61A Lecture 4
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Wednesday, January 28

Announcements
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• Homework 1 due Wednesday 1/28 at 11:59pm. Late homework is not accepted!
  Check your submission on ok.cs61a.org and submit again if it’s not right
• Take-home quiz 1 released Wednesday 1/28, due Thursday 1/29 at 11:59pm
  Open-computer, open notes, closed friends
• Content Covered: Lectures through Monday 1/26 (same topics as Homework 1)
  If you receive 0/3, talk to your TA (or me) about how to approach the course
• Extra lectures: Earn 1 unit (pass/no pass) by learning about optional additional topics
  First extra lecture: Thursday 1/29 5-6:30pm in 2050 VLSB (Come there to learn more)
• Project 1 due Thursday 2/5 at 11:59pm

The Fibonacci Sequence
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Iteration Example
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Discussion Question 1
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I'm still here

Characteristics of Functions
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A Guide to Designing Function
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Give each function exactly one job.

Don’t repeat yourself (DRY). Implement a process just once, but execute it many times.

Define functions generally.
Generalization

Regular geometric shapes relate length and area.

Shape:

Area:

Finding common structure allows for shared implementation

Generalizing Patterns with Arguments

Higher-Order Functions

Summation Example

Functions as Return Values

Locally Defined Functions

Call Expressions as Operator Expressions
Environments for Higher-Order Functions

Discussion Question

What is the value of the final expression below? (Demo)

```python
def repeat(f, x):
    while f(x) != x:
        x = f(x)
    return x

def g(y):
    return (y + 5) // 3

result = repeat(g, 5)
```

If you think there's an error