

CSC148 fall 2013  
inheritance and exception  
week 3

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# Outline

specialize software

raising exceptions

## specialize flexibly

If we decided to extend the features of Stack, what's wrong with:

- ▶ modifying the existing Stack?
- ▶ cut-paste-modify Stack  $\longrightarrow$  MyStack?
- ▶ include Stack attribute in new classes

## class declaration

we subclass (extend) a superclass (base class) by:

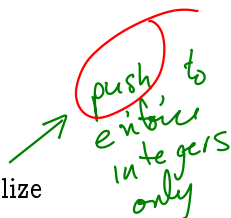
- ▶ declaring that we're extending it...

```
class NewClass(OldClass): ←  
    ...
```

- ▶ add methods and attributes to specialize

- ▶ other methods and attributes are searched for in superclass

push, to  
enforce  
in integers  
only



## override versus extend

*ignored.*

*3 ways*

you may replace or modify old code

- ▶ subclass method with the same name replace superclass method
- ▶ access superclass method with `OldClass.method(self, ...)`  
*wavy underline*
- ▶ `__init__` is a special case — careful

richer communication

→ flow control  
return value } local.  
if & conditionals

return types are not appropriate in all cases

there are no special values;  
→ except Exceptions!

- ▶ what's wrong with IntStack returning a "special" integer for pop-on-empty?
- ▶ push usually has return type None, but what if stuff happens?
- ▶ what if the calling code doesn't know what to do?

## cause existing Exceptions:

- ▶ `int("seven")` | *experiment with these - value Error.*
- ▶ `a = 1/0` | *div by zero*
- ▶ `[1, 2][2]` | *← index*

## raise existing Exceptions:

▶ `raise ValueError or...`

*Class*

*instance*

▶ `raise ValueError('you cant do that!')`





## roll your own Exceptions:

```
▶ class ExtremeException(Exception):  
    pass
```

```
▶ raise ExtremeException
```

*class*

*- instance*

```
▶ raise ExtremeException('I really object')
```



## roll your own Exceptions:

- ▶ `class ExtremeException(Exception):`  
    `pass`
  
- ▶ `raise ExtremeException`
  
- ▶ `raise ExtremeException('I really object')`