JavaOne

October, 29 2015

One Codebase to Rule Them All

Going Mobile with 2048 FX

2048 FX

José Pereda & Jens Deters

CON3255

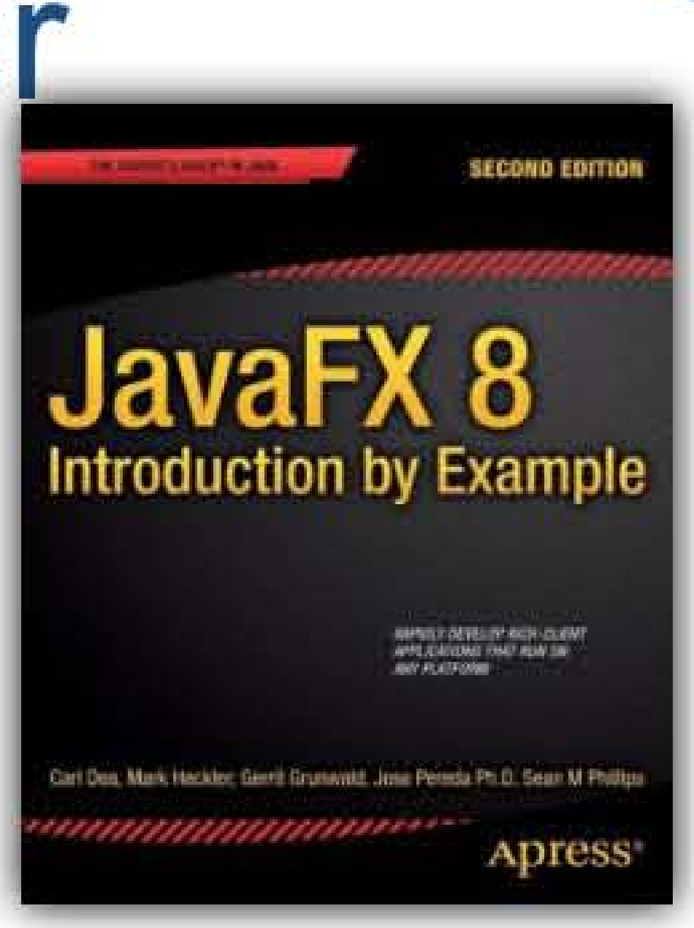
JavaOne

Introduction

José Pereda

- PhD, Structural Engineer
- Software Engineer at Gluon, Spain
- JavaFX books coauthor & technical reviewer
- http://jperedadnr.blogspot.com
- http://github.com/jperedadnr
- **@JPeredaDnr**

GLUON



JavaFX Essentials
Create amazing Java GUI applications with this hands-on, fast-paced guide
Mohamed Taman
[PACKT]

2048 FX

ANDROID APP ON Google play

Available on the App Store

By Jens Deters

2048 FX

Introduction

Jens Deters

- Senior IT Consultant at codecentric, Germany
- JavaFX + IoT addicted, NetBeans DreamTeam
- MQTT.fx, FontAwesomeFX
- http://www.jensd.de
- https://bitbucket.org/Jerady/
- **@jerady**

codecentric

MQTT fx

2048 FX

Available on the App Store

ANDROID APP ON Google play

By José Pereda

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- JavaFXPorts: Java/JavaFX on mobile
- The 2048^{FX} mobile app (1.0)
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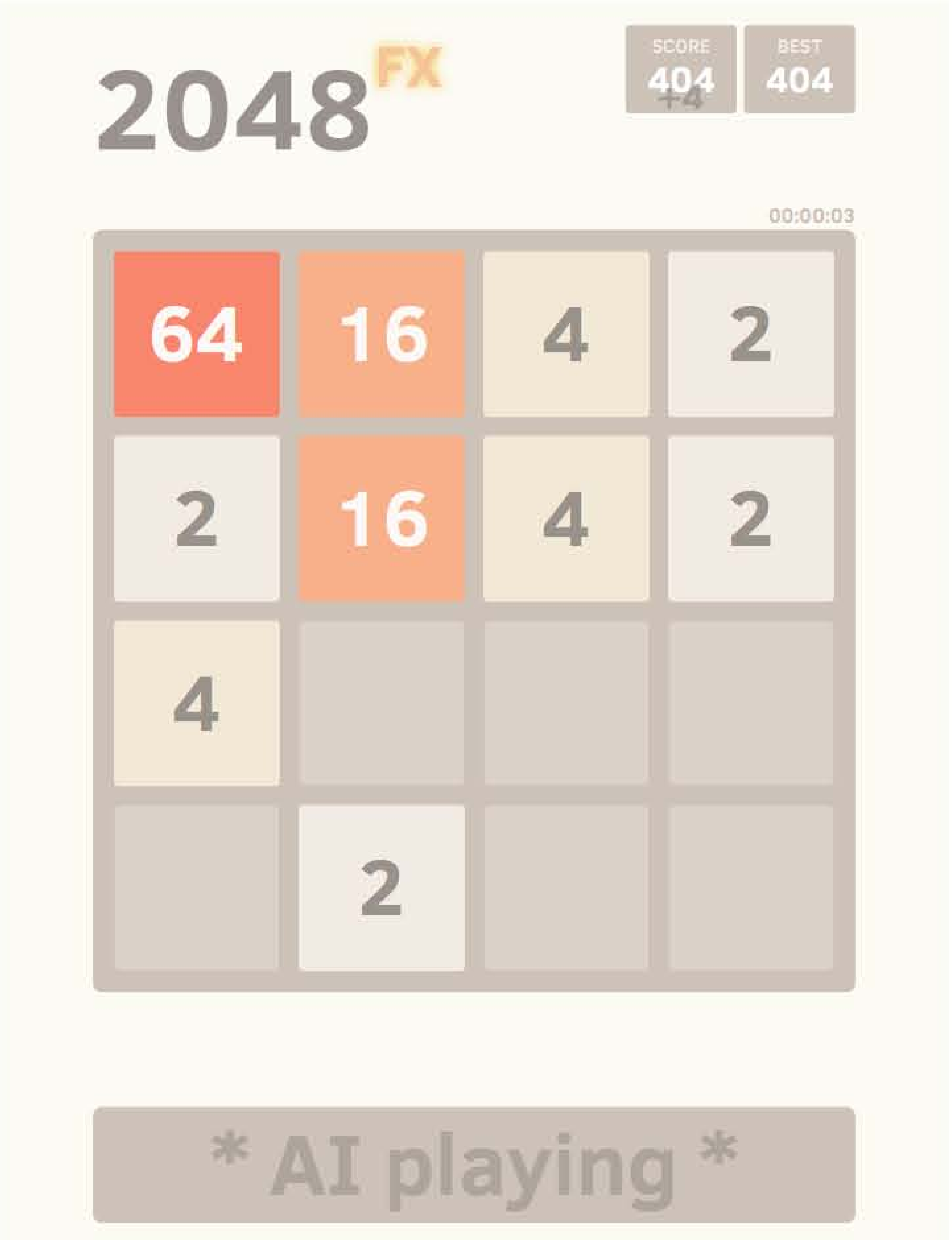
- Gluon Charm
- The new 2048^{FX} app (2.0)
- Q&A



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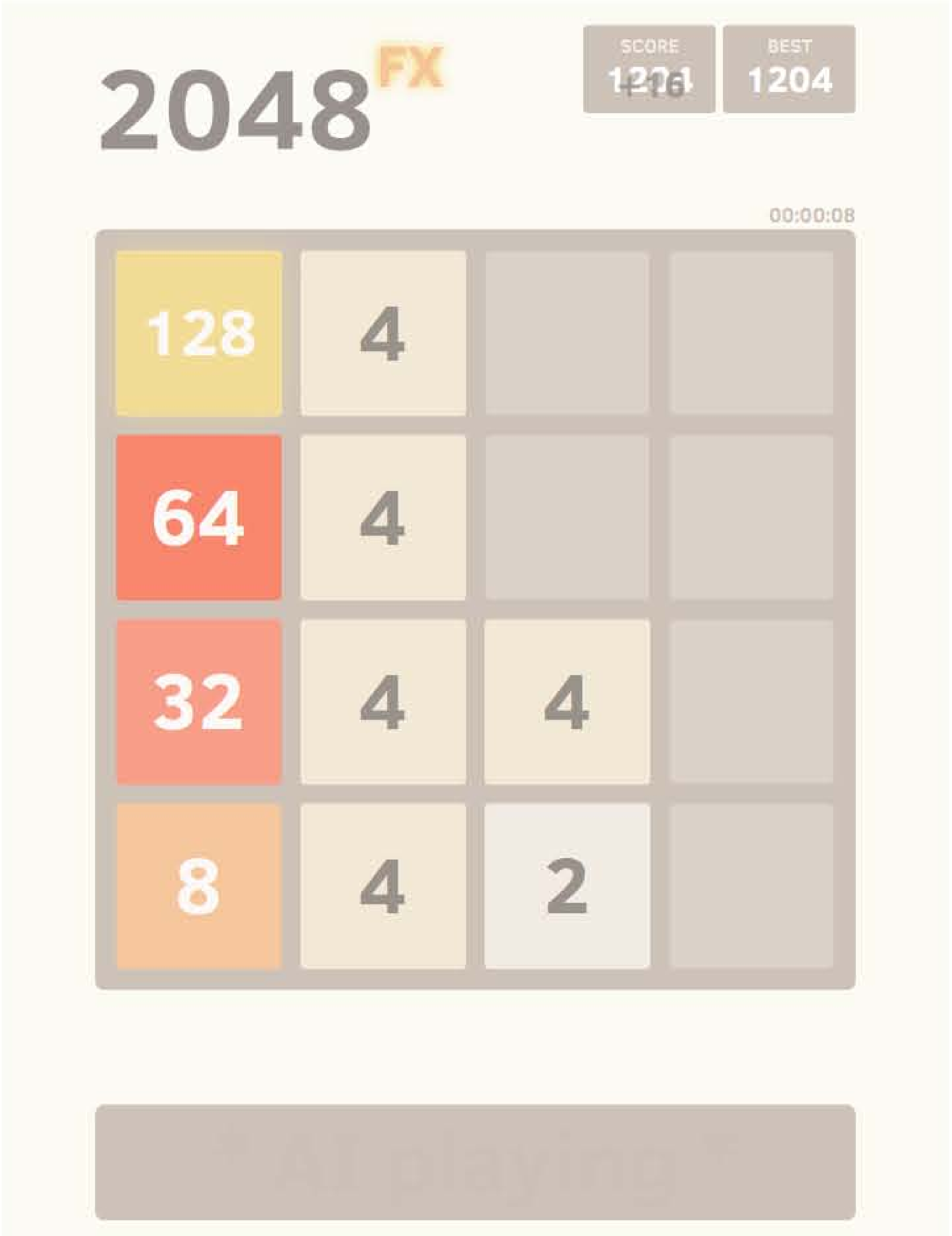


