CSC148 winter 2014
inheritance, Exceptions, special methods
week 3

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Outline

specialize software

raising exceptions
If we decided to extend the features of Stack, what’s wrong with:

- modifying the existing Stack?
  - Stock already used by clients
    - e.g. want a stack that only accepts ints.

- cut-paste-modify Stack → MyStack?
  - Hard to maintain & problem

- include Stack attribute in new classes
we subclass (extend) a superclass (base class) by:

- declaring that we’re extending it...

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

- add methods and attributes to specialize

- other methods and attributes are searched for in superclass
override versus extend

you may replace or modify old code

- subclass method with the same name replace superclass method

- access superclass method with `OldClass.method(self, ...)`

- `__init__` is a special case — careful
richer communication

return types are not appropriate in all cases

- 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:

- \texttt{int("seven")}
- \texttt{a = 1/0}
- \texttt{[1, 2][2]}
raise existing Exceptions:

- raise ValueError or...

- raise ValueError("you can’t do that!")
roll your own Exceptions:

- class ExtremeException(Exception):
  pass

- raise ExtremeException

- raise ExtremeException('I really take exception to that!')
what makes two stack equivalent?

Tell Python with `__eq__`

Your `__eq__` should really be equivalent: symmetrical, reflexive, transitive
represent in a reproducible way

Tell Python how to represent your object with `__repr__`

Ideally, you should be able to cut-and-paste this representation to create an equivalent object