Environments for Higher-Order Functions

Functions are first-class: Functions are values in our programming language

Higher-order function: A function that takes a function as an argument value or a function that returns a function as a return value

Environment diagrams describe how higher-order functions work!

Names can be Bound to Functional Arguments

How to Draw an Environment Diagram

Environments for Nested Definitions

Environment Diagrams for Nested Def Statements

Every user-defined function has a parent frame (often global):
- The parent of a function is the frame in which it was defined.
- Every local frame has a parent frame (often global).
- The parent of a frame is the parent of the function called.

Environments Enable Higher-Order Functions

Environments

Announcements
Local Names

Functions are not visible to other functions unless
they are nested within the same frame.

Function composition

The environment diagram for function composition:

Self-reference

Returning a function using its own name.