

I ILLINOIS

Lists

Learning Objectives

1. Explain what an ADT is
2. Apply templates to the List ADT



Definition

ADT (Abstract Data Type) - a class with a defined set of operations and variables

- Encapsulated
- Templated



List ADT

1.

2.

3.

4.

5.



Templates

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



Examples

```
template <typename T>           #include <iostream>
T maximum(T a, T b) {           int main(){
    T result;                    std::cout << maximum<int>(1,2) << std::endl;
    result = (a > b) ? a : b;    }
    return result;
}
```



Examples

```
#include <list>

int main(){
    std::list<int> lt = {1,2,3};
}
```



List Implementations

1. Linked Lists

2. Array Lists

