EECE.3220: Data Structures

Key Questions

Stacks, Part 1 (Lectures 16-17)

QUESTIONS

1. Describe the list ADT, including the common types of operations to be performed on a list.
2. What are the differences between stacks, queues, and general lists?
3. Describe the stack ADT.
4. Explain the const keyword.
5. Explain default function arguments.
6. What issues do dynamically allocated data members introduce when writing a class constructor?
7. (After writing the array-based constructor) What is a destructor and what is its purpose?
8. Describe how vectors can be used to implement a stack.
9. Describe how to implement a linked stack.

EXAMPLES

Given the following array-based stack class definition, write each of the member functions:

```
class Stack {
public:
   Stack(unsigned maxSize = 1024);  // Constructor
   ~Stack();                        // Destructor
   bool empty() const;              // True if stack empty
   void push(const double &val);    // Push val to top of
                                    //   stack
   void pop();                      // Remove top of stack
   double top();                    // Read top of stack
private:
   double *list;     // Actual data stored on the stack
   int tos;          // Index for top of stack
   unsigned cap;     // Capacity (max size) of stack
};
```

```
Stack::Stack(unsigned maxSize = 1024)
{



}

Stack::~Stack() {


}

bool Stack::empty() const {



}

void Stack::push(const double &val) {









}

void Stack::pop() {









}

double Stack::top() {



}
```