

C++ LAUNCHPAD



Lecture-14

Data Structures

- Stacks
- Queues

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Header Files

Recursion and Pile of Books



Stacks

Templates

Stacks

```
class Stack{  
    // accessor methods  
    int size();  
    bool isEmpty();  
    int top();  
    // update methods  
    void push (int element);  
    void pop();  
}
```

How to implement Stack Class?

1. Arrays
2. Linked List

Dynamic Arrays

Lets Implement Our Own Stack Class Using a Dynamic Array

Your Turn: Implement Stack Class Using Linked List

Lets solve few problems

1. Given an expression check if brackets are balanced e.g. $\{ a + [b + (c + d)] + (e + f) \}$
2. Reverse a Stack with the help of another empty stack

Queues

Queue

```
class Queue{  
    // accessor methods  
    int size();  
    bool isEmpty();  
    int front();  
    // update methods  
    void enqueue(int element);  
    int dequeue();  
}
```

How to implement Queue Class?

1. Linked List
2. Arrays

Lets Implement Our Own Queue Class Using Arrays

Your Turn: Implement Queue Class Using Linked List

Lets solve few problems

1. Reverse a Queue
2. Implement a Stack using Two Queues

C++ LAUNCHPAD



Thank You!

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