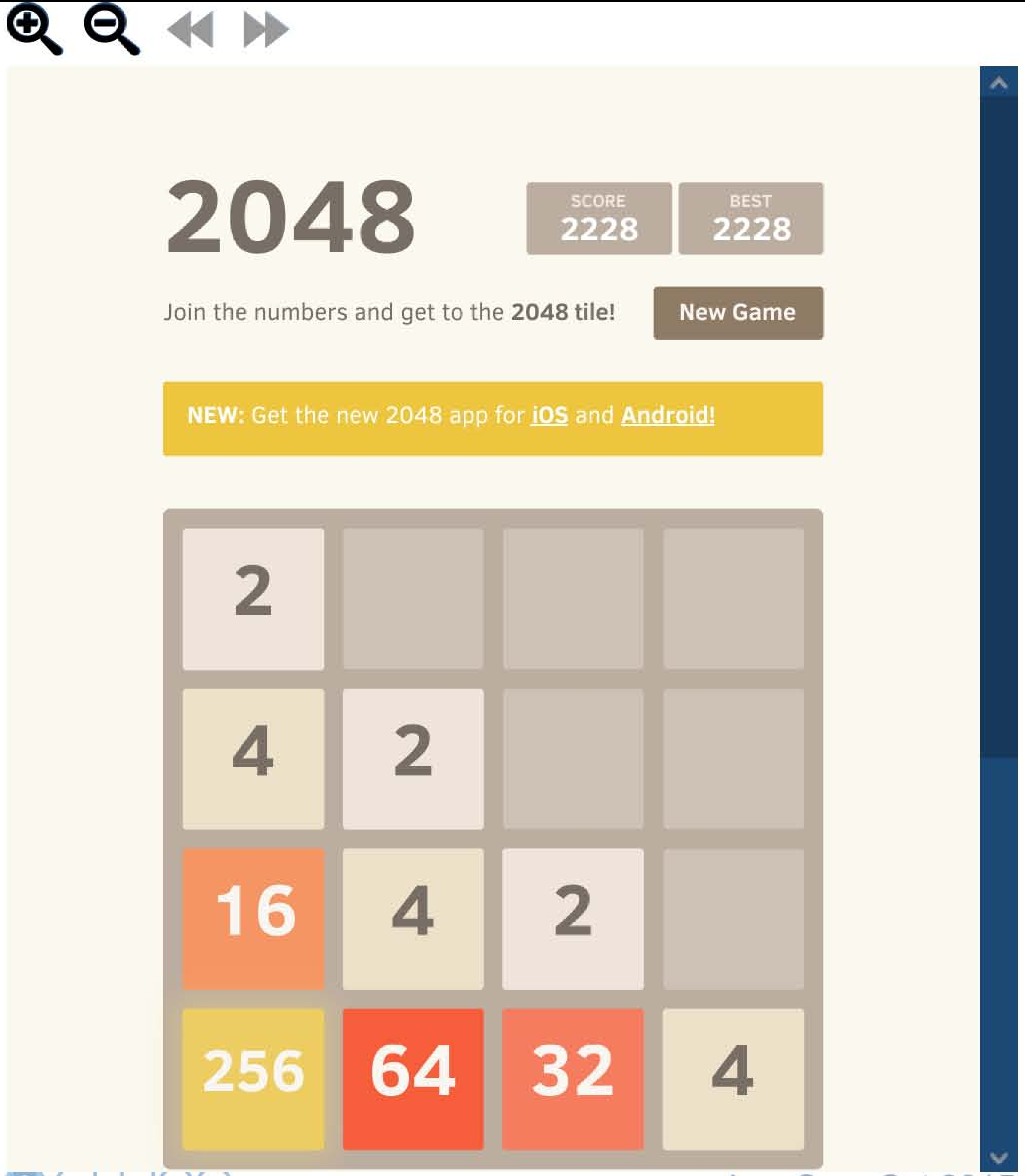
2048 - The Game

Popular Game created by Gabriele Cirulli

2048 was built using HTML, CSS and JavaScript

Released as OSS under the MIT license

- Move numbers in a 4x4 grid
- When equal numbers clash while moving the blocks (up/down/left/right), they merge and numbers are added up
- You win when you get a number in a box with **2048** (match two blocks with 1024 each)


2048

SCORE 2228

BEST 2228

Join the numbers and get to the **2048 tile!**

New Game

NEW: Get the new 2048 app for iOS and Android!

2			
4	2		
16	4	2	
256	64	32	4

Playing 2048

2048 can be played everywhere!

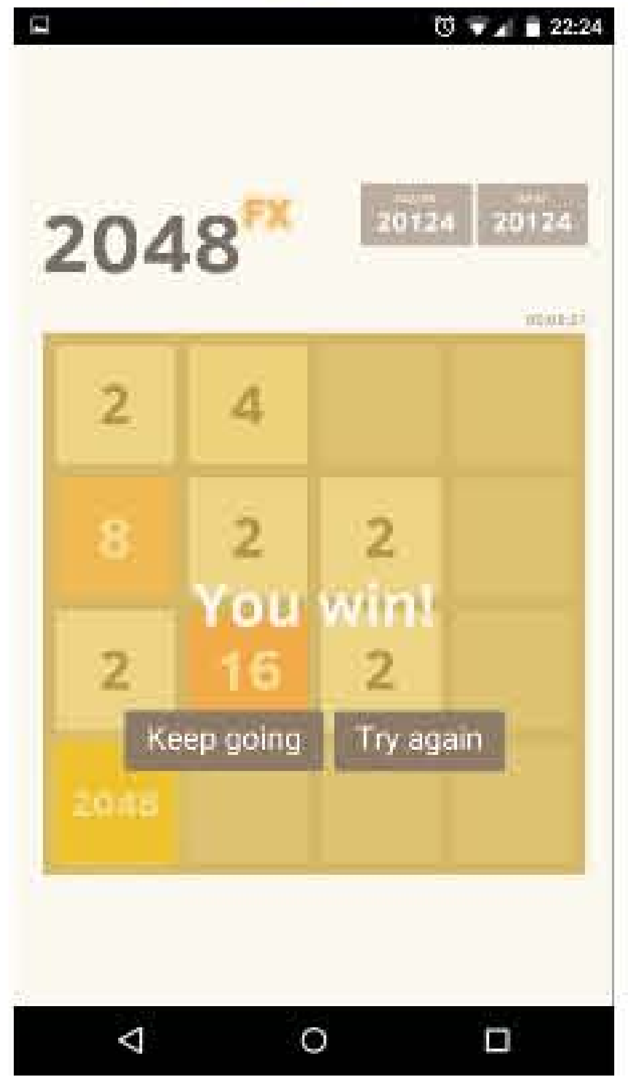
Besides the web version, Cirulli has also iOS and Android versions

With JavaFX we can play now on:

- PCs and Laptops
- Tablets and Smartphones running Java SE 8
- Raspberry Pi and embedded devices with UI support

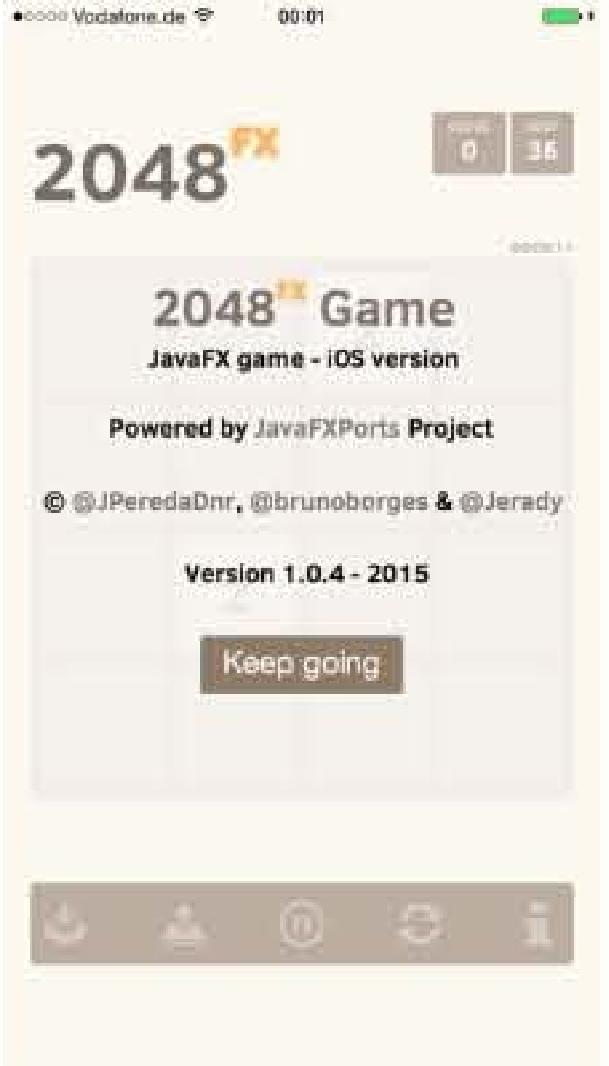
With JavaFXPorts we can play now on:

- Tablets and Smartphones running Android
- Tablets and Smartphones running iOS



You win!

Keep going   Try again



2048^{FX} Game

JavaFX game - iOS version

Powered by JavaFXPorts Project

© @JPeredaDnr, @brunoborges & @Jerady

Version 1.0.4 - 2015

Keep going

The story behind 2048 ^{FX}

Back in March 2014, Bruno Borges started a first version of the game in JavaFX

Totally addicted to the game by that time, I jumped in

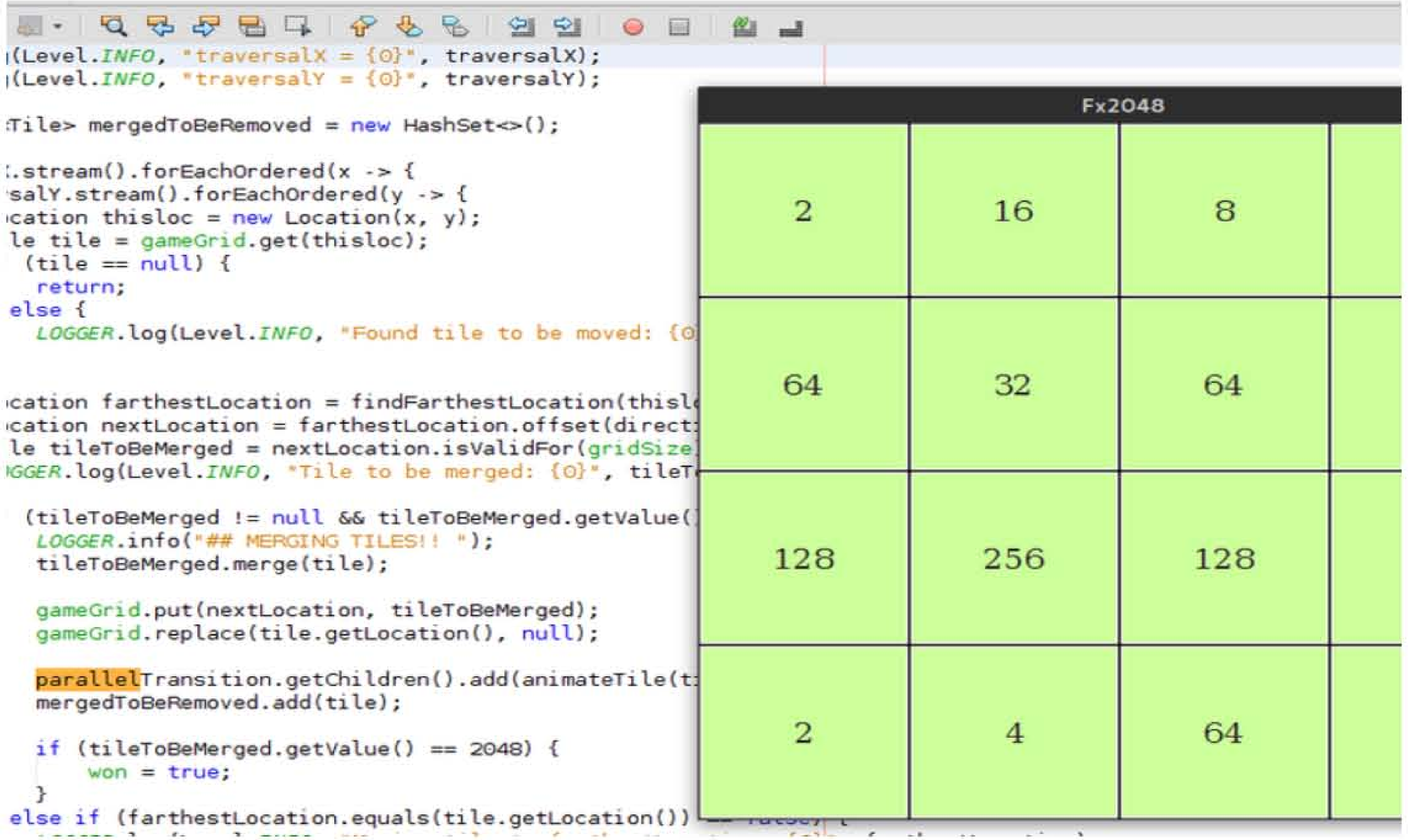
The initial purpose was discovering the new features of Java 8

- https://github.com/brunoborges/fx2048
- Around 80 forks/stars in GitHub
- Around 100 commits

