

ORACLE
CloudWorld

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September 21, 2023

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

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So Who Are We?

▶ Training Company

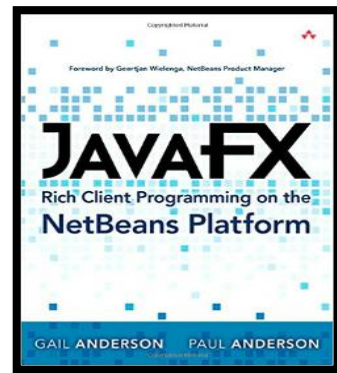
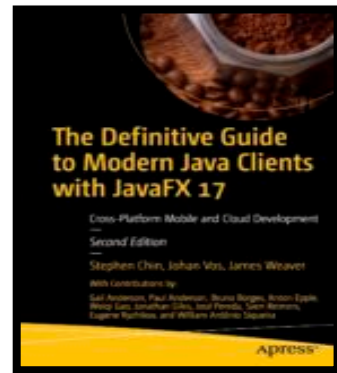
- Java, JavaFX Courses

▶ 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?

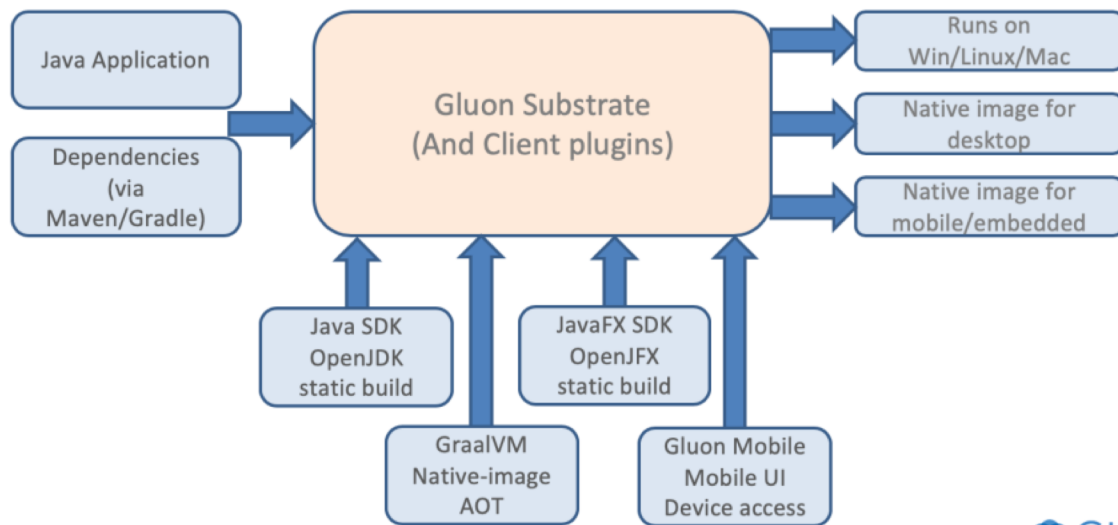
▶ GraalVM Features

- Oracle Framework
- Includes JIT and AOT compilers
- High Performance JDK
- Speeds up performance of JVM applications

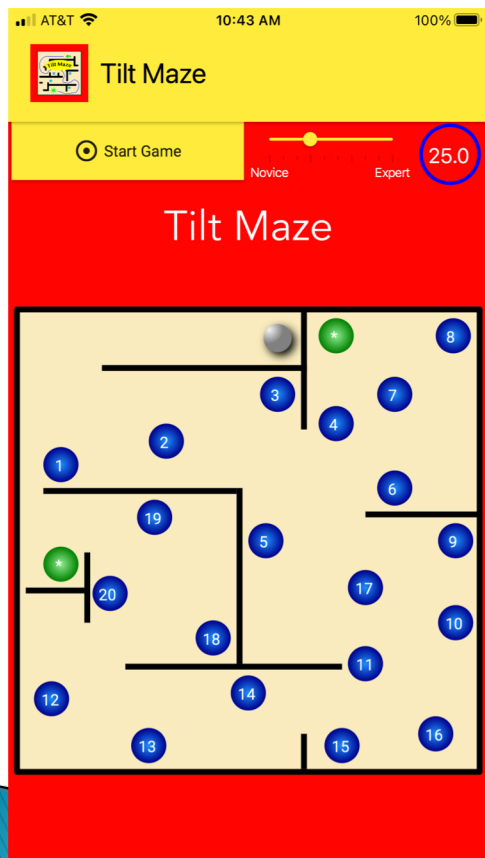
▶ Why Use GraalVM?

- Lowers application latency
- Improves peak throughput, reduces GC times

Gluon Substrate and GraalVM

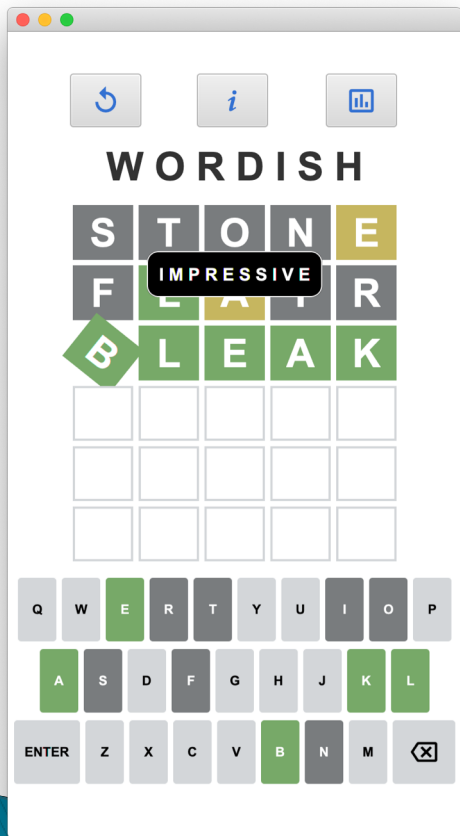


TiltMaze



- ▶ [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/gailasgtech/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/gailasgtech/Wordish/>

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

Session Survey

