#8: Lists and Lists ADT

February 4, 2022 · *Brad Solomon*

What is an ADT?

What are some functions you might find in a List ADT:

1.

2.

3.

Templated Functions (What is missing here?):

functionTemplate1.cpp

```


T maximum(T a, T b) {
  T result;
  result = (a > b) ? a : b;
  return result;
}
```

Two Basic Implementations of List:

1.

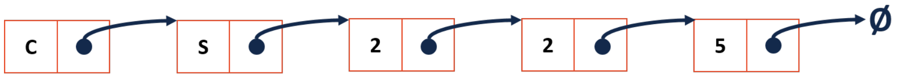
2.

A Linked List implementation of a List:

List.cpp

```
#pragma once

template <typename T>
class List {
  public:
    /* ... */

  private:
    class ListNode {
      public:
        const T data;
        ListNode * next;
        ListNode(T & data) :
            data(data), next(nullptr) { }
    };

    ListNode *head_;
    /* ... */
};
```

Insert("I") [at front]:

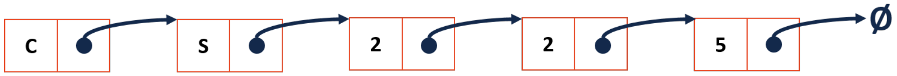


Implementing insert():

List.hpp

```
template <typename T>
void List<T>::insert(const T & data) {








}
```

Remove() [from front]:

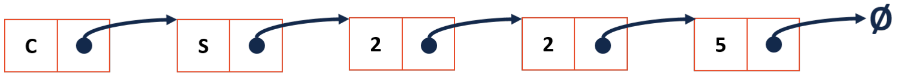


Implementing remove():

List.hpp

```
template <typename T>
void List<T>::remove() {









}
```

getData(unsigned i):

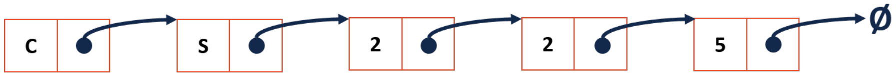


Implementing getData():

List.hpp

```
template <typename T>
T List<T>::getData(unsigned i) const{








}
```

Finding in a list:



List.hpp

```
template <typename T>
typename List<T>::ListNode *&
   List<T>::_index(unsigned index) {


}




```

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

CS 225 – Things To Be Doing:

1. Multiple labs due February 6th!
2. MP due February 7th!
3. Daily POTDs