

**LIBRARY  
ORIENTED  
PROGRAMMING**

@JSPAHRSUMMERS

REACTIVECOCOA

CARTHAGE

MANTLE

MORE LIBRARIES  
LESS COUPLING

**WHAT IS  
COUPLING?**

COUPLING  
IS A KIND OF  
COMPLEXITY

COUPLING IS EASY  
IN THE SAME CODEBASE

**LIBRARIES INTRODUCE  
BOUNDARIES**

LIBRARIES INTRODUCE  
GOOD FRICTION

**LIBRARIES  
SIMPLIFY**

WHAT IS  
"LIBRARY-ORIENTED"  
PROGRAMMING?



**ONE  
LIBRARY  
CONCEPT  
ABSTRACTION**

# SIMPLE

# ENCAPSULATED

# MAINTAINABLE

**BAE  
BAE  
FOUNDATION  
FOUNDATION  
ITINERARY**

# DESIGN PITFALLS

LIBRARY

VS.

FRAMEWORK

**BASE CLASSES ARE  
FRAGILE**

UNIFIED LANGUAGE  
IMPLEMENTATION  
PROTOCOLS

ONE

final  
WORD

**REMEMBER**  
**CONVENTIONS**

# DEPENDENCY MANAGEMENT



# WORKSPACES & GIT SUBMODULES

- 
- ALWAYS AVAILABLE
  - HARD TO MANAGE
  - DUPLICATES TRANSITIVE DEPENDENCIES
  - DOESN'T HELP WITH VERSIONING

# COCOAPODS

- WIDELY USED
- 'LOVE IT OR HATE IT'
- CENTRALLY MANAGED
- IGNORES XCODE PROJECT

# CARTHAGE

- IT'S GREAT (BUT I'M BIASED)
- BUILDS ON STANDARD XCODE SETUP
- CAN MANAGE SUBMODULES FOR YOU
- PREBUILT BINARIES

**NOT  
MUTUALLY  
EXCLUSIVE**



**OPEN SOURCE**  
**SUCCESS**

A photograph of a man in a flight suit and helmet, floating in the void of space. He is looking through a telescope, and the Earth is visible in the background, appearing as a large, blue and white sphere. The man has a serious expression. The overall mood is one of exploration and documentation.

**DOCUMENTATION**

**DOCUMENTATION**

**DOCUMENTATION**

USE IN A  
REAL PROJECT

**EMPOWER**  
**CONTRIBUTORS**

**ANSWER  
QUESTIONS**

BUILD OUTWARD  
(NOT INWARD)

**GET TO 1.0**

A medium shot of a man with short dark hair, wearing a light blue button-down shirt. He is standing outdoors, facing slightly to his left, and pointing his right index finger towards the water. In the background, there's a large white building with multiple windows and a balcony, some trees, and a clear sky.

**GET TO 1.0!**

MORE LIBRARIES  
LESS COUPLING

THANKS TO SIMON WHITAKER, NACHO SOTO, DAVE  
LEE, AND YOU!

QUESTIONS?

[GITHUB.COM/JSPAHRSUMMERS/LIBRARY-ORIENTED-PROGRAMMING](https://github.com/jspahrsummers/library-oriented-programming)