Announcements

Assignment 3: 8 Days to go

Several TAs, Instructors

Make use of Piazza, Office Hours

Demo:

Questions mainly based on concepts, not code

Stack (ADT)

1. "Abstract" Data type
2. Implementation "hidden" from the user (client)
3. The only access the clients have is to the following methods:
   a. add()
   b. remove()
   c. is_empty()
   d. size ()

Example use case of stack?

Matching Parenthesis

[3 * 3 * { 4 / 3 - (4 + 6) * 3 }] → Good

[3 * 3 * { 4 / 3 - (4 + 6) * 3 }) → Bad

Matching Parenthesis

Where do you use very often (may be multiple times in a week)

Eye test

See if you identify a good or bad equation

Exercise

How we implement balanced parenthesis using Stack?

Sack: ADT

Add an item in a order

Remove item in complete random order

Implement?

Superclass for Stack and Sack

Stack and Sack has lot of common Code

Move common code to super class Container

Let's see the implementation

Superclass Container

Most of the methods needs to be implemented in the child class

Still why we need it?

Suppose L is a List of containers [Stack, Slack, Queue]

```
for c in L:

    for i in range(1000):
        c.add(i)

    while not c.is_empty():
        print(c.remove())
```

Exceptions

You have been playing with this unknowingly

>>> 1/0 (ZeroDivisionError)

>>> [1,2,3] [4] (IndexError)

What will happen with the current implementation of Stack if somebody tries to remove from the empty list?

 Depending on the underlying implementation, you will have different error messages, which may be confusing to the clients.