CS 225

#11: List: Implementation

February 7, 2022 · *G Carl Evans*

A Linked List implementation of a List:

List.cpp

```
 1  #pragma once
 2
 3  template <typename T>
 4  class List {
 5    public:
...       /* ... */
19
20    private:
21      class ListNode {
22        public:
23          const T data;
24          ListNode * next;
25          ListNode(T & data) :
                data(data), next(nullptr) { }
26      };
27
28      ListNode *head_;
...       /* ... */
...   };
```

List.hpp

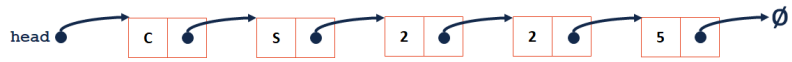
```
57  template <typename T>
58  typename List<T>::ListNode *&
       List<T>::_index(unsigned index) {
59
60
61  }
62
63
64
65
```

What is the return type of **`_index`**?

Building functionality with _index():

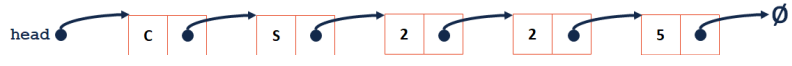
List.hpp

```
48  template <typename T>
49  T & List<T>::operator[](unsigned index) {
50
51
52
53
54  }
```



List.hpp

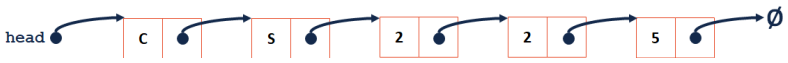
```
90  template <typename T>
91  void List<T>::insert(const T & t, unsigned index) {
92
93
94
95
96  }
```



List.hpp

```
103  template <typename T>
104  T List<T>::remove(unsigned index) {
105
106
107
108
109  }
```

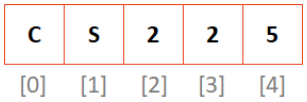
List.hpp	
103	`template <typename T>`
104	`T List<T>::remove(unsigned index) {`
105	
106	
107	
108	
109	`}`



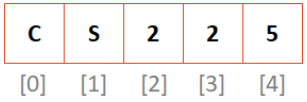
List Implementation #2: _____

Alternate List.h	
1	`#pragma once`
2	
3	`template <typename T>`
4	`class List {`
5	`  public:`
…	`    /* ... */`
28	`  private:`
29	
30	
31	
32	`};`

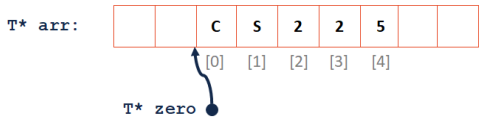
Array - Implementation Details:



1. What is the running time of `insertFront()`?

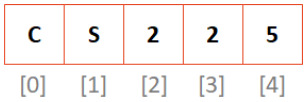


2. What is the running time of get()?



Implementation Details and Analysis:

What is the running time of `insertFront()`?



➔ What is our resize strategy?

CS 225 – Things To Be Doing:
1. mp_stickers due Today **2.** Daily POTDs