

### A Linked List implementation of a List:

```

List.cpp
1 #pragma once
2
3 template <typename T>
4 class List {
5     public:
6         /* ... */
7
8
9
10
11
12
13
14
15
16
17
18
19
20     private:
21         class ListNode {
22             public:
23                 const T & data;
24                 ListNode * next;
25                 ListNode(T & data) :
26                     data(data), next(nullptr) { }
27
28                 ListNode * head_;
29                 /* ... */
30
31 };

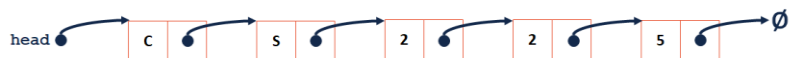
```

### Implementing a basic List operation:

```

List.hpp
9 #include "List.h"
10
11
12
13
14 template <typename T>
15 void List<T>::insertAtFront(const T & data) {
16
17
18
19
20
21
22 }

```



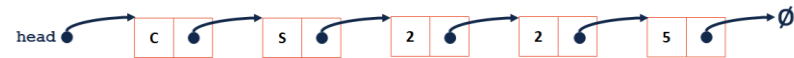
### Finding in a list:

```

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

```

What is the return type of `_index`?

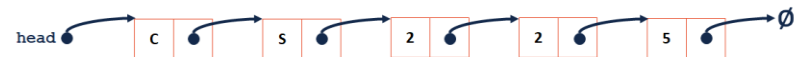


### Building functionality with `_index()`:

```

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

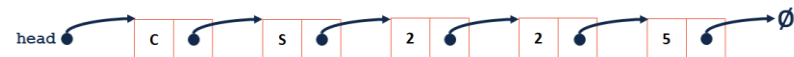
```



```

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

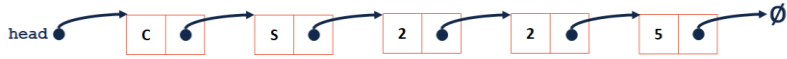
```



```

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

```



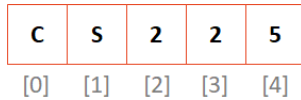
**List Implementation #2:** \_\_\_\_\_

```

Alternate List.h
1 #pragma once
2
3 template <typename T>
4 class List {
5     public:
6         /* ... */
28     private:
29
30
31
32 };

```

**Array - Implementation Details:**

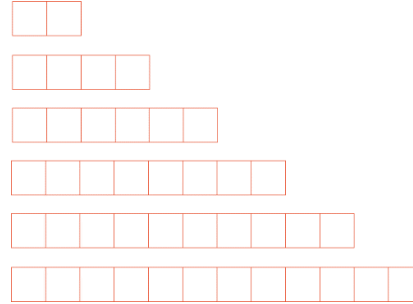


1. What is the running time of `insertFront()`?

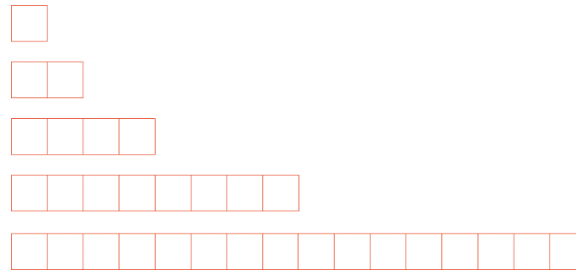


2. What is our resize strategy?

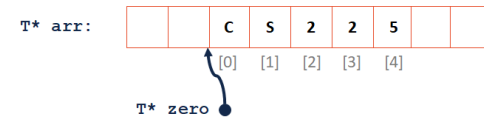
Resize Strategy #1:



Resize Strategy #2:



3. What is the running time of `get()`?



**CS 225 – Things To Be Doing:**

1. Programming Exam A starts Sept. 27 (8 days from today)
2. MP2 due Sept. 24 (5 days from now); EC worth +5 tonight!
3. Lab Extra Credit → Attendance in your registered lab section!
4. Daily POTDs