Reaching Higher with First Class Functions



Gerald Britton
IT Solutions Designer

@GeraldBritton www.linkedin.com/in/geraldbritton

Working Example



Order Processing System

Order

Order Items

Customer

Indicators

- Expedited
- Shipped
- Enterprise customer
- Item backordered

State information

- Order id
- Shipping address

Demo



Working example

Order entry and tracking system

Higher Order Functions in Python

```python
def f(x):
    return x + 2

def g(h, x):
    return h(x) * 2

print(g(f, 42))
```

Composition

```python
def addx(x):
    def _(y):
        return x + y
    return _

add2 = addx(2)
add3 = addx(3)

print(add2(2), add3(3))
```

Closure

```python
def f(x, y):
    return x*y

def f2(x):
    def _(y):
        return f(x, y)
    return _

print(f2(2))
print(f2(2)(3))
```

Currying

`functools.partial`

`n => n-1`

Demo



Using higher order functions

Summary



Order class with repeated code

New functionality = more duplication

Higher-order functions

- Composition
- Closures
- Currying

Refactored the Order class

Using calls to helper functions

Original functions became higher-order