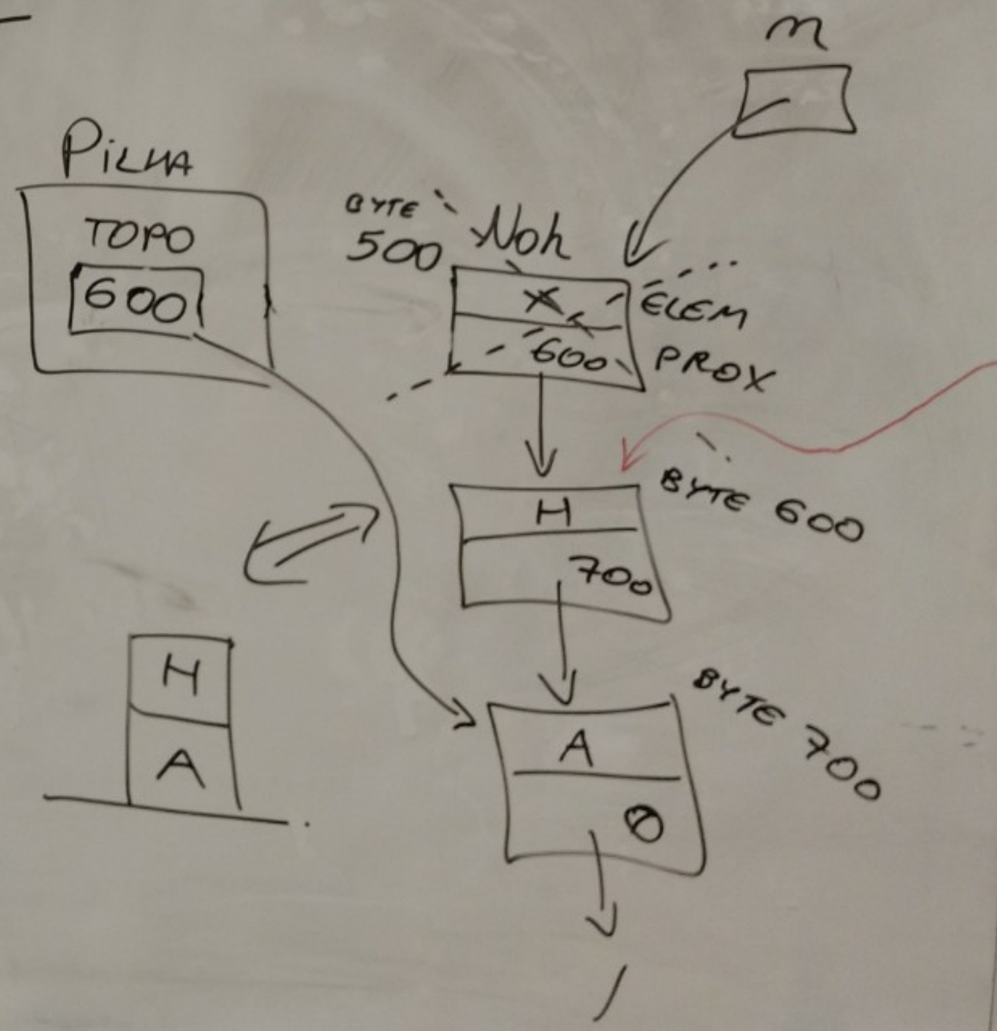
AULA 16 - 16/09/2019

PILHA VIA LISTA ENCADEADA (CONT.)

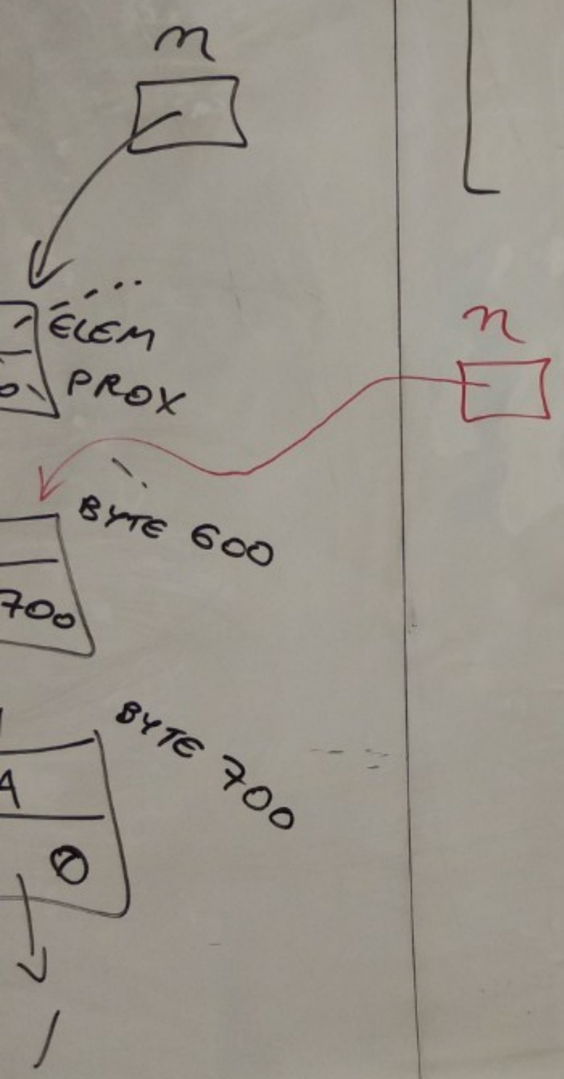
1. CONTINUAÇÃO DA IMPLEMENTAÇÃO:

```
// TEMPLATE <TYPENAME T> STRUCT PILHA {...
T
  DESEMPILHAR( )
  {
    T E = (*TOPO).ELEM;
    Noh *n = TOPO;
    TOPO = (*TOPO).PROX;
    DELETE n;
    RETURN E;
  }
```

```
//PILHA...
VOID TERMINAR ()
  {
    WHILE (!VAZIA())
      DESEMPILHAR();
  }
```

