LEARNING linked-list

#linked-list

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About

Chapter 1: Getting started with linked-list

Remarks

This section provides an overview of what linked-list is, and why a developer might want to use it.

It should also mention any large subjects within linked-list, and link out to the related topics. Since the Documentation for linked-list is new, you may need to create initial versions of those related topics.

Examples

Installation or Setup

Detailed instructions on getting linked-list set up or installed.

Design using Sentry Node

When designing a linked list, you can avoid all the special-cases (empty list, first node, last node, etc) by using a sentry node. Let's see how that is done:

```
struct Node
{
    Node* next;
    Node* prev;
    T data;
};

// helper function to link 2 nodes
void Link(Node* n1, Node* n2)
{
    n1->next = n2;
    n2->prev = n1;
}

// this inserts new data before 'here'
Node* Insert(Node* here, const T& data)
{
    Node* item = new Node{0,0,data};   // create new item. use T's copy-constructor
    Link(here->prev, item);            // link in new node. item comes before here,
    Link(item, here);                  // so in-between `here->prev´ and `here´
    size += 1;                         // update size
    return item;
}

// erase one item
Node* Erase(Node* here)
{
    Node* nxt = here->next;            // save next item for return value
    Link(here->prev, here->next);      // unlink item. no special cases needed when using
sentry
    delete here;                       // delete item. this will call T's destructor
    size -= 1;                        // update size
    return nxt;
}
```

This looks like it would fail for en empty list for example, but with a sentry node the list is never truly empty, it always contain the sentry node, that link to itself if there is no data-nodes. The sentry node also double as the one past last marker.

```
Node* sentry;
void Init()
{
    sentry = (Node*)your_preferred_allocator();
    Link(sentry, sentry);
    size = 0;
}
```

A more comprehensive tutorial can be found at https://pastebin.com/DXunz58Q

Read Getting started with linked-list online: https://riptutorial.com/linked-list/topic/9811/getting-started-with-linked-list

Credits

S. No	Chapters	Contributors
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