

Polish

Application Lifecycle

Saving & Restoring State

Exceptions & Errors

Failing Gracefully

Performance

Application Lifecycle

Not Running

Not Running

Inactive

Not Running

Inactive

Active

Not Running

Inactive

Active

Background

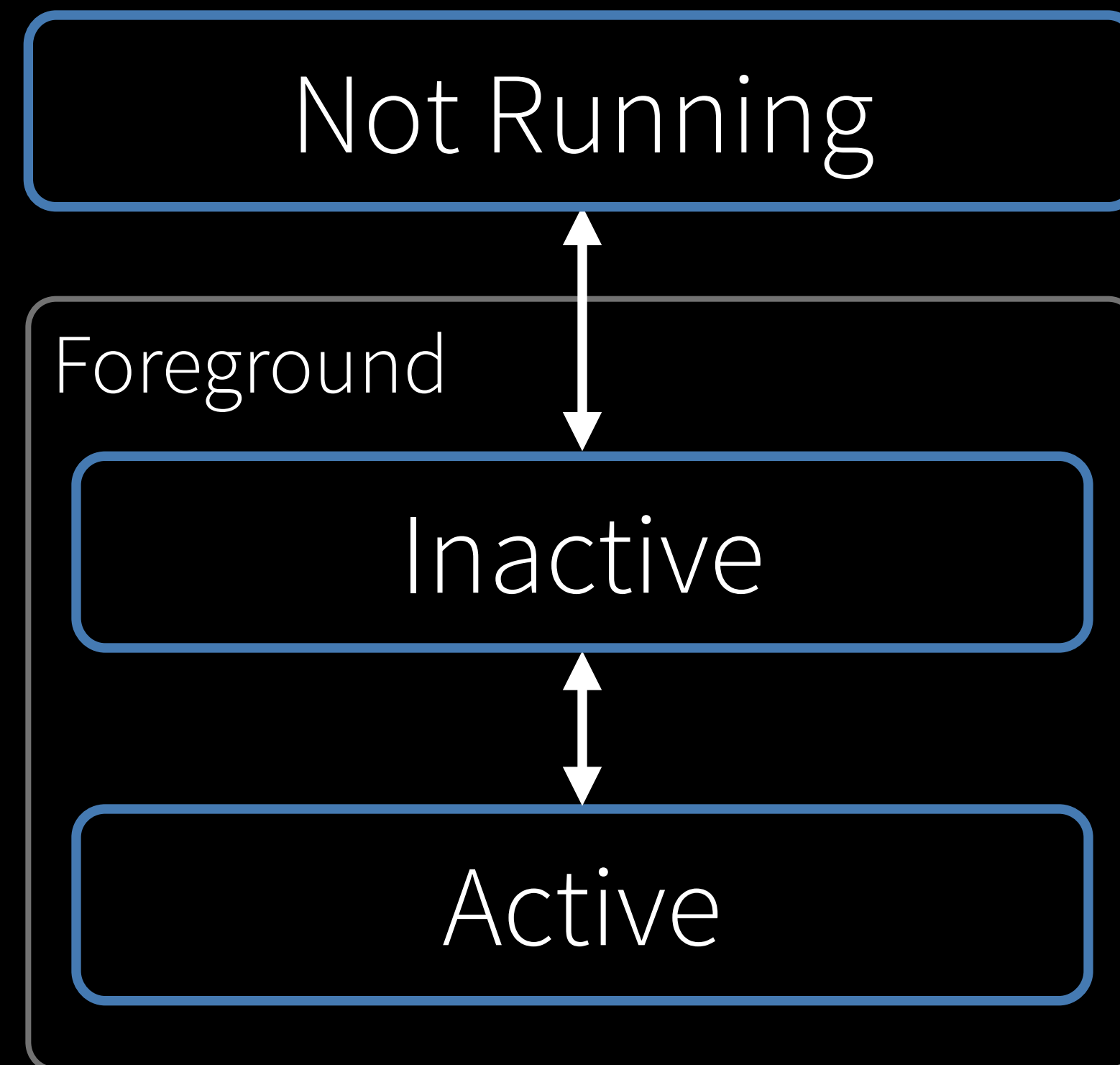
Not Running

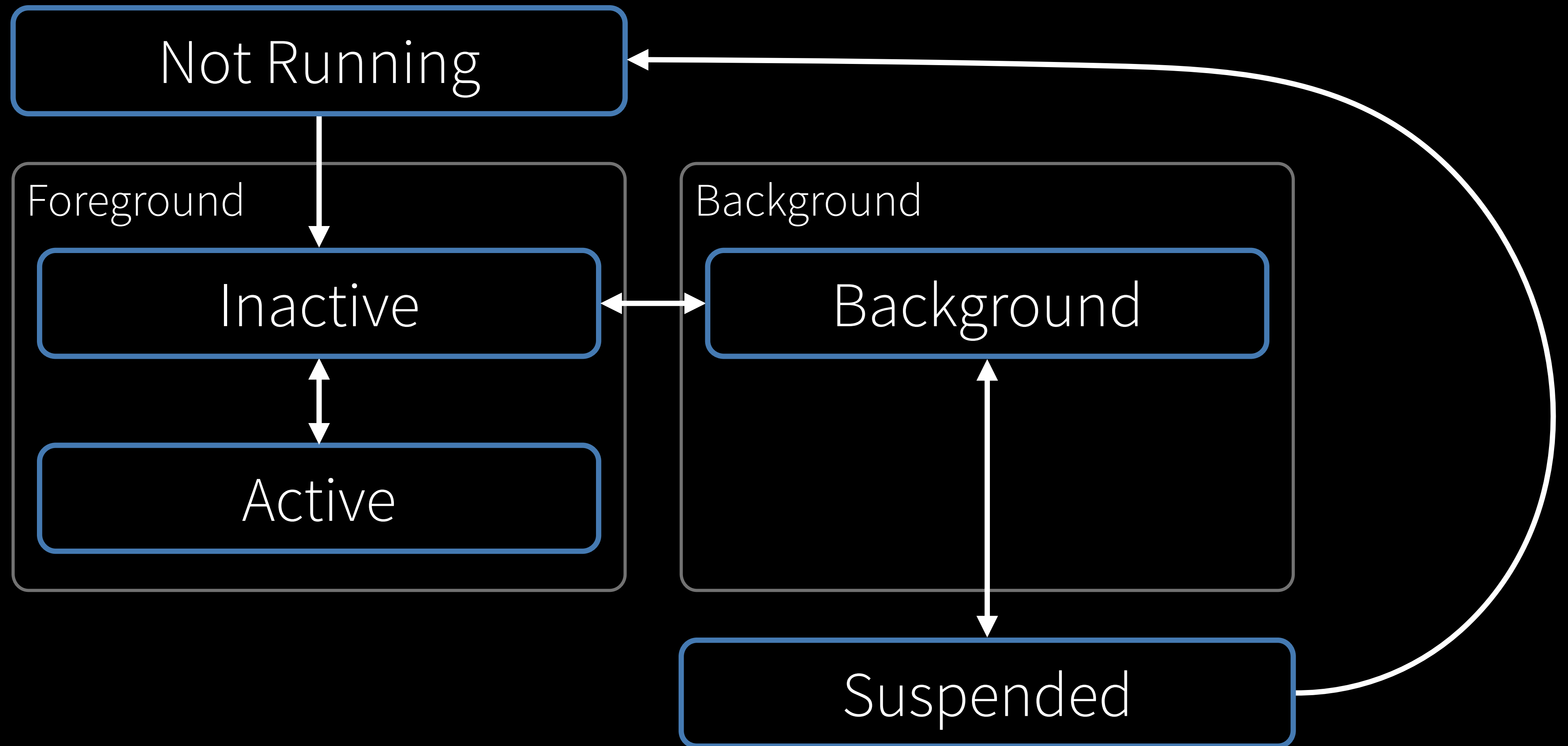
Inactive

Active

Background

Suspended





UIApplicationDelegate

application:willFinishLaunchingWithOptions:

application:willFinishLaunchingWithOptions:

application:didFinishLaunchingWithOptions:

application:willFinishLaunchingWithOptions:

application:didFinishLaunchingWithOptions:

applicationDidBecomeActive:

application:willFinishLaunchingWithOptions:

application:didFinishLaunchingWithOptions:

applicationDidBecomeActive:

applicationWillResignActive:

