



```
int q_PromoveUltimo (Fila * f, int n) {
```

```
    if (f == NULL || f->NumElem > f->maxItens-1) {  
        Return false;  
    }
```

```
    int i = 0;
```

```
    int elm = f->elems[f->fim];  
    f->elems[f->fim] = NULL;
```

```
    while (i < f->maxItens-1) {
```

```
        if (f->elems[f->fim+i] != f->maxItens-1) {
```

```
            f->fim++;
```

```
            if (f->fim == max f->maxItens-1) {
```

```
                f->fim = 0;
```

```
            }
```

```
            if (f->elems[f->fim+n-i] != NULL) {
```

```
                f->elems[f->fim+n-i] = elm;
```

```
                Return true;
```

```
            } else {
```

```
                Return false;
```

```
            }
```

```
        }
```

```
        i++
```

```
    }
```

```
    if (f->elems[f->fim+n] == NULL) {
```

```
        f->elems[f->fim+n] = elm;
```

```
        f->fim = (f->fim+n) % f->maxItens-1;
```

```
        Return Return true;
```

```
    } else {
```

```
        Return false;
```

```
    }
```

LORD OF THE RINGS



```
int qPunirPrimeiro ( Fila* f, int n ) {
```

```
    if ( f == NULL || f->NumItens > f->MaxItens-1 ) {  
        | Return false;  
    }
```

```
    int i = 0;
```

```
    int elm = f->elms[ f->inicio ];
```

```
    f->elms[ f->inicio ] = NULL;
```

```
    While ( i < f->maxItens-1 ) {
```

```
        if ( f->fim-1 == 0 ) {
```

```
            f->inicio = f->maxItens-1-(n-i);
```

```
            if ( f->elms[ f->inicio ] == NULL ) {
```

```
                f->elms[ f->inicio ] = elm;
```

```
                Return true;
```

```
            } else {
```

```
                Return false;
```

```
            }
```

```
        }
```

```
        i++;
```

```
    }
```

```
    if ( f->elms[ f->inicio-n ] == NULL ) {
```

```
        | f->elms[ f->inicio-n ] = elm;
```

```
        Return true;
```

```
    } else {
```

```
        | Return false;
```

```
    }
```

```
}
```