Swift
AHMEDABAD

Modern Concurrency in Swift

Nishchal Visavadiya 19-10-24

Agenda

- Traditional approaches to concurrency
- Swift concurrency
  - Evolution of concurrency with swift 5.5
  - Key constructs in new concurrency model
  - Concurrency in practice
- Swift 6 language mode and strict compilation checks
- QnA and Discussions

Traditional concurrency in Swift

- What traditional methods have in common?
- Development experience
- Developer discipline
- Thread explosions

Evolution of Swift’s concurrency

- async/await: write asynchronous code in linear fashion
- Tasks: Creating and managing Tasks
- Task Group: Running multiple concurrent Tasks
- Actors: Enforcing **data isolation** with actors

Concurrency in practice

- Actors and their reentrant behaviour
- Using legacy APIs with our async/await code
- Importance of weak self with Task
- Global actors and MainActor
- Creating our own global actors

Swift 6 Concurrency

- How to enable swift 6 mode in Xcode 16
- Sendable and @Sendable
- nonisolted(unsafe)
- @preconcurrency
- Official migrating guide
  - https://www.swift.org/migration/documentation/migrationguide/

Future of Swift Concurrency

- Custom executors with sequential guarantee
- Atomics and concurrent collections support

  https://www.swift.org/blog/swift-atomics/
- Swift evolution

  https://www.swift.org/swift-evolution/

QnA

Swift concurrency: Behind the scenes

https://developer.apple.com/videos/play/wwdc2021/10254/

Thank you!