application:willFinishLaunchingWithOptions:

application:didFinishLaunchingWithOptions:

applicationDidBecomeActive:

applicationWillResignActive:

applicationDidEnterBackground:

application:willFinishLaunchingWithOptions:

application:didFinishLaunchingWithOptions:

applicationDidBecomeActive:

applicationWillResignActive:

applicationDidEnterBackground:

applicationWillEnterForeground:

application:willFinishLaunchingWithOptions:

application:didFinishLaunchingWithOptions:

applicationDidBecomeActive:

applicationWillResignActive:

applicationDidEnterBackground:

applicationWillEnterForeground:

applicationWillTerminate:

application:didFinishLaunchingWithOptions:

applicationDidEnterBackground:

5 seconds

What can you do
in the background?

Monitor and respond to limited system events

Respond to push notifications

Start a longer running background task

Background Fetch

Remote Notifications

Background Transfer Service

beginBackgroundTaskWithExpirationHandler:

Let's try it.

Saving & Restoring State

Preservation

1. Opt in via UIApplicationDelegate
2. Opt in for view controllers
3. Encode data when asked

1. Opt in via UIApplicationDelegate

application:shouldSaveApplicationState:

application:shouldRestoreApplicationState:

2. Opt in for view controllers

Set the `restorationIdentifier` property

3. Encode data when asked

encodeRestorableStateWithCoder:

decodeRestorableStateWithCoder:

Restoration

4. Opt in via UIApplicationDelegate
5. Create objects when asked
6. Decode preserved state

4. Opt in via UIApplicationDelegate

application:shouldSaveApplicationState:

application:shouldRestoreApplicationState:

5. Create objects when asked

UIViewControllerRestoration Protocol

+ viewControllerWithRestorationIdentifierPath:coder:

UIApplicationDelegate Protocol

- application:viewControllerWithRestorationIdentifierPath:coder:

6. Decode preserved state

encodeRestorableStateWithCoder:

decodeRestorableStateWithCoder:

Preserve 1. Opt in via UIApplicationDelegate

2. Opt in for view controllers

3. Encode data when asked

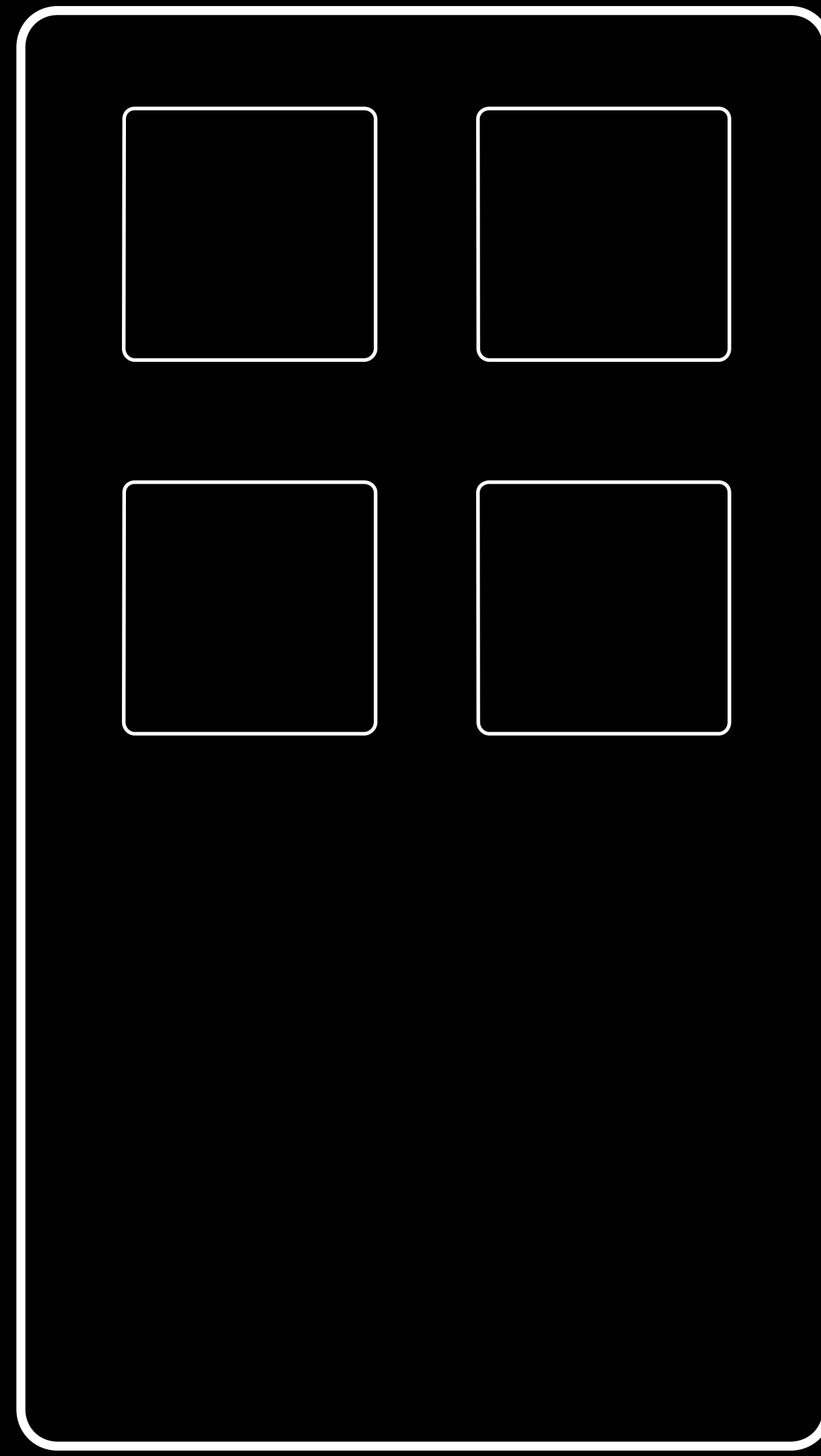
Restore 4. Opt in via UIApplicationDelegate

