

The logo for DevOxx is located on the left side of the slide. It consists of the word "DevOxx" in a stylized, white, blocky font on a black background. The "x"s are crossed out with orange diagonal lines. A small "TM" trademark symbol is at the top left.

Say the Words: Modern Java with JavaFX and GraalVM for Rich Client UIs

Paul Anderson
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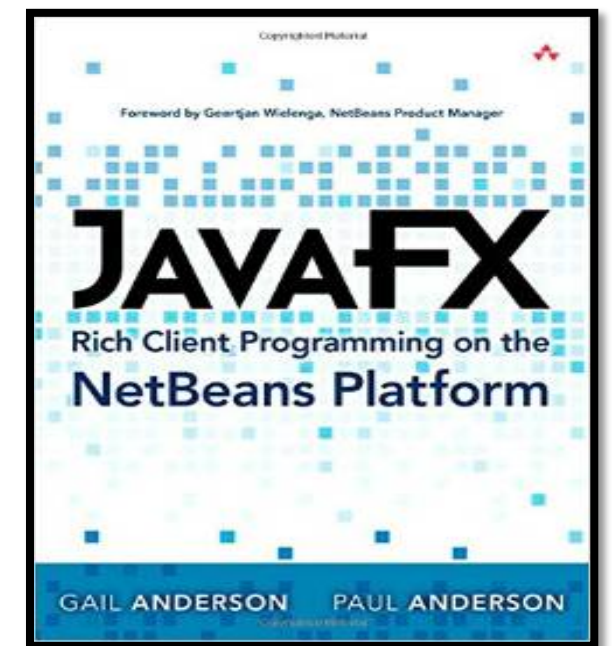
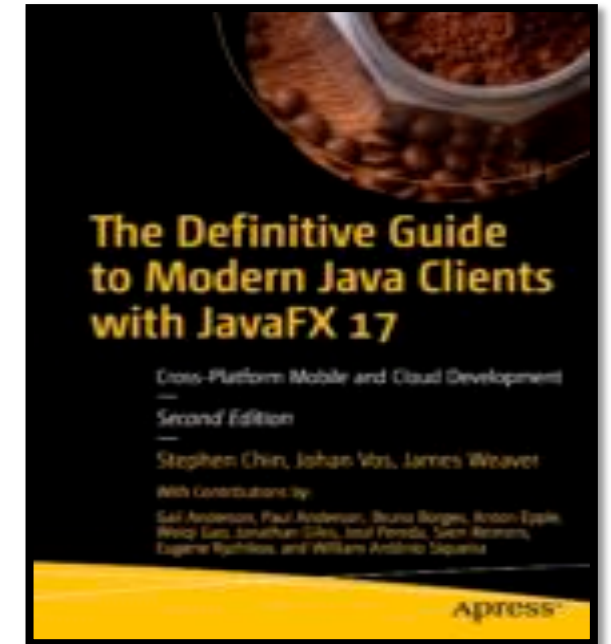
Anderson Software Group, Inc.
asgteach.com





So Who Are We?

- Training Company
 - Java, JavaFX Courses
- Books
 - Definitive Guide to Modern Java Clients with JavaFX 17
 - JavaFX Rich Client Programming on the NetBeans Platform
- Affiliations
 - Java Champions
 - Oracle Ace Members





Agenda

- Why JavaFX on Mobile?
- Gluon Substrate and GraalVM
- GluonFX Plugin for Maven
- Mobile App Examples
 - TiltMaze – The Accelerometer
 - Wordish – FXML and Scene Builder
- JavaFX Techniques
- Summary, Q & A



Why JavaFX on Mobile?