The game was ready for JavaOne 2014

We had a Conference talk and a Hands On Labs

And in January 2015 we started porting it to mobile



```
|(Level.INFO, "traversalX = {0}", traversalX);
|(Level.INFO, "traversalY = {0}", traversalY);

:Tile> mergedToBeRemoved = new HashSet<>();

:.stream().forEachOrdered(x -> {
'salY.stream().forEachOrdered(y -> {
ication thisloc = new Location(x, y);
le tile = gameGrid.get(thisloc);
 (tile == null) {
  return;
else {
  LOGGER.log(Level.INFO, "Found tile to be moved: {0


ication farthestLocation = findFarthestLocation(thisl
ication nextLocation = farthestLocation.offset(direct
le tileToBeMerged = nextLocation.isValidFor(gridSize
)GGER.log(Level.INFO, "Tile to be merged: {0}", tileT

 (tileToBeMerged != null && tileToBeMerged.getValue(
  LOGGER.info("## MERGING TILES!! ");
  tileToBeMerged.merge(tile);

  gameGrid.put(nextLocation, tileToBeMerged);
  gameGrid.replace(tile.getLocation(), null);

  parallelTransition.getChildren().add(animateTile(t
  mergedToBeRemoved.add(tile);

  if (tileToBeMerged.getValue() == 2048) {
      won = true;
  }
else if (farthestLocation.equals(tile.getLocation())
```

2	16	8
64	32	64
128	256	128
2	4	64

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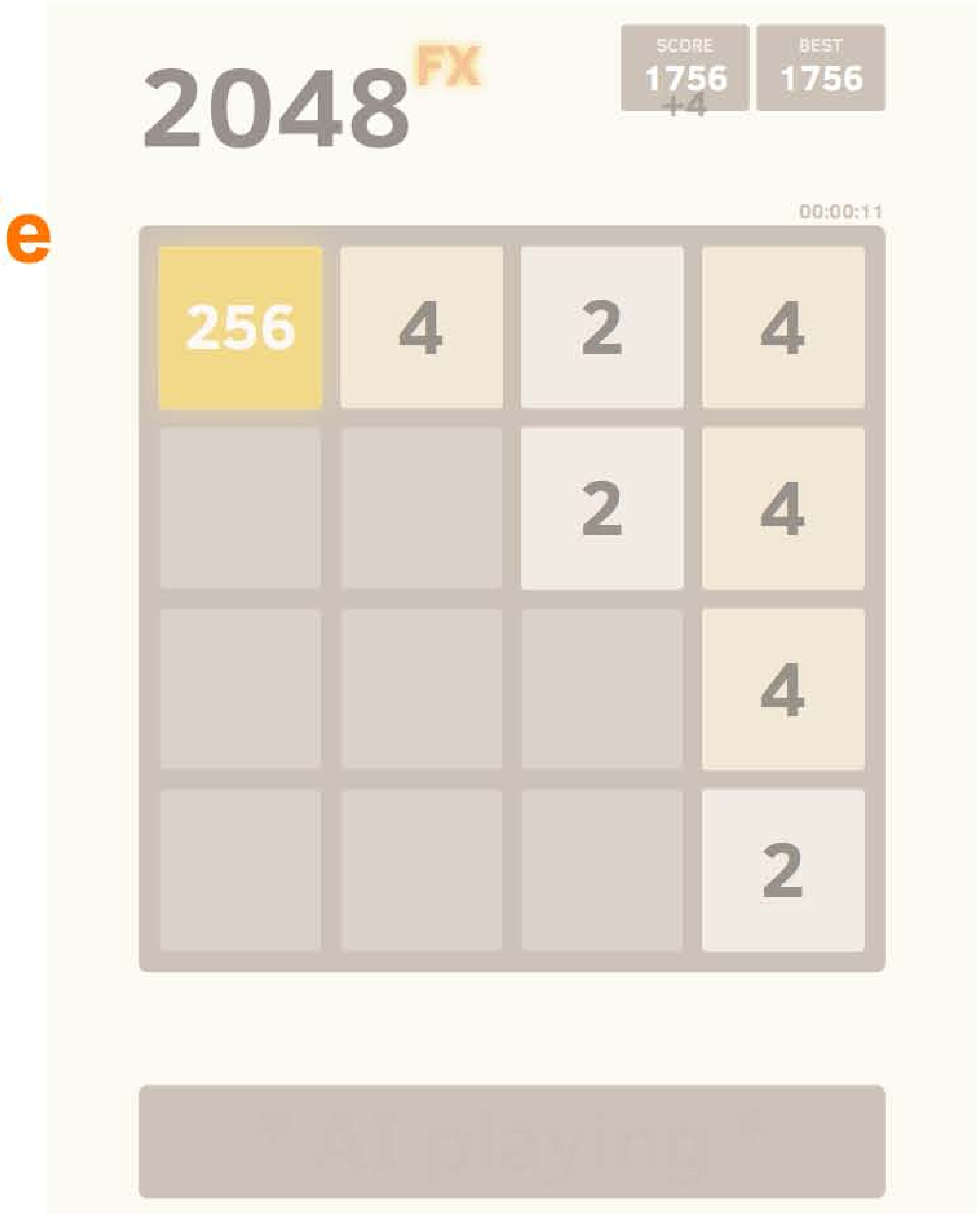

JavaFXPorts precedents

Short history of JavaFXPorts

- JavaFX Script 1.1 had mobile support
  - But 2.0 drop it
- JavaFXPorts was originated at Devoxx 2013
  - While waiting for Oracle to provide support for JavaFX on mobile...
  - Johan Vos started the project on Android, based on OpenJFX
  - Trillion Mobile developed RoboVM, allowing Java/JavaFX on iOS
- February 2015, agreement between LodgOn & Trillion
  - As a result: *jfxmobile-plugin*
  - Plugin gradle: **https://bitbucket.org/javafxports/javafxmobile-plugin**

Features

Mean features of JavaFXPorts

- ▶ Uses OpenJFX code
  - *Oracle provides code for Android & iOS*
- ▶ Applies specific changes for Android & iOS
- ▶ Allows application deployment with same code-base in:
  - Desktop (Windows, Mac, Linux) and mobile&tablets (Android, iOS)
- ▶ One single gradle plugin gradle for all the tasks
- ▶ Apps can be distributed through Apple Store & Google Play
- ▶ Gluon Plugin for major IDEs

Documentation

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JavaFXPorts

Published 2015-10-23

1. Overview

When you develop a JavaFX Application, the result of the Java compile process is Java Bytecode.

In order to execute this Bytecode, you need a Java Runtime Environment containing the Java Class Libraries (e.g. java.lang.String) and the native libraries used by the runtime. This is shown in the picture below:

Prerequisites

What's needed to use JavaFXPorts

- JDK 8u60
- Gradle 2.2.1 -2.4
- Android (Platforms 21-22)
  - Android SDK: **http://developer.android.com/sdk/index.html**
  - From SDK Manager: SDK platform, Build-tools, Android Support Library
  - ANDROID_HOME: Store at ~/.gradle/gradle.properties
- iOS
  - Mac with MacOS X 10.9+
  - XCode 6.x or 7 (App Store)

Limitations

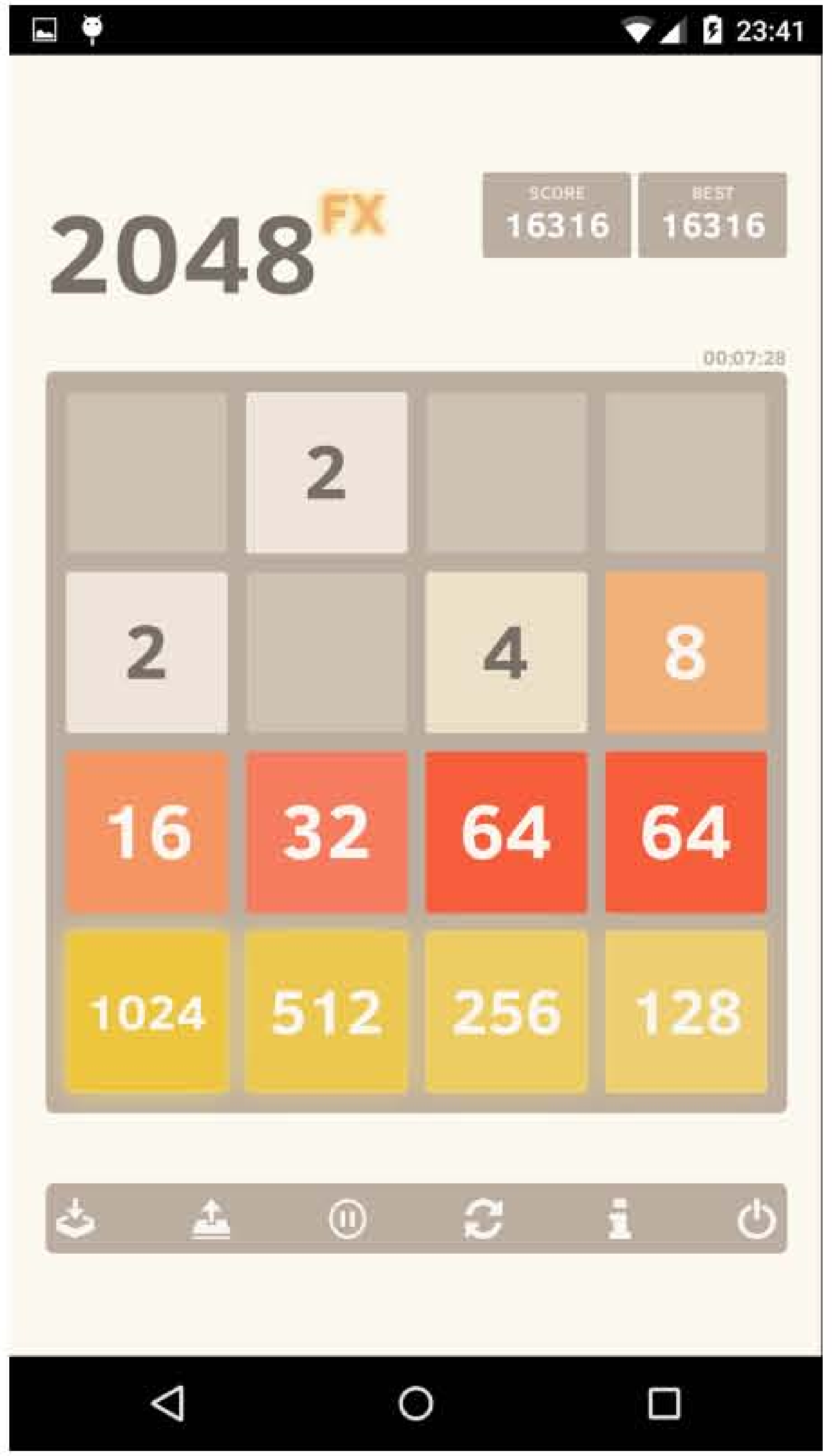
JavaFXPorts limitations:

- JavaFXPorts is based on JDK 8u60, but Dalvik only supports Java 7
  - *Java 8: supports lambdas using Retrolambda project*
  - Java 8: *It doesn't support Streams*
  - Java 8: *Other minor API not supported*
- JavaFX 8
  - It doesn't support (yet): *Media, Printing, Dialogs*
  - FXML: *It is supported*
  - Built-in controls: *All are supported, minor adjustements*
- AOT compilation in iOS
  - iOS port is applied in runtime, project classes and some dependencies are not visible to the compiler
  - forceLinkClasses loads them

Resources

Resource links for JavaFXPorts

- Gluon
  - *Forums: http://gluonhq.com/forums/forum/javafxports/*
  - Commertial support: *http://gluonhq.com/open-source/javafxports/support/*
- Google Groups
  - *javafxandroid*
  - *javafxports*
- StackOverflow
  - tag: *javafxports*
- Available samples
  - samples *https://bitbucket.org/javafxports/samples*
  - repos: *https://github.com/jperedadnr*
  - blog post: *http://jperedadnr.blogspot.com.es/2015/03/javafx-on-mobile-dream-come-true.html*



