Search

E
W
N
S

Where I've been	Where I could've gone
front walk	garage
porch	dining room
flower garden	porch
foyer	knick-knacks room
sitting room	foyer
	office

ADT (ex. List)

abstract (vertical) b s t r a c t / a t a / y p e

ADT: Stack

LIFO (vertical) l a s t / i n / f i r s t / o u t

void push (T item) — adds an item to the top of the stack

T pop () — removes and returns the most recently-added item which has not yet been removed

Data structures:

LinkedStack ——— implement Stack using LinkedList
ArrayStack ——— implement Stack using Array List

|	push		pop	
LS	insertFirst $O(1)$		removeFirst $O(1)$	
AS	insertLast $O(1)$ (amortized)		removeLast $O(1)$	

Object Lifecycle in C++

1. Creation
   a. Allocate memory
   b. Initialized
      • Static: initialize all statically-allocated objects
      • Dynamic (constructor)
2. Use
3. Destruction (Creation in reverse *)

```
template <typename T>
class LinkedStack : public Stack<T> {
    ⋮
    LinkedList<T> list;
```
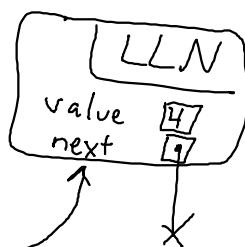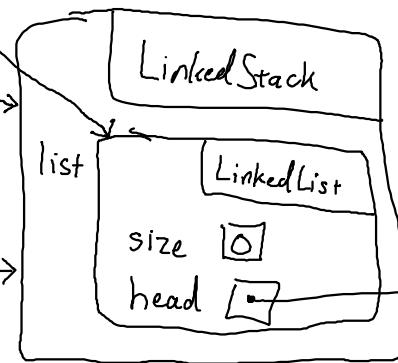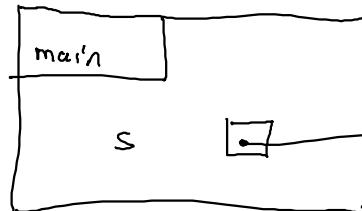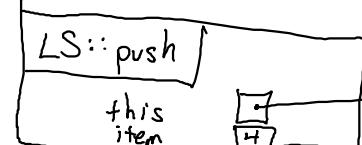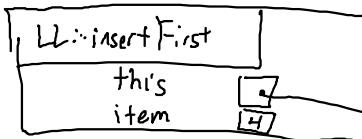
```
Stack<int>* s = new LinkedStack<int>();
s -> push (4);
```

LL::insertFirst
this [•]
item [4]

LS::push
this [•]
item [4]

main
s [•]

LinkedStack
list → LinkedList
size [0]
head [•]

LLN
value [4]
next [•] ✗