

# Nucleus

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Java Foundation & Data Structures

Lecture 17 : Stacks and Queues

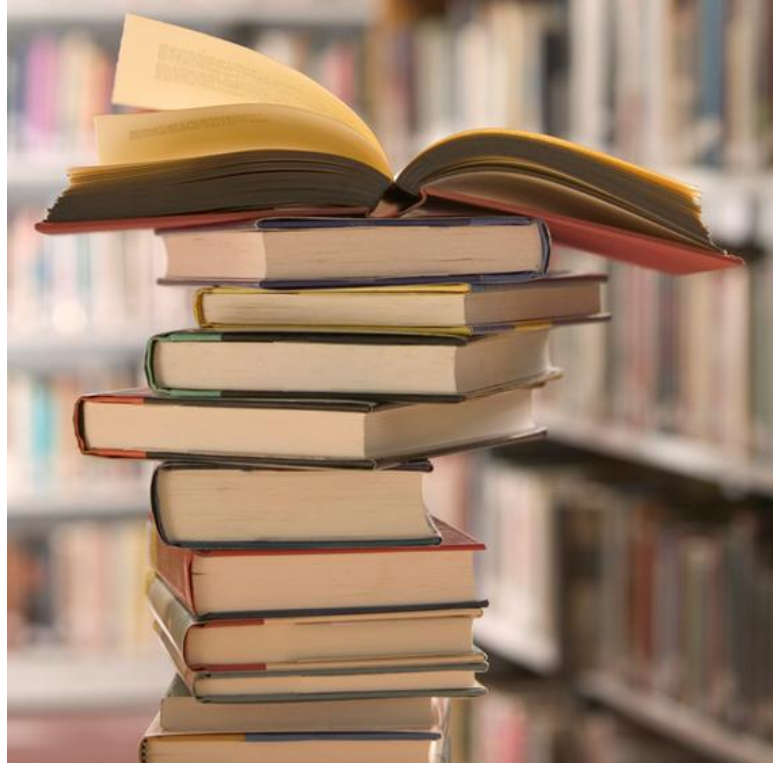


Tuesday, 4 July 17

# Doubts from Last Class ?

*Any doubts on assignment ?*

# Recursion and Pile of Books



# Stacks

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

# How to implement Stack Class?

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- Arrays
- Linked List

# Lets Implement Our Own Stack Class Using Array



# Homework : Implement Stack Class Using Dynamic Arrays

## Your Turn: Implement Stack Class Using Linked List

# Lets do some problems

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

# Queues

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

# How to implement Queue Class?

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- Arrays
- Linked List

# Lets Implement Our Own Queue Class Using Array

# Your Turn: Implement Queue Class Using Linked List



# Lets do some problems

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- Reverse a Queue
- Implement a Stack using Two Queues



Thank you

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