Gluon Plugin

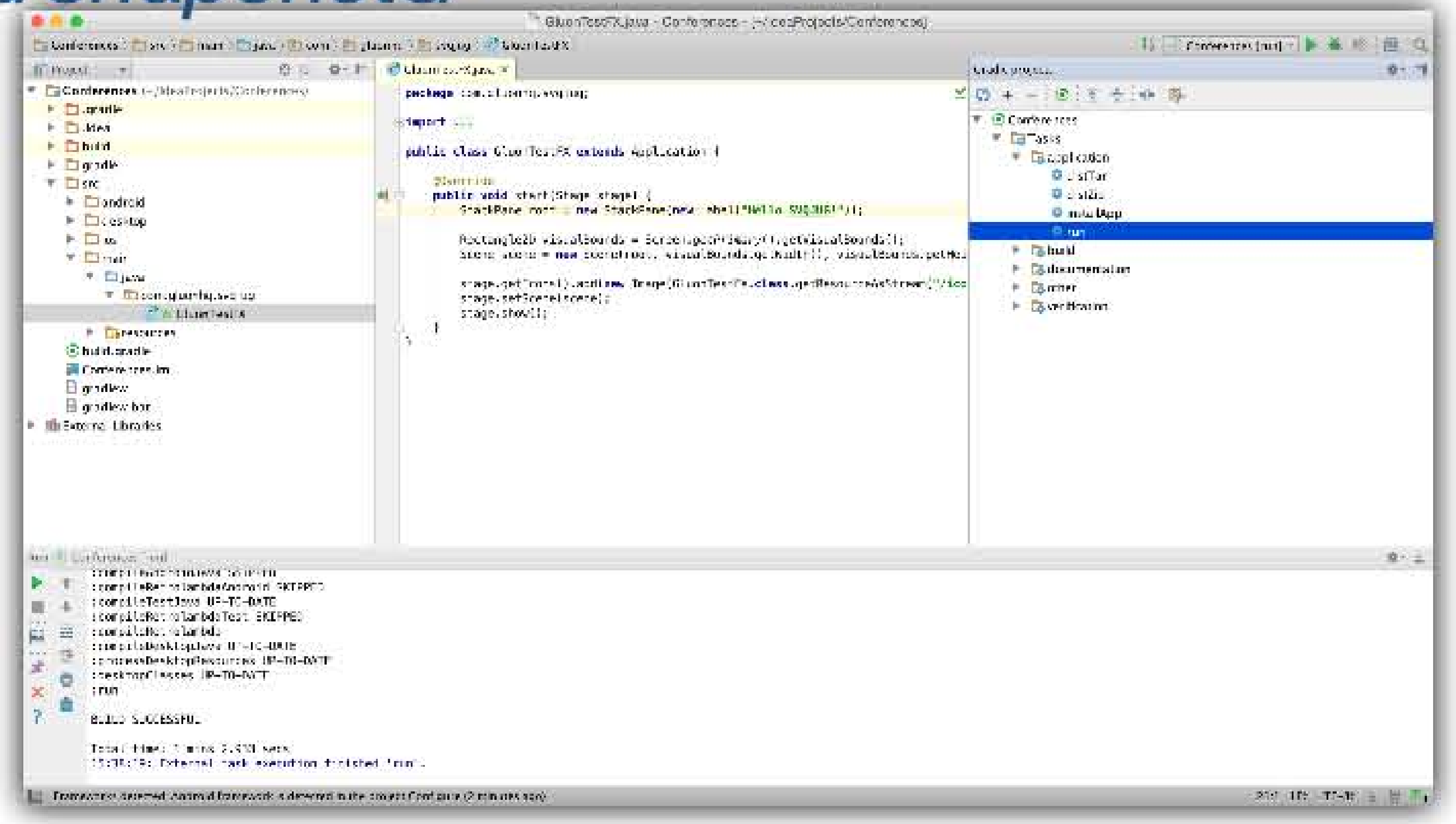
Run JavaFXPorts in the major IDEs

- NetBeans
  - Install from NetBeans->Tools->Plugins
  - Download: http://plugins.netbeans.org/plugin/57602
- IntelliJ IDEA
  - Install from IntelliJ->Settings->Plugins
  - Download: https://plugins.jetbrains.com/plugin/7864
- Eclipse Mars
  - Download: Eclipse Marketplace
  - Eclipse->Help->Install new software
- Gluon: http://gluonhq.com/products/tools/

Basic Sample

Basic Sample of using the Plugin

- Update to latest version
  - Versión 1.0.3
  - SNAPSHOTs from *https://oss.sonatype.org/content/repositories/snapshots/*
- Check the defined namespaces
  - Main/Desktop/Android/iOS Java & Resources
  - Check dependencies (reload/synchronize project)
- Check available tasks
  - Clean, build
  - android/androidInstall, ios/createIpa launchIosDevice/launchIPhoneSir



Run it!

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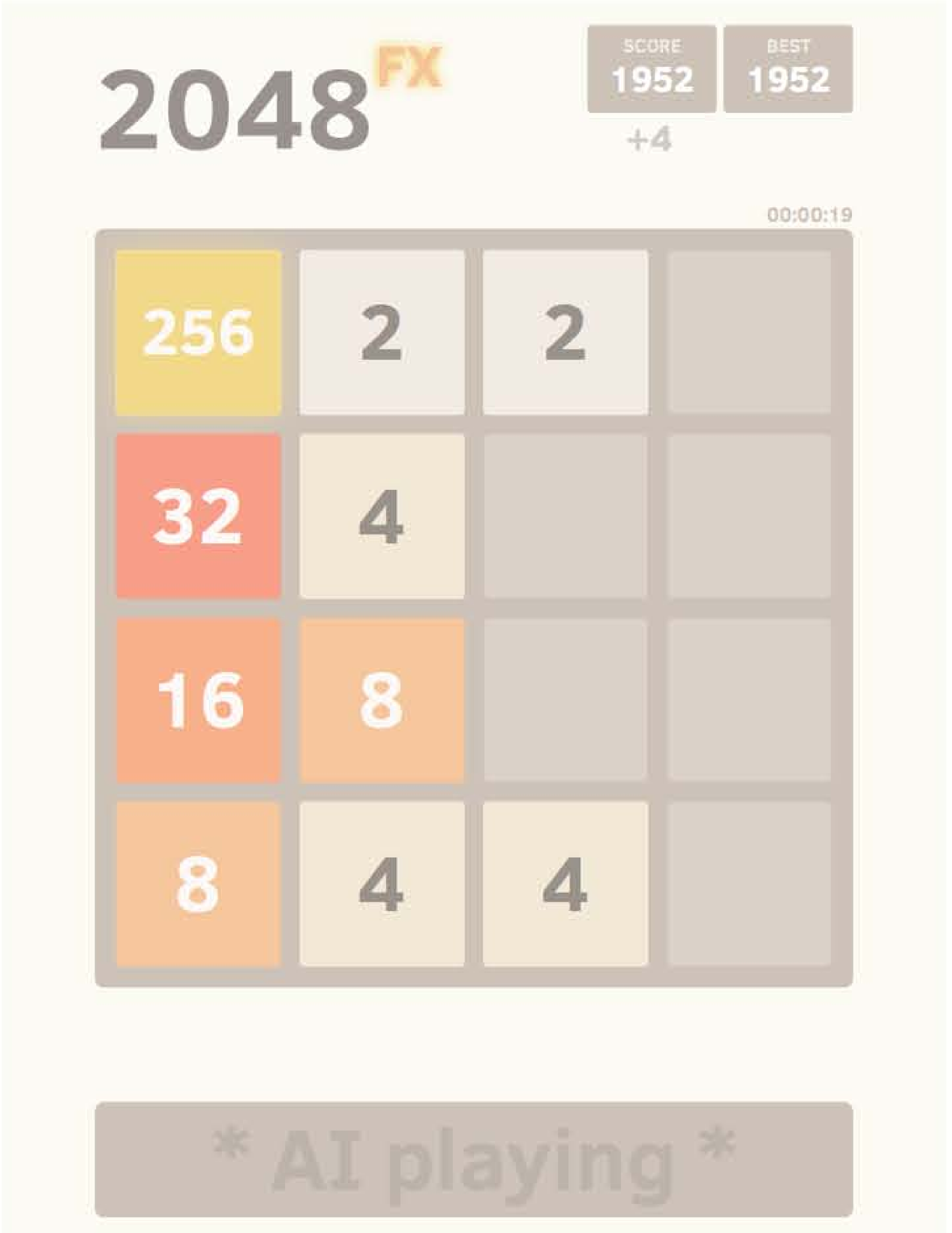


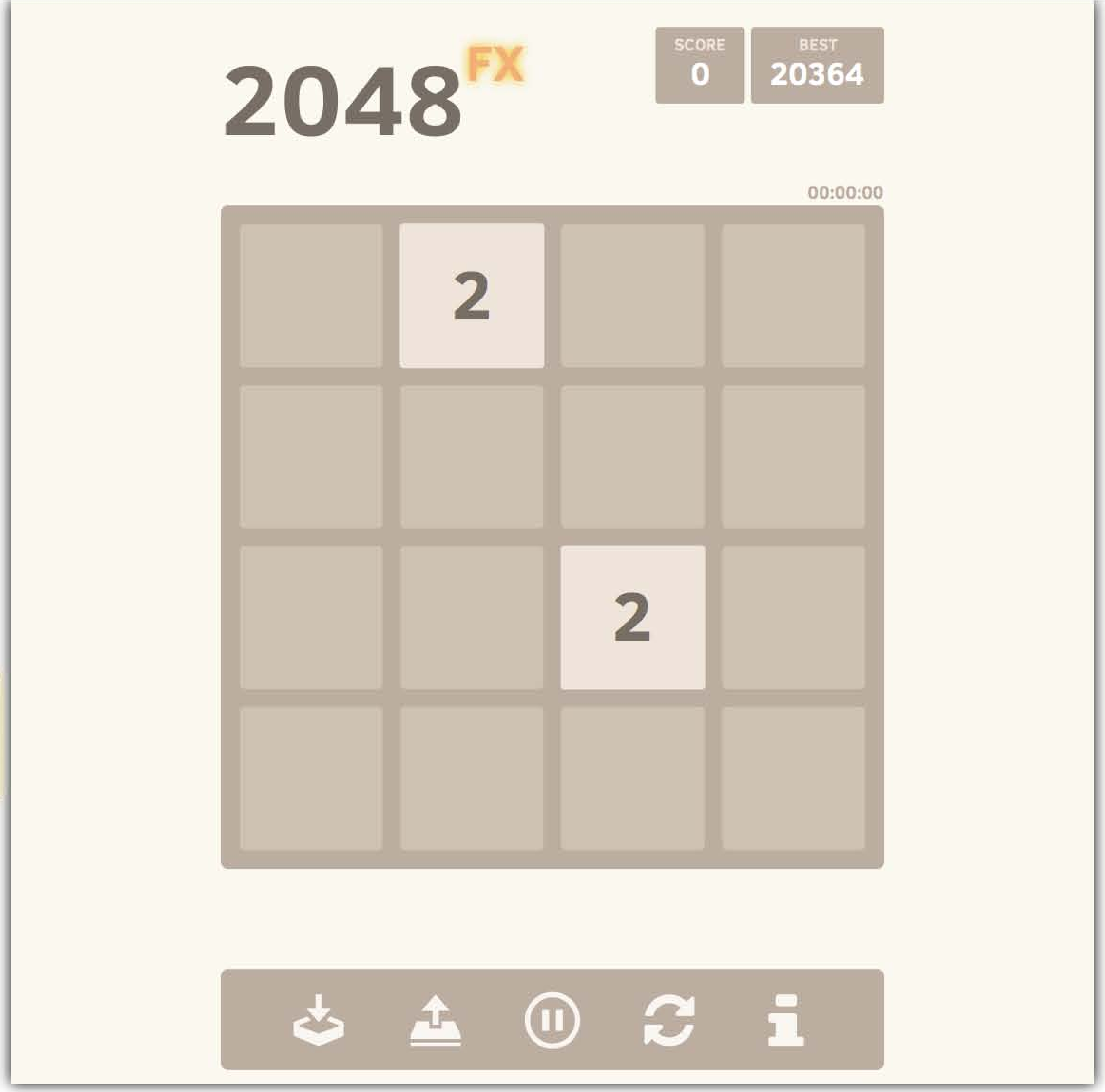
Adapting Java 8 project

In order to use JavaFXPorts

- Backport Streams
  - Keep Lambdas and Optionals
  - Adapt local storage: Gluon Charm-Down
- Create Gluon Project
  - Creates AndroidManifest.xml and resources
  - Creates Default-info.plist and assets
- Deploy and test
  - Desktop
  - Android & iOS

Let's play the 2048 FX game!

