

Abstract Data Types (ADT):

List ADT - Purpose	Function Definition

List Implementation

What types of List do we want?

Templated Functions:

```

functionTemplate1.cpp
1
2
3 T maximum(T a, T b) {
4   T result;
5   result = (a > b) ? a : b;
6   return result;
7 }
  
```

Templated Classes:

```

List.h
1 #ifndef LIST_H
2 #define LIST_H
3
4
5
6 class List {
7   public:
8
9
10
  
```

```

11 private:
12
13
14 };
15
16 #endif
  
```

```

List.cpp
1
2
3
4
5
  
```

Two Basic Implementations:

- 1.
- 2.

Linked Memory:



```

List.h
28 class ListNode {
29   T & data;
30   ListNode * next;
31   ListNode(T & data) : data(data), next(NULL) { }
32 };
  
```



Coding with Linked Lists: Examples

```

List.h
1  #ifndef LIST_H
2  #define LIST_H
3
4  template <typename T>
5  class List {
6  public:
7      /* ... */
8
9  private:
10     class ListNode {
11         T & data;
12         ListNode * next;
13         ListNode(T & data) : data(data), next(NULL) { }
14     };
15
16 };
17
18 #endif

```

```

List.cpp
1  #include "List.h"
2
3  template <typename T>
4  void List::insertAtFront(T & t) {
5
6
7
8
9
10
11
12 }

```

```

List.cpp
14 void List::printReverse() const {
15
16
17
18
19
20
21
22 }

```

```

List.cpp
24 template <typename T>
25 T List::operator[](unsigned index) {
26
27
28
29
30
31 }
32
33 ListNode *& List::_index(unsigned index) {
34
35
36
37
38
39 }

```

CS 225 – Things To Be Doing:

1. Programming Exam A starts Feb. 13 (a week from tomorrow)
2. MP2 due Feb. 12 (7 days), EC deadline is tonight!
3. Lab Extra Credit → Attendance in your registered lab section!
4. Daily POTDs