5. Create objects when asked

6. Decode preserved state

Secret Weapon: Storyboards

Main



List



Detail



Preserve 1. Opt in via UIApplicationDelegate

2. Opt in for view controllers

3. Encode data when asked

Restore 4. Opt in via UIApplicationDelegate

5. Create objects when asked

6. Decode preserved state

Preserve 1. Opt in via UIApplicationDelegate

~~2. Opt in for view controllers~~

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Restore 4. Opt in via UIApplicationDelegate

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~~6. Decode preserved state~~

Let's do it.

Exceptions & Errors

Exceptions

Programming errors

Unexpected runtime errors

Application should terminate soon

```
@try
{
    // Something dangerous!
}
@catch (NSError *exception)
{
    // This only gets executed if an exception is caught.
    // You can optionally rethrow the exception.
    @throw;
}
@finally
{
    // This always gets executed.
}
```


NSRangeException

NSInvalidArgumentException

NSInternalInconsistencyException

NSGenericException

NSRangeException

When attempting to access outside the bounds of some data.

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NSInvalidArgumentException

When you pass an invalid argument to a method.

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When an internal assertion fails, implies an unexpected condition.

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When you pass an invalid argument to a method.

NSInternalInconsistencyException

When an internal assertion fails, implies an unexpected condition.

NSGenericException

You should typically use a more specific exception name.

NSSetUncaughtExceptionHandler

Common Causes

Trying to store `nil` in a collection object

Removing an `IBOutlet` from code but not the nib

Trying to create a view controller with a misspelled nib name

Changing a method signature but not updating `@selector` calls

Break Stuff

Errors

NSError

```
NSError *error = [NSError errorWithDomain:errorDomain  
                                code:errorCode  
                                userInfo:userInfo];
```

```
NSString *errorDomain = @"com.smartfactory.smarticle";
NSInteger errorCode = 42;
NSDictionary *userInfo = @{
    NSLocalizedString: @"Couldn't save your favorite."
};
```

```
NSError *error = [NSError errorWithDomain:errorDomain
                                code:errorCode
                                userInfo:userInfo];
```

Lab 5.1

Enable State Preservation and Restoration for DetailViewController

1. Add a restoration ID to DetailViewController
2. Implement `encodeRestorableStateWithCoder:`
3. Implement `decodeRestorableStateWithCoder:`
4. Implement `application:
viewControllerWithRestorationIdentifierPath:coder:`