Desktop Android iOS



https://github.com/jperedadnr/Game2048FX

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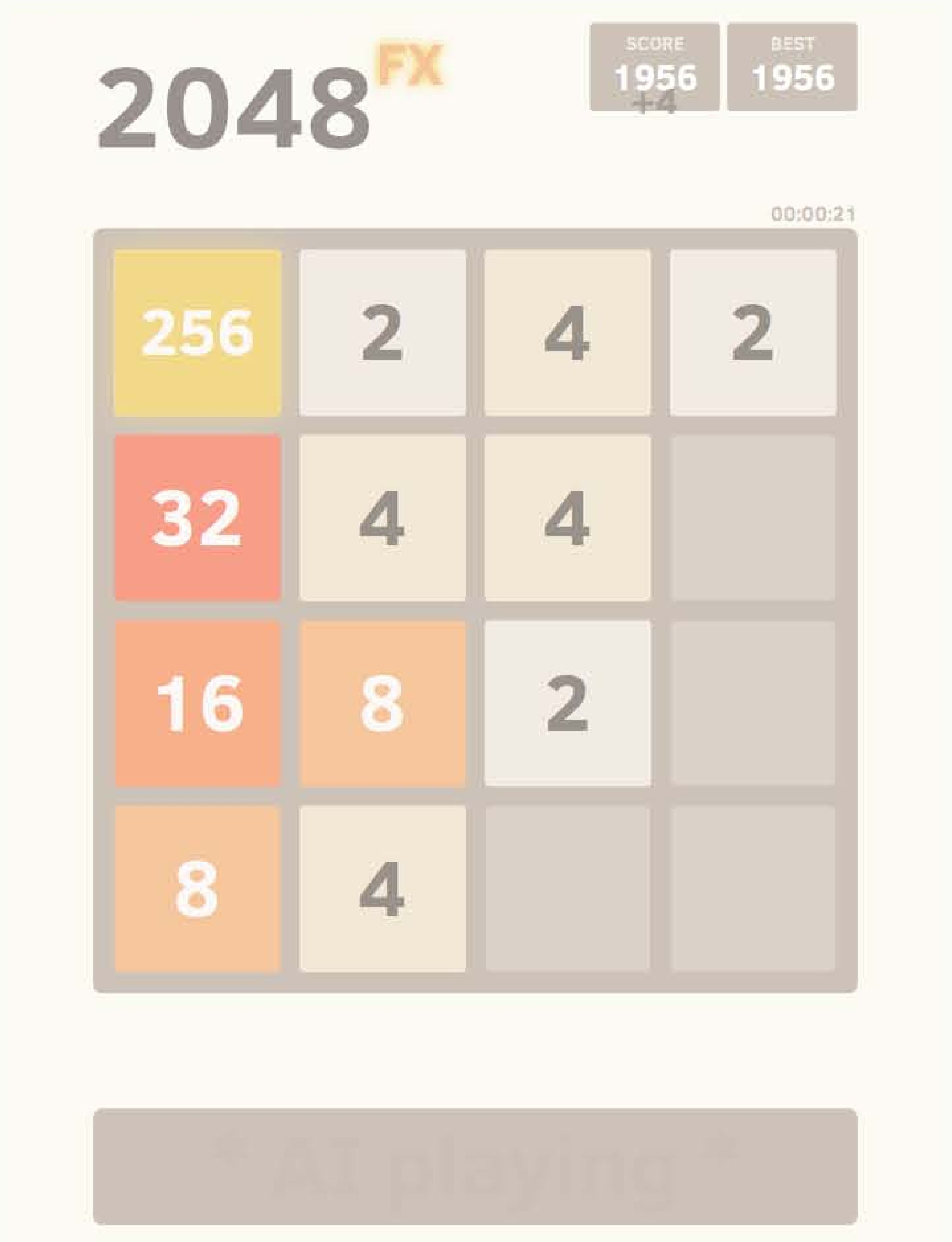
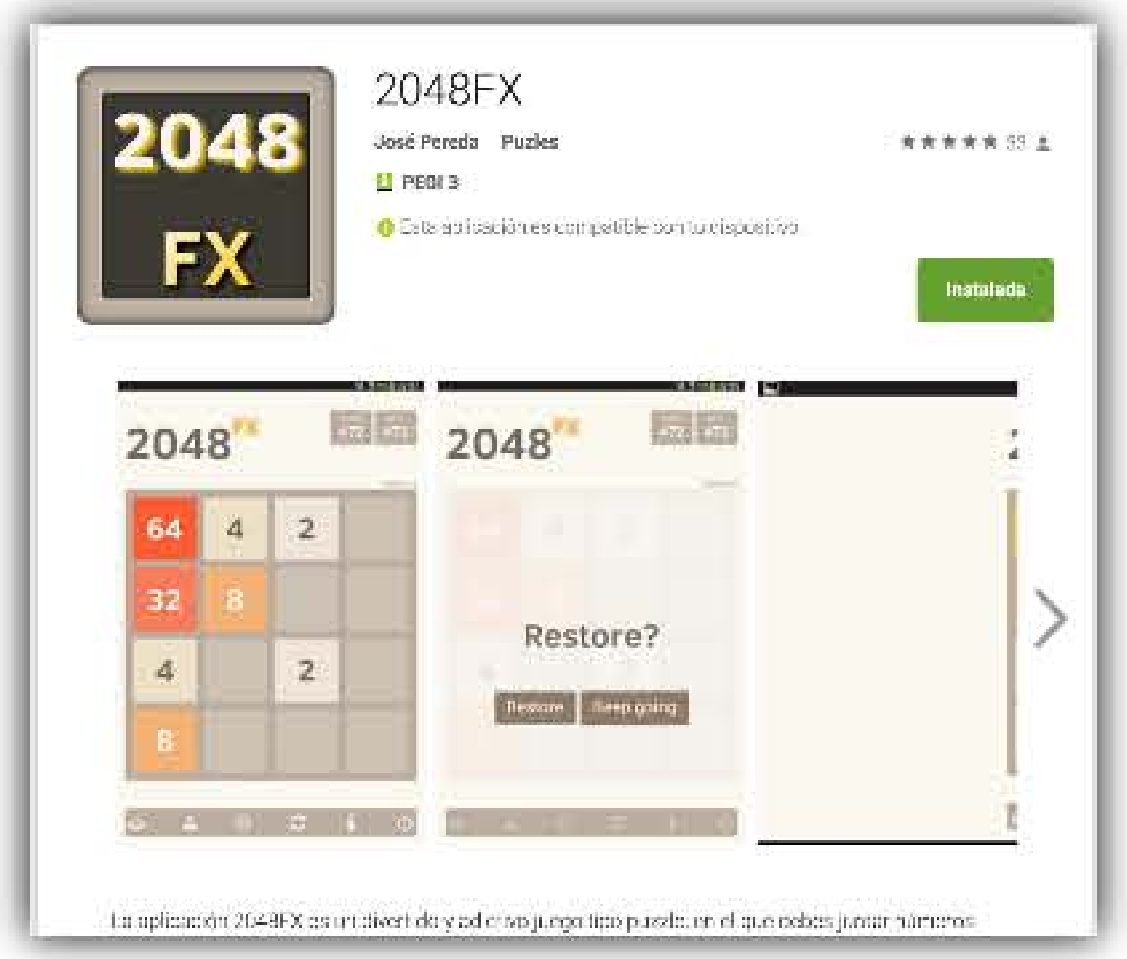


Google Play

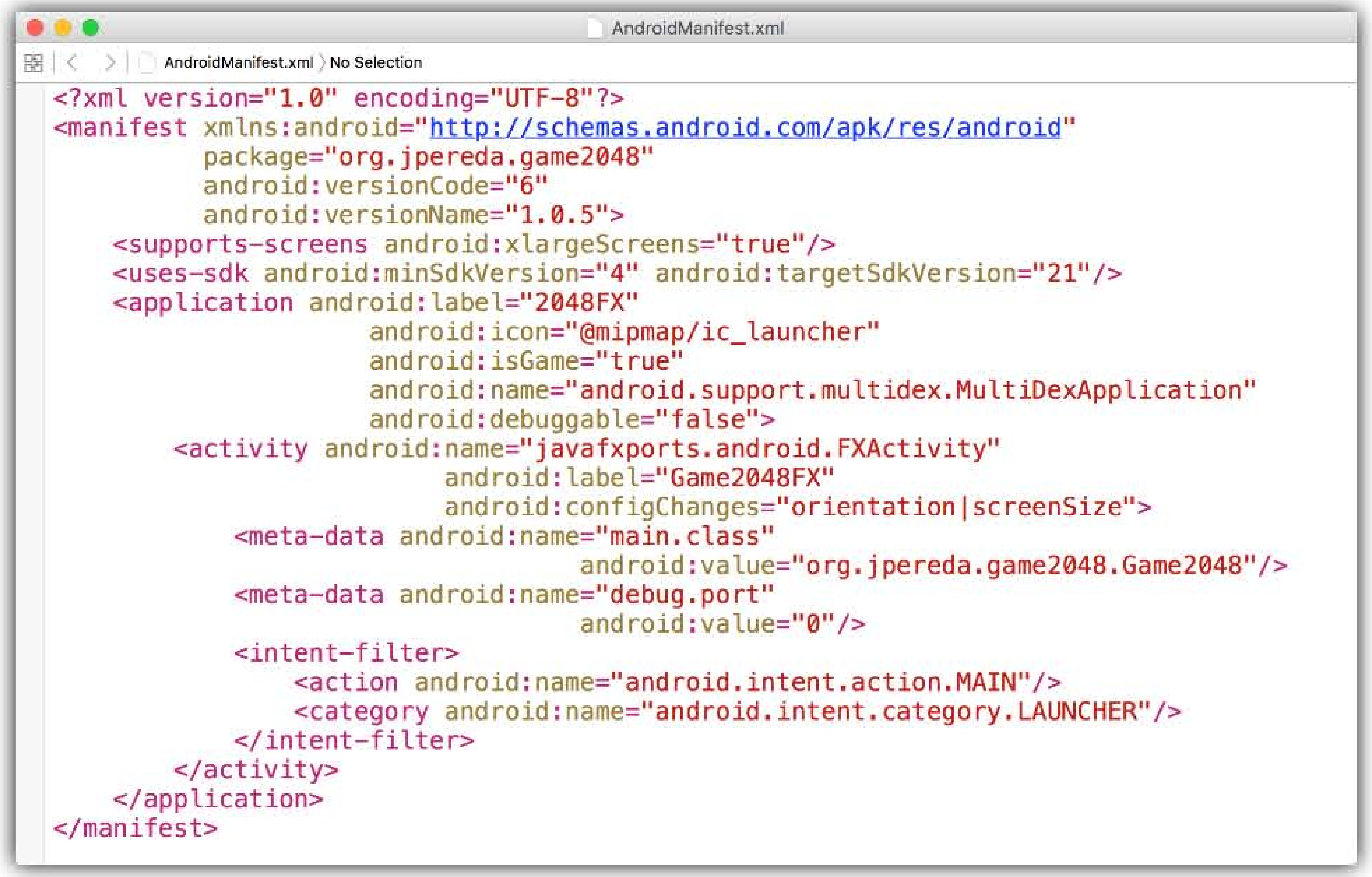
Submitting to Google Play

- Android Manifest
  - Version code, version name
  - android:debuggable false
  - permissions required (none)
- build.gradle
  - signingConfig for release
- Icons
  - Default or custom
- Google Play Developer Console
  - Tester Program
  - Error reports