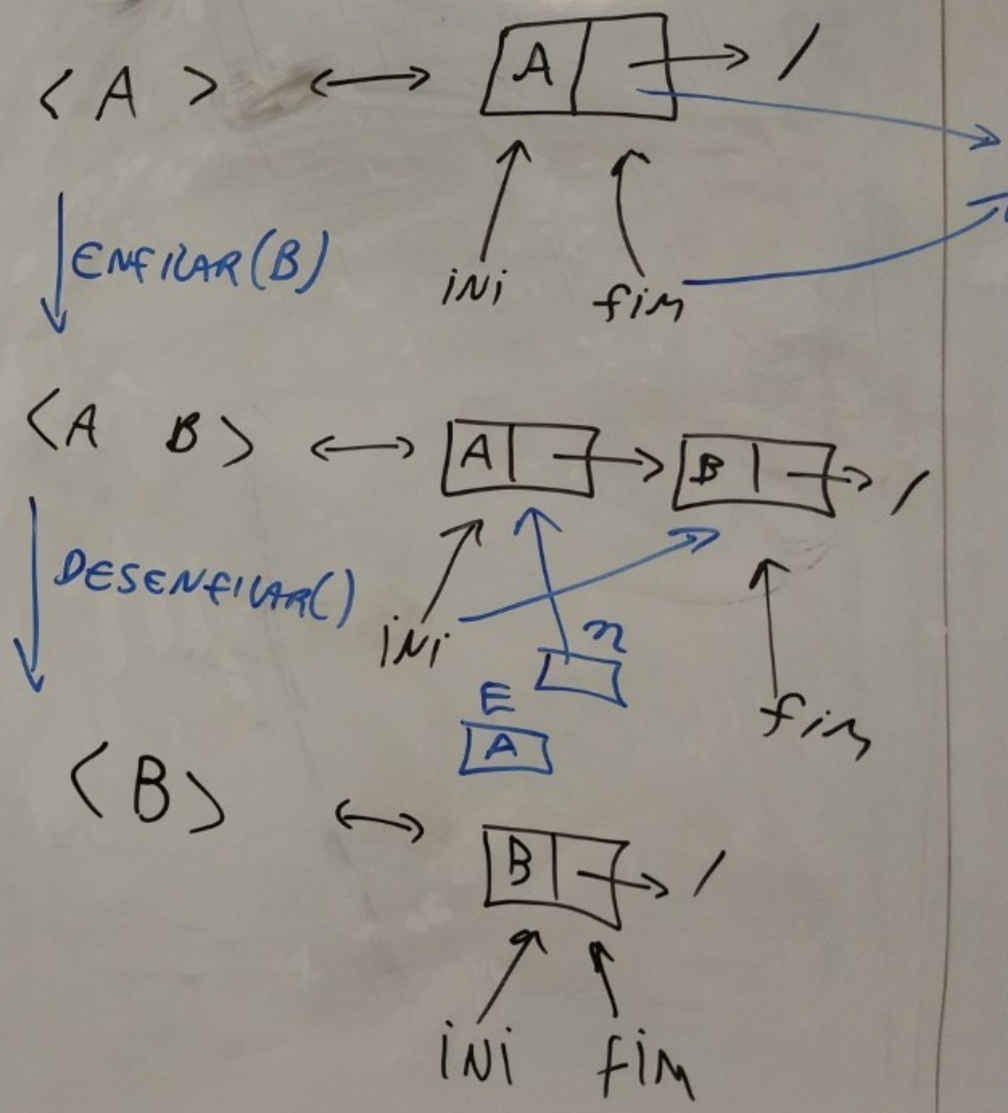


```
VOID TERMINAR2 ()
  {
    WHILE (TOPO != NULLPTR)
        {
          Noh *n = TOPO;
          TOPO = (*TOPO).PROX;
          DELETE n;
        }
  }
```