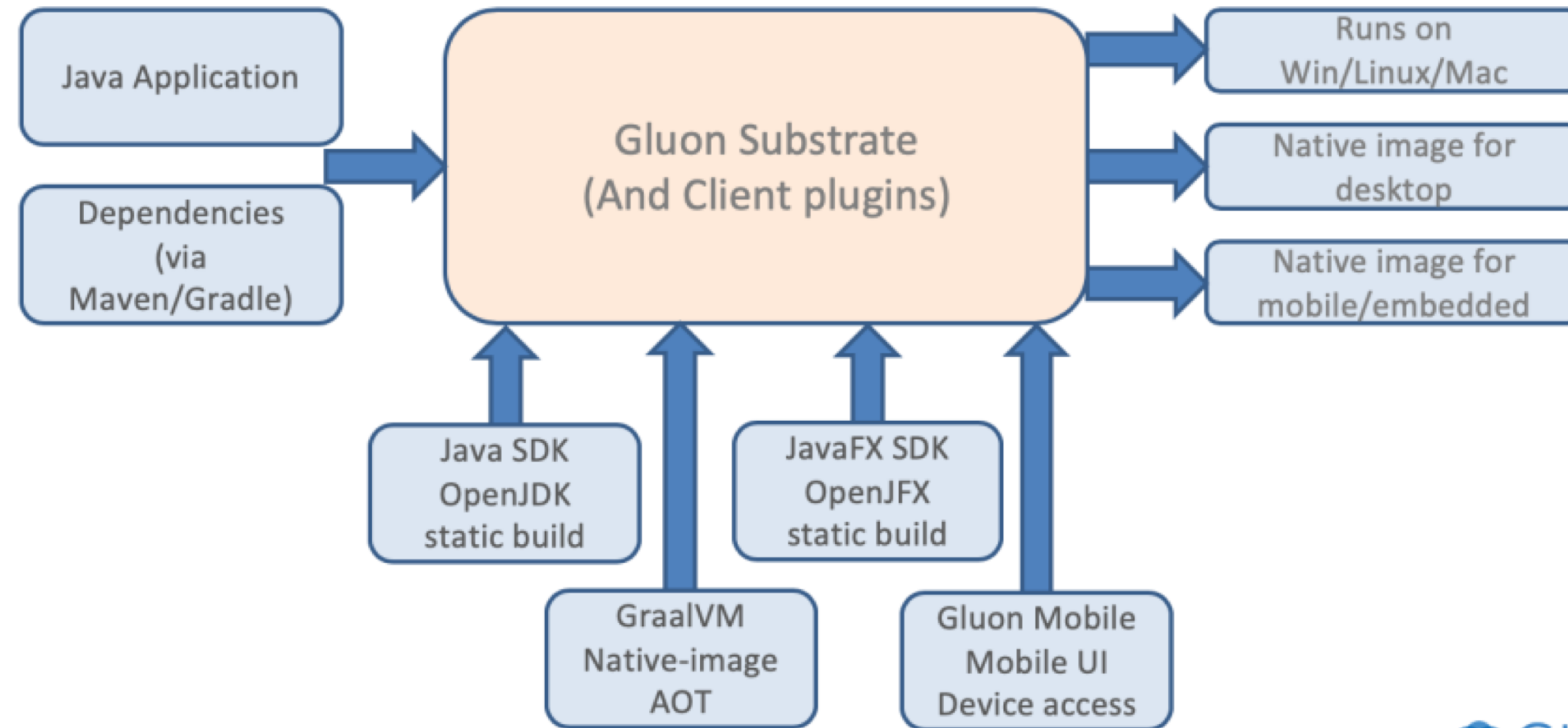
- Critical Goal
 - Platform independent source code
 - “Write Once, Install Everywhere”
- Design Approach
 - Gluon tools and GraalVM platform
 - Lets you build native images
- JavaFX Advantages
 - Java UI, scene graph, nodes, FXML views, charts
 - Properties, listeners, binding, event handlers
 - JavaFX is Java, so you get a modern language