ANDROID APP ON Google play



La aplicación 2048FX es un divertido y adictivo juego tipo puzzle en el que debes juntar números



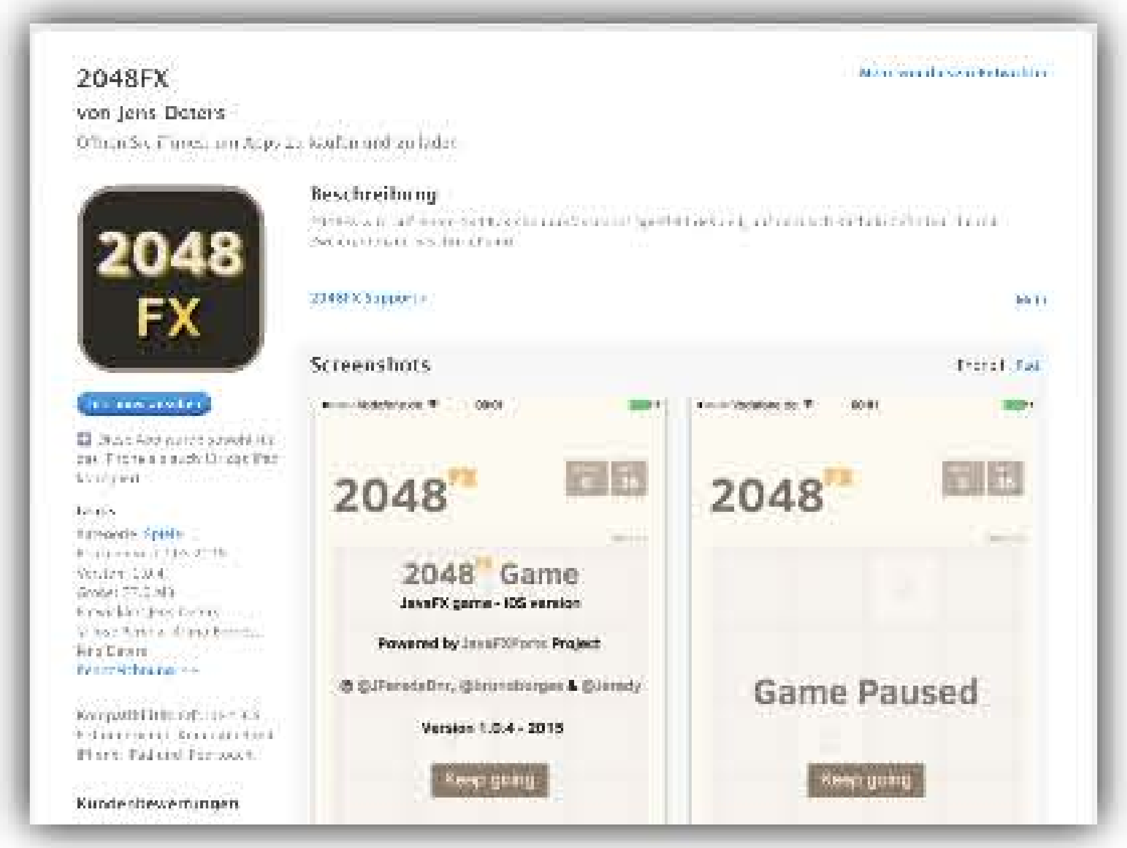
```xml
<?xml version="1.0" encoding="UTF-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
          package="org.jpereda.game2048"
          android:versionCode="6"
          android:versionName="1.0.5">
    <supports-screens android:xlargeScreens="true"/>
    <uses-sdk android:minSdkVersion="4" android:targetSdkVersion="21"/>
    <application android:label="2048FX"
                 android:icon="@mipmap/ic_launcher"
                 android:isGame="true"
                 android:name="android.support.multidex.MultiDexApplication"
                 android:debuggable="false">
        <activity android:name="javafxports.android.FXActivity"
                  android:label="Game2048FX"
                  android:configChanges="orientation|screenSize">
            <meta-data android:name="main.class"
                       android:value="org.jpereda.game2048.Game2048"/>
            <meta-data android:name="debug.port"
                       android:value="0"/>
            <intent-filter>
                <action android:name="android.intent.action.MAIN"/>
                <category android:name="android.intent.category.LAUNCHER"/>
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Apple Store

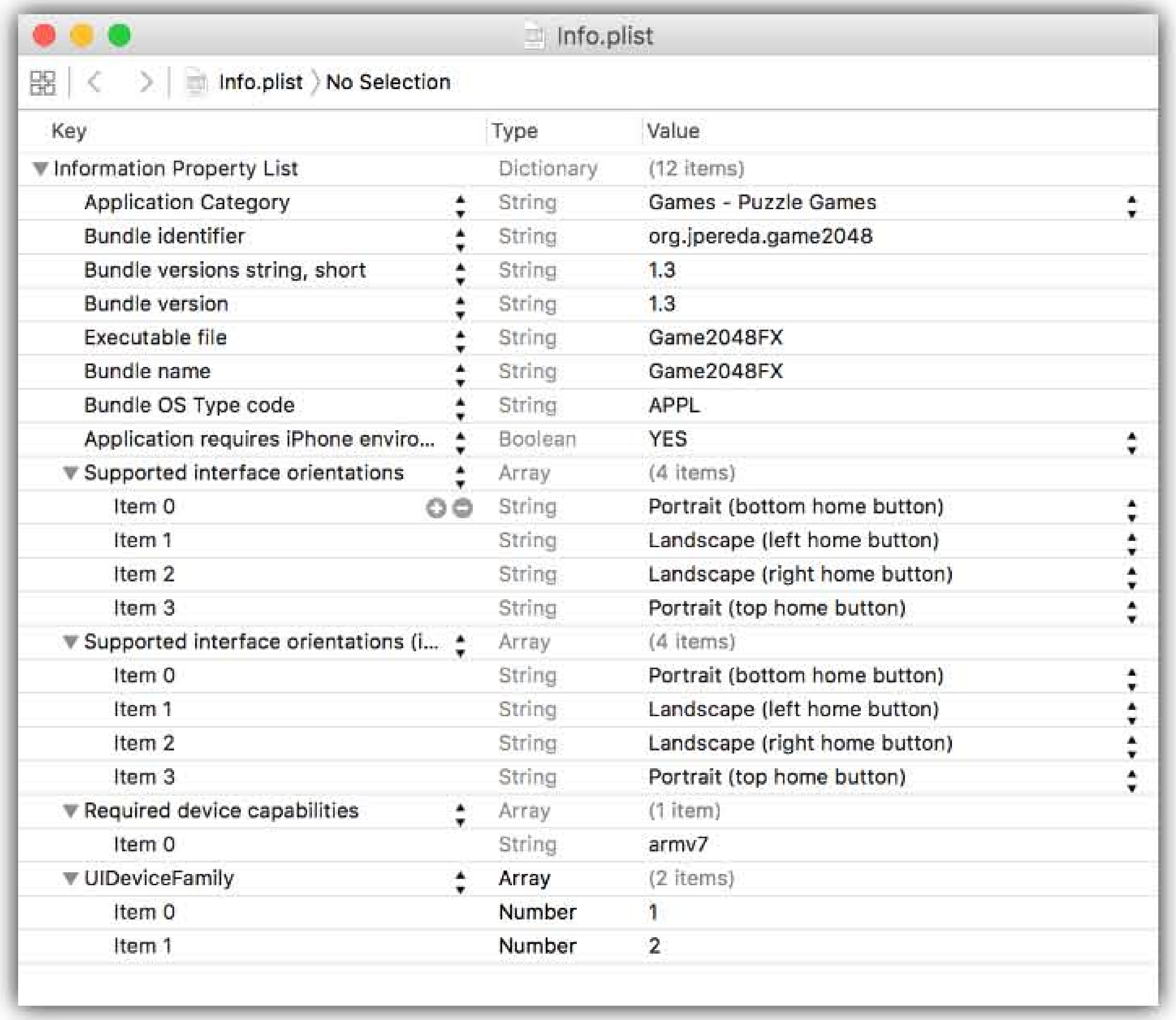
Submitting to Apple Store

- Info.plist
  - CFBundleIdentifier
  - CFBundleVersion
  - CFBundleName
- Icons
  - Default or custom
- build.gradle
  - iosSignIdentity
  - iosProvisioningProfile

Available on the App Store



2048FX
von Jens Deters
Beschreibung
2048FX Support
Screenshots
2048FX Game
JavaFX game - iOS version
Powered by JavaFXPorts Project
Version 1.0.4 - 2015
Keep going
Game Paused
Keep going
Kundenbewertungen



Info.plist

Info.plist 〉 No Selection

Key	Type	Value
▼ Information Property List	Dictionary	(12 items)
Application Category	String	Games - Puzzle Games
Bundle identifier	String	org.jpereda.game2048
Bundle versions string, short	String	1.3
Bundle version	String	1.3
Executable file	String	Game2048FX
Bundle name	String	Game2048FX