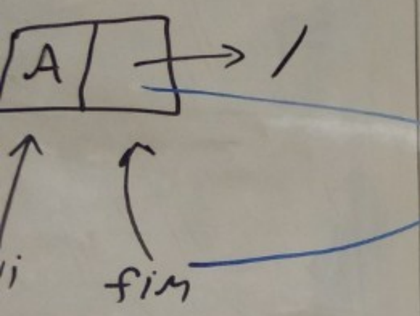


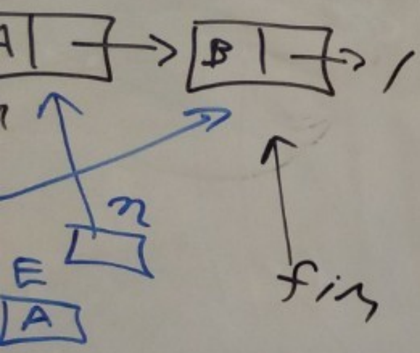
FILA VIA LISTA ENCADEADA

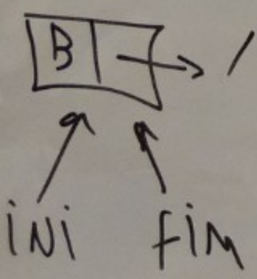
2. REPRESENTAÇÃO:



...A ENCADEADA

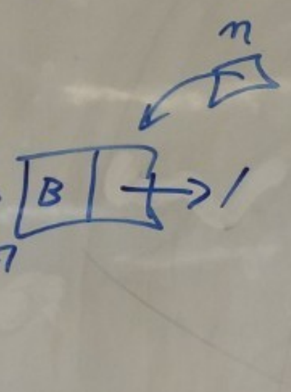






SE NÃO VAZIA

```
(*fim).PROX = n;   fim = n;
(*n).PROX = NULLPTR;
(*n).ELEM = E;
```




```
Noh *n = ini;   T E = (*n).ELEM;
ini = (*ini).PROX;   DELETE n;
RETURN E;
```

VAZIA ⟷ INI == NULLPTR

3. UMA IMPLEMENTAÇÃO ("FILA.HPP"):

```
#IFNDEF FILA_HPP
#DEFINE FILA_HPP
```
} GUARDA DE INCLUSÃO

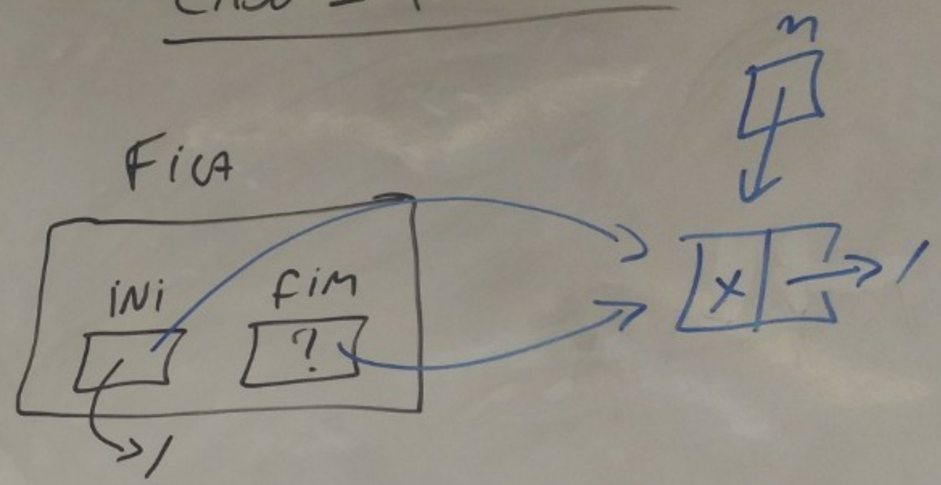
```
#INCLUDE <NEW>
USING STD::NOTHROW;

TEMPLATE <TYPENAME T>
STRUCT FILA
{
  STRUCT Noh { T ELEM; Noh *PROX; };
  Noh *ini, *fim;
  VOID INICIALIZAR () { ini = NULLPTR; }
  BOOL VAZIA () { RETURN (ini == NULLPTR); }
```

```
//FILA
BOOL ENFILAR(T E)
  {
    Noh *n = NEW(NOTHROW) Noh;
    if(n==NULLPTR) RETURN TRUE;
    (*n).ELEM=E; (*n).PROX=NULLPTR;
    if(VAZIA()) ini=fim=n;
    ELSE { (*fim).PROX=n; fim=n;}
    RETURN FALSE;
  }

T DESENFILAR() //PRÉ-COND.: !VAZIA()
  {
    Noh *n = ini; T E = (*n).ELEM;
    ini = (*n).PROX; DELETE n; RETURN E;
  }
```

CASO 1: FILA VAZIA



CASO 2: CASO FILA NÃO VAZIA

E SE UNITÁRIA?