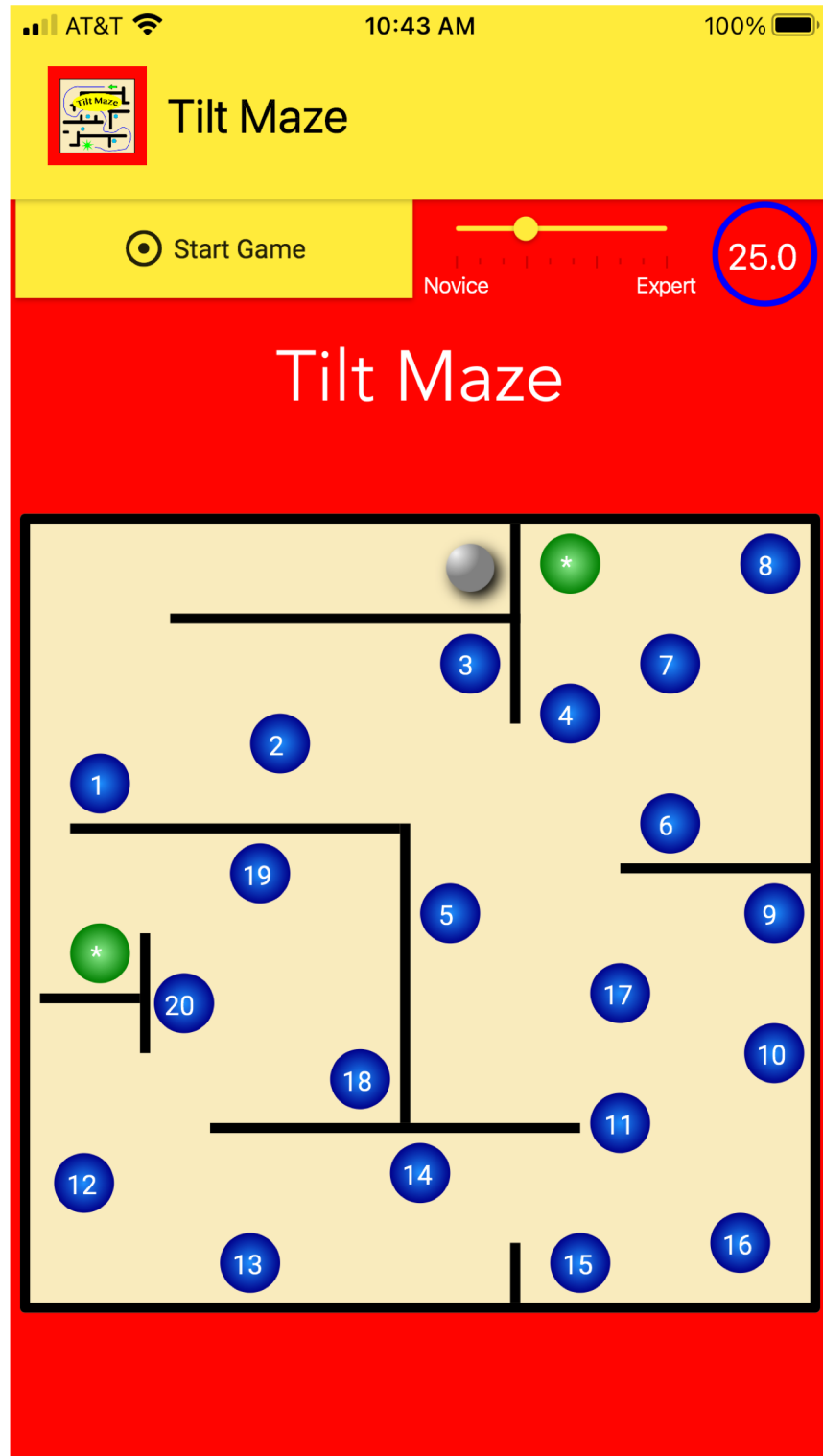


What is GraalVM?

- GraalVM Features
 - Oracle Framework
 - Includes JIT and AOT compilers
 - High Performance JDK
 - Speeds up performance of JVM applications
- Why Use GraalVM?
 - Lowers application latency
 - Improves peak throughput, reduces GC times

Gluon Substrate and GraalVM

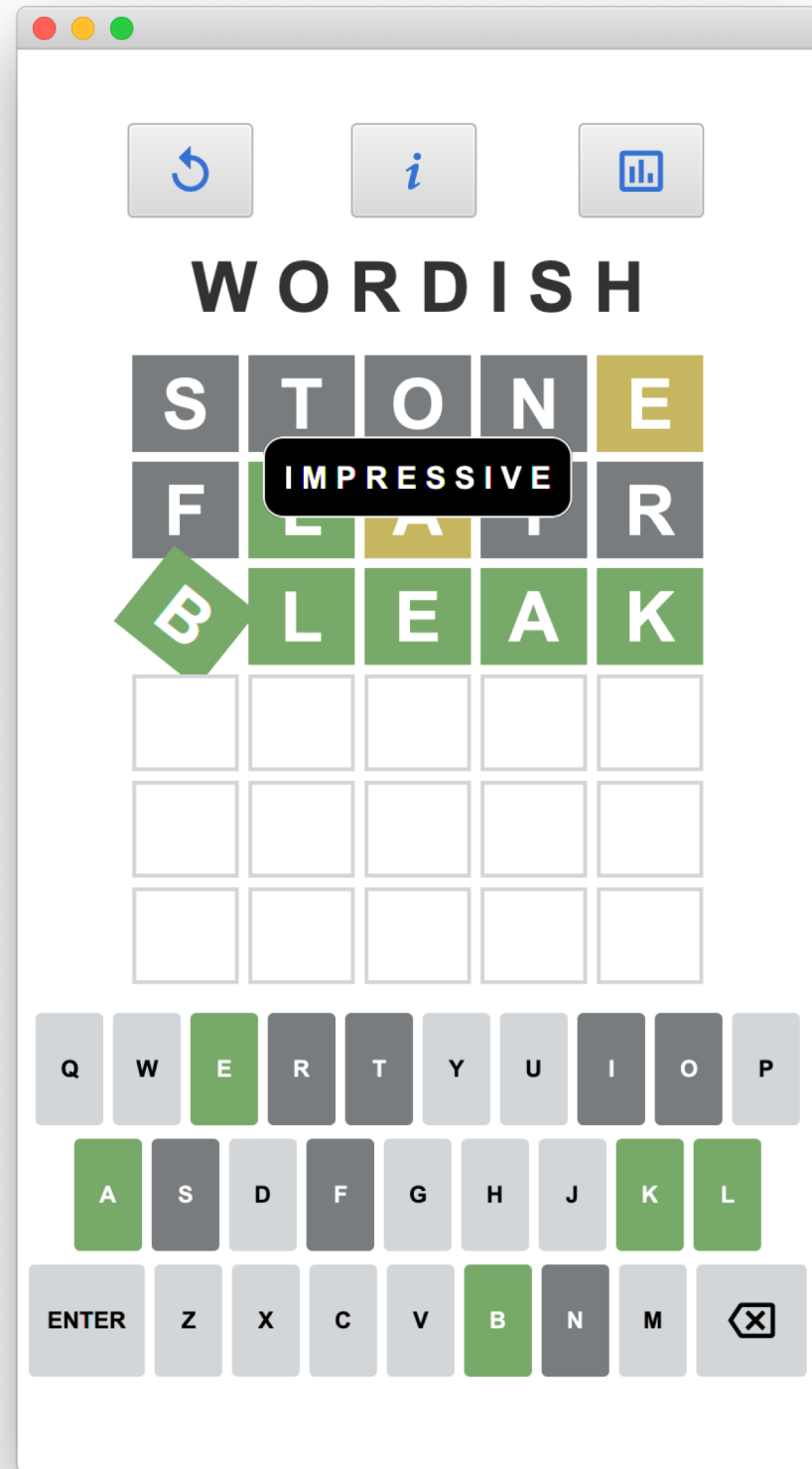




TiltMaze

- [TiltMaze on Google Play](#)
- [TiltMaze on Apple App Store](#)
- Features
 - Access device accelerometer in Animation loop
 - Gluon Mobile for mobile-friendly controls (licensed)
 - FXML to keep View and Controller separate
 - Collision detection to control game
 - Property binding to keep UI in sync

Wordish



- Kind of like Wordle
- Features
 - Advanced UI layout concepts
 - Use Scene Builder/FXML to design UI
 - CSS Pseudo classes
 - Third-party Font icons
 - Node-level animation
 - Leverage modern Java
 - Property binding to keep UI in sync
 - Not in app stores, on GitHub:
<https://github.com/gailasgteach/Wordish>



GluonFX Plugin for Maven

- Starter Page + GraalVM download
 - <https://start.gluon.io/>
 - <https://github.com/gluonhq/graal/releases/tag/gluon-22.1.0.1-Final>
- Samples on GitHub
 - <https://github.com/gluonhq/gluon-samples>
 - Starter projects you can download and study
- Tutorial from Idea to App Store
 - <https://foojay.io/today/creating-mobile-apps-with-javafx-part-1/>



Wordish – FXML and Scene Builder

- Scene Builder
 - Generates FXML
 - Use drag and drop to design view
 - Customize for extended controls and Font Library
- Layout Controls
 - GridPane for Button controls and title
 - TilePane for letter Labels
 - FlowPane for virtual keyboard



JavaFX Property Binding

- Property Binding
 - Properties depend on values of other properties
 - Succinct, less error prone, consistent game state
 - Avoid writing listeners
 - Build logical expressions with support APIs
 - `.lessThan()`, `.or()`, `.isEqualTo()`
- Wordish



JavaFX Pseudo Classes

- CSS Support for state of a JavaFX control
 - Used throughout JavaFX control hierarchy
 - Example: Button turns less opaque when disabled
- Wordish
 - LetterLabel – property LetterDisplay
 - KeyButton – property LetterDisplay
 - style.css – define styling for various states



JavaFX Animation in Wordish

- Node animation with Transitions
 - TranslateTransition – move node
 - FadeTransition – change opacity of node
 - RotateTransition – rotate node
 - ParallelTransition – transitions in parallel
 - SequentialTransition – transitions sequentially
- Wordish



Chart Your Guesses

- JavaFX Charts
 - Adding data to the Bar Chart
 - Customizing the Bar Chart
 - Adding controls to a Chart Node
 - Create delay
 - Use snapshot
- Wordish



Summary

- JavaFX on Mobile
 - Java and JavaFX code base for development
 - TiltMaze and Wordish Apps
 - GraalVM for native images on IOS/Android
- JavaFX Techniques
 - FXML and Scene Builder
 - Property Bindings
 - Pseudo Classes for CSS Styling
 - Animation, Charts



Q & A

- Thanks for Attending!

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- GitHub Source Code

<https://github.com/gailasgteach/Wordish/>

<https://github.com/gailasgteach/TiltMaze/>