Bundle OS Type code	String	APPL
Application requires iPhone enviro...	Boolean	YES
▼ Supported interface orientations	Array	(4 items)
Item 0	String	Portrait (bottom home button)
Item 1	String	Landscape (left home button)
Item 2	String	Landscape (right home button)
Item 3	String	Portrait (top home button)
▼ Supported interface orientations (i...	Array	(4 items)
Item 0	String	Portrait (bottom home button)
Item 1	String	Landscape (left home button)
Item 2	String	Landscape (right home button)
Item 3	String	Portrait (top home button)
▼ Required device capabilities	Array	(1 item)
Item 0	String	armv7
▼ UIDeviceFamily	Array	(2 items)
Item 0	Number	1
Item 1	Number	2

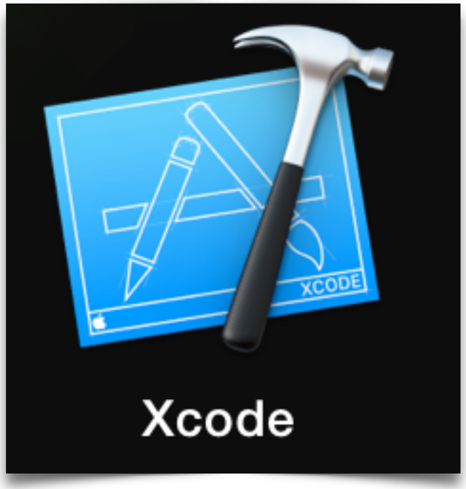
codecentric

App Store Deployment_

How to get a Java App into Apple App Store

What you will need

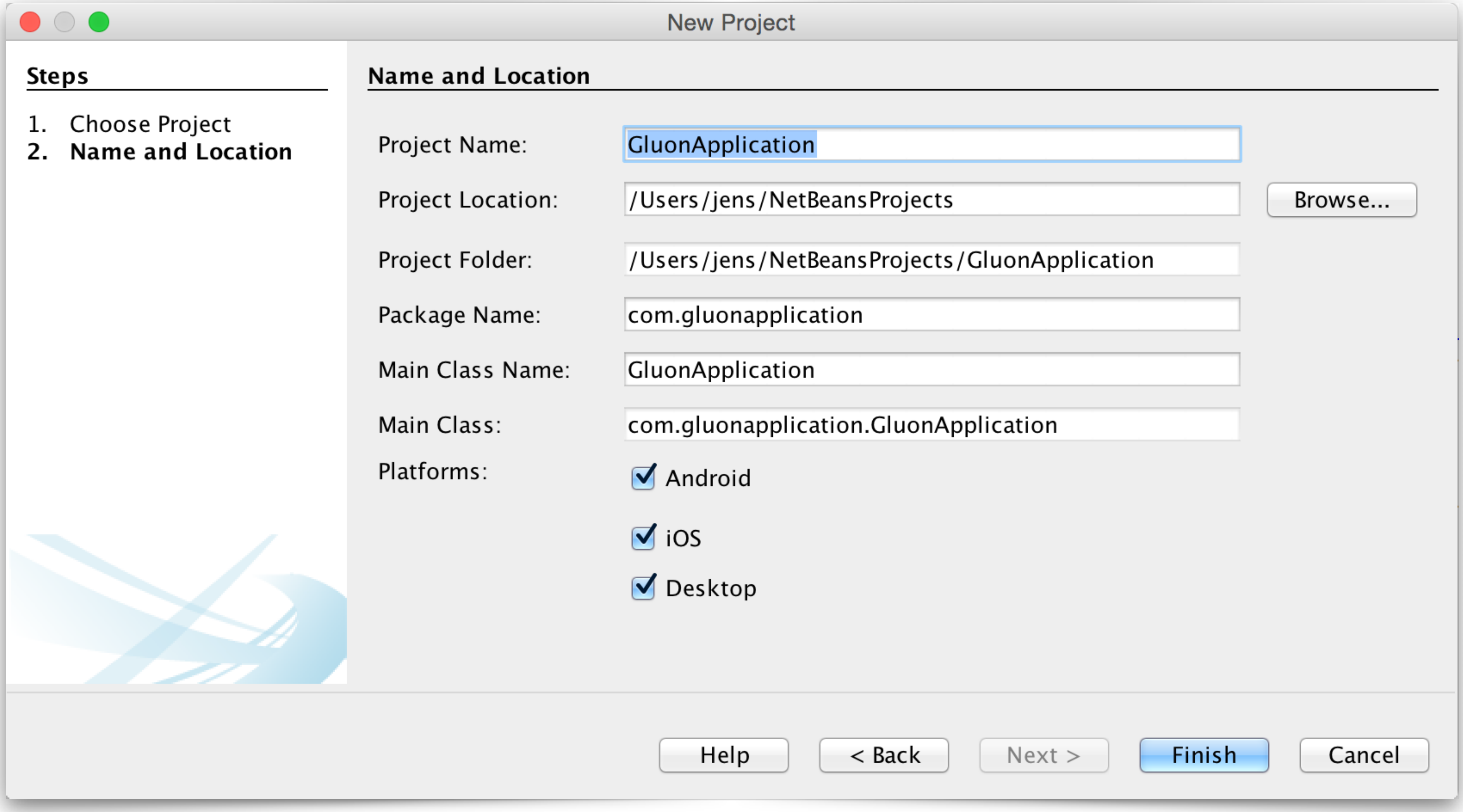
- A Mac with XCode 7 installed
- NetBeans or IntelliJ with Gluon Plugin installed



What you will need

- Since XCode 7:
  - Free On-Device Development
  - Everyone can run and test their own app on a device—for free.
- For App Store deployment you will need to enroll the developer program for $99/year
- Make sure your AppleId isn’t already used for other programs!

JavaFX project_



Steps

1. Choose Project
2. **Name and Location**

Name and Location

Project Name: GluonApplication

Project Location: /Users/jens/NetBeansProjects

Project Folder: /Users/jens/NetBeansProjects/GluonApplication

Package Name: com.gluonapplication

Main Class Name: GluonApplication

Main Class: com.gluonapplication.GluonApplication

Platforms:

☑ Android

☑ iOS

☑ Desktop

iOS App Store Deployment_

gradle.properties

32bit

64bit

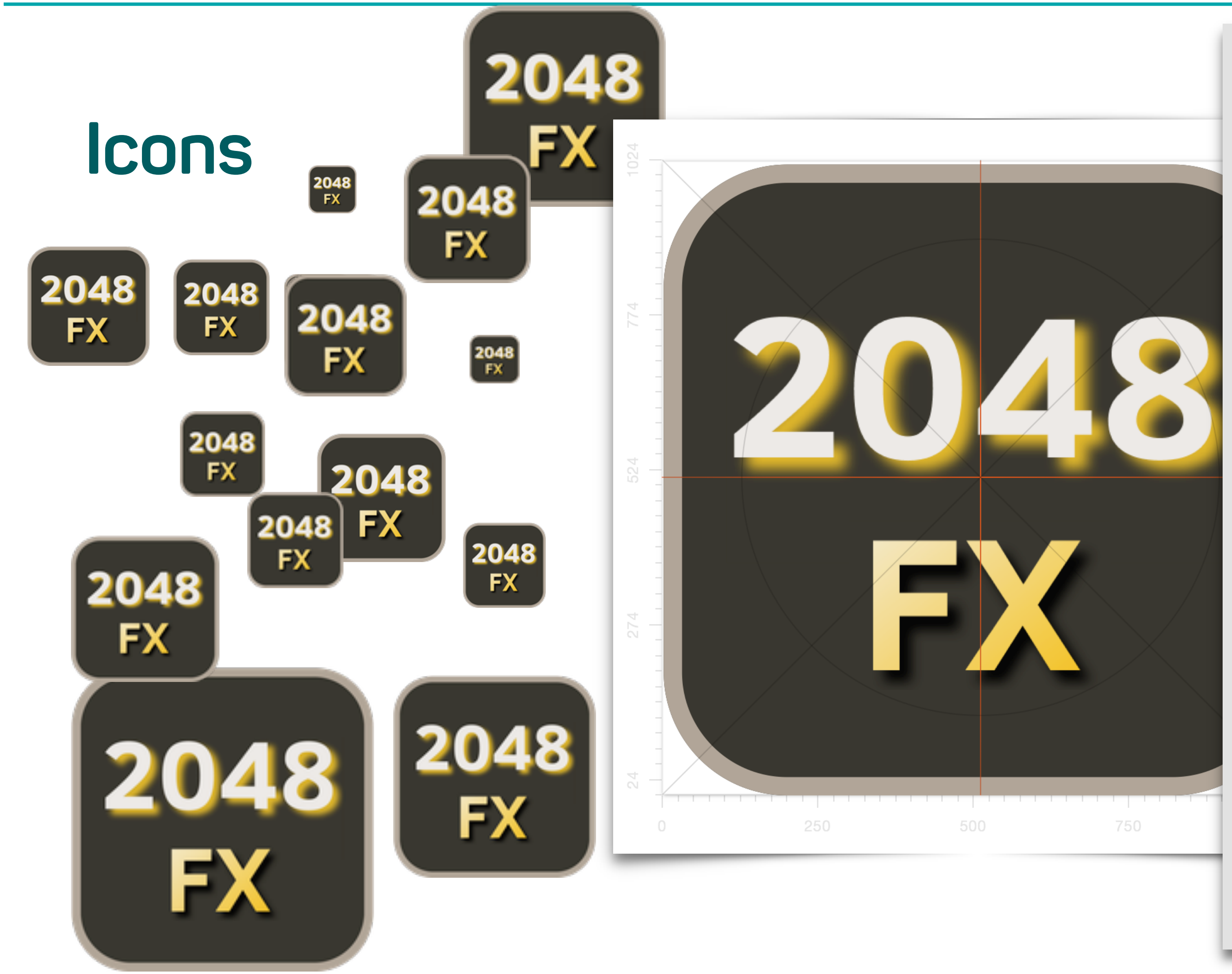
```
robovm.archs=thumbv7:arm64
robovm.arch=arm64
#org.gradle.jvmargs=-Xmx4g
#robovm.device.name=iPhone-4s
#robovm.device.name=iPhone-5
#robovm.device.name=iPhone-5s
#robovm.device.name=iPhone-6-Plus
#robovm.device.name=iPhone-6
#robovm.device.name=iPad-2
#robovm.device.name=iPad-Retina
#robovm.device.name=iPad-Air
#robovm.device.name=Resizable-iPhone
#robovm.device.name=Resizable-iPad
```

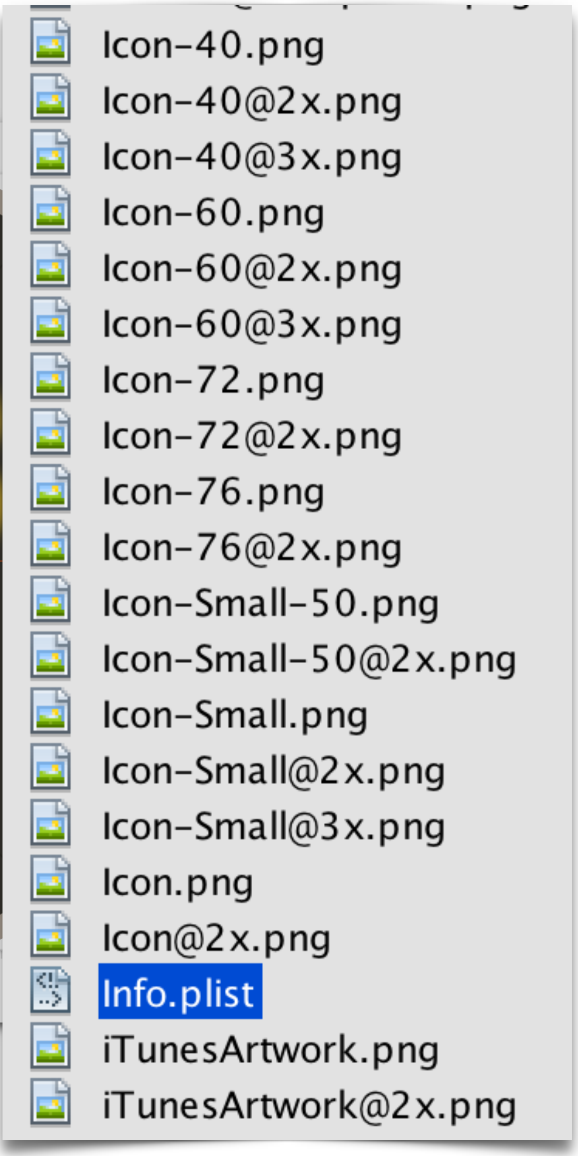
/src/ios/assets/info.plist

```
<key>MinimumOSVersion</key>
<string>8.0</string>

<key>UIRequiredDeviceCapabilities</key>
<array>
  <string>arm64</string>
</array>

<key>CFBundleShortVersionString</key>
<string>1.4</string>
```

iOS App Store Deployment_

Icons



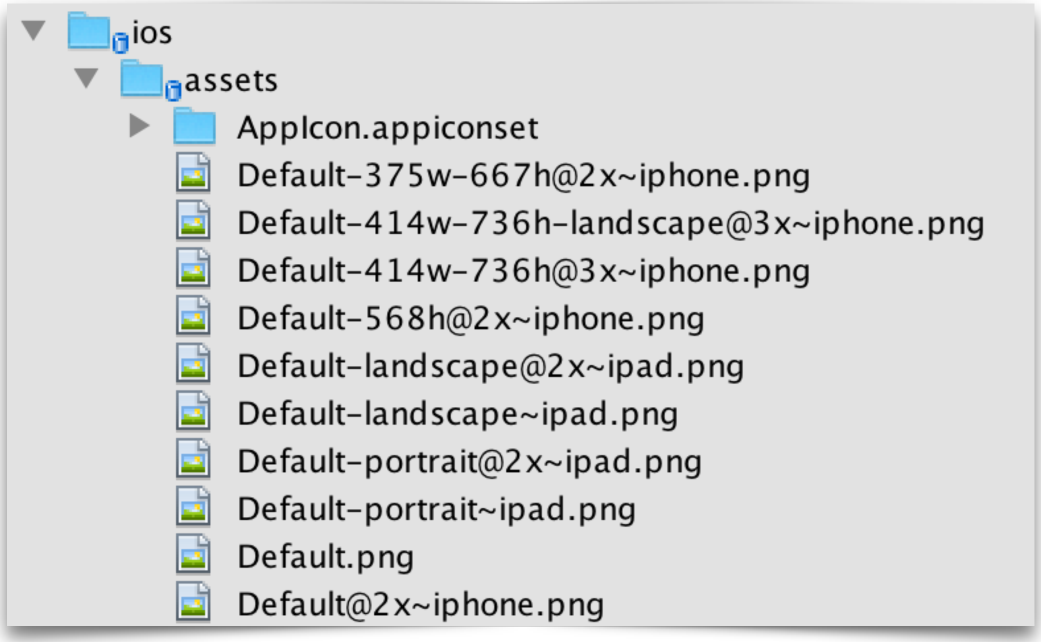


- Icon-40.png
- Icon-40@2x.png
- Icon-40@3x.png
- Icon-60.png
- Icon-60@2x.png
- Icon-60@3x.png
- Icon-72.png
- Icon-72@2x.png
- Icon-76.png
- Icon-76@2x.png
- Icon-Small-50.png
- Icon-Small-50@2x.png
- Icon-Small.png
- Icon-Small@2x.png
- Icon-Small@3x.png
- Icon.png
- Icon@2x.png
- Info.plist
- iTunesArtwork.png
- iTunesArtwork@2x.png

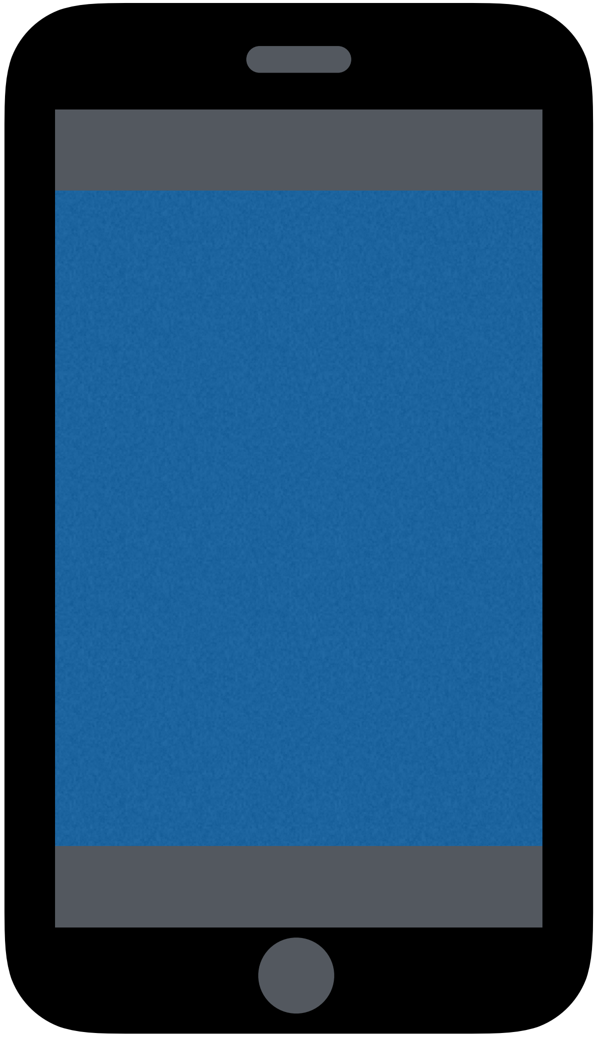
Icons

- http://appicontemplate.com
- http://makeappicon.com
- http://ticons.fokkezb.nl

Mind the gap!



```
▼ ios
  ▼ assets
    ▶ AppIcon.appiconset
      Default-375w-667h@2x~iphone.png
      Default-414w-736h-landscape@3x~iphone.png
      Default-414w-736h@3x~iphone.png
      Default-568h@2x~iphone.png
      Default-landscape@2x~ipad.png
      Default-landscape~ipad.png
      Default-portrait@2x~ipad.png
      Default-portrait~ipad.png
      Default.png
      Default@2x~iphone.png
```



Submit your App for verification

- **Create „*.ipa“ signed with your**
- iosSignIdentity = "iPhone Distribution: Jens Deters (ID)“
  - can be extracted from OS X Key Store
- iosProvisioningProfile = 'iOS Distribution Profile for AppStore’
  - Xcode -> Preferences -> Account -> AppleID -> View Details

Submit your App for verification

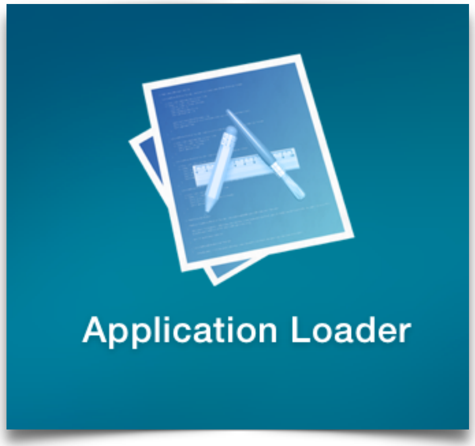
- **Create signed „*.ipa“ file**

```
./gradlew
--stacktrace
-Probovm.ipaArchs=thumbv7:arm64
-Probovm.iosSignIdentity="<NAME>"
-Probovm.iosProvisioningProfile="<NAME>"
  clean
  createIpa
```

```
~/NetBeansProjects/game2048fx/build/javafxports/ios/
```

Submit your App for verification

- Submit via Application Loader
- will take some iterations to fix all complains
- sit and wait



Non-public API usage:

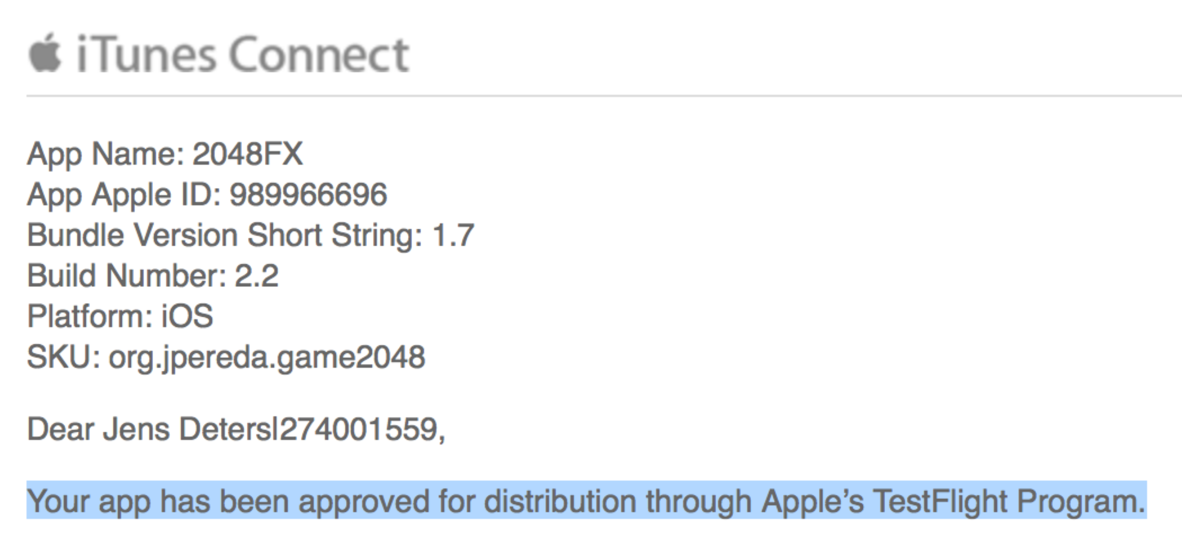
- The app references non-public symbols in Game2048FX: _exc_server

If method names in your source code match the private Apple APIs listed above, altering your method names will help prevent this app from being flagged in future submissions. In addition, note that one or more of the above APIs may be located in a static library that was included with your app. If so, they must be removed.

Until they come to see us from their planet, I wait patiently. I hear them saying: Don't call us, we'll call you.

(Marlene Dietrich)

izquotes.com

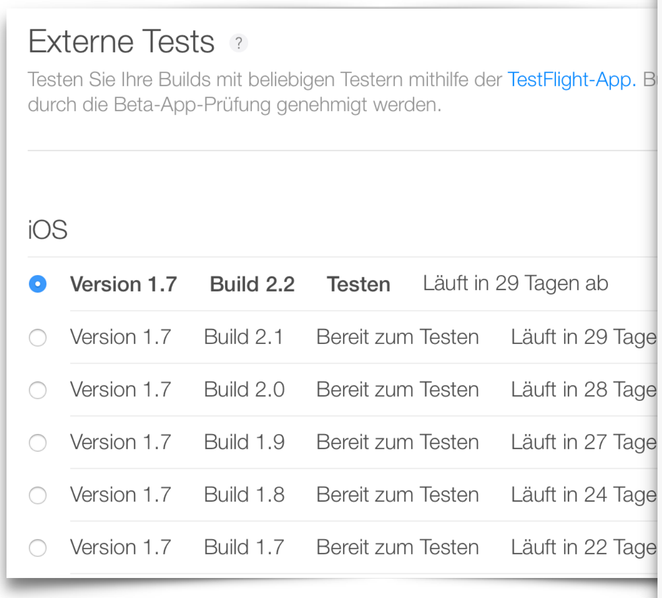


App Name: 2048FX
App Apple ID: 989966696
Bundle Version Short String: 1.7
Build Number: 2.2
Platform: iOS
SKU: org.jpereda.game2048

Dear Jens Detersl274001559,

Your app has been approved for distribution through Apple's TestFlight Program.

iOS App Store Deployment_

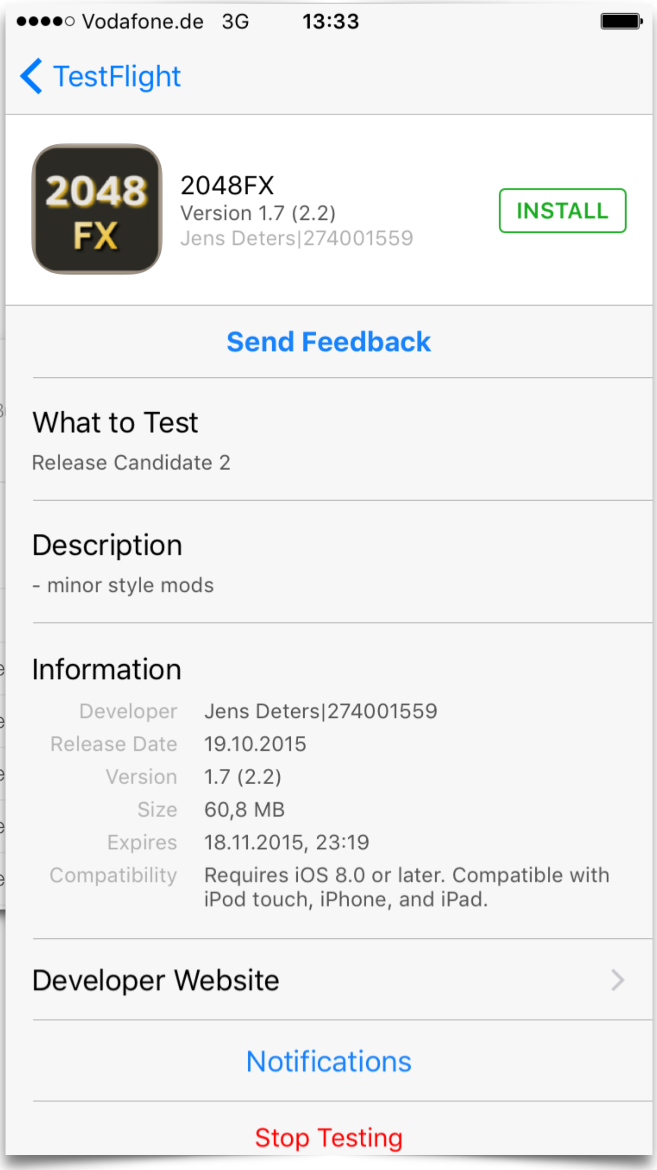


Externe Tests ?

Testen Sie Ihre Builds mit beliebigen Testern mithilfe der TestFlight-App. B durch die Beta-App-Prüfung genehmigt werden.

iOS

●	**Version 1.7**	**Build 2.2**	**Testen**	Läuft in 29 Tagen ab
○	Version 1.7	Build 2.1	Bereit zum Testen	Läuft in 29 Tage
○	Version 1.7	Build 2.0	Bereit zum Testen	Läuft in 28 Tage
○	Version 1.7	Build 1.9	Bereit zum Testen	Läuft in 27 Tage
○	Version 1.7	Build 1.8	Bereit zum Testen	Läuft in 24 Tage
○	Version 1.7	Build 1.7	Bereit zum Testen	Läuft in 22 Tage



2048FX
Version 1.7 (2.2)
Jens Deters|274001559

What to Test

Release Candidate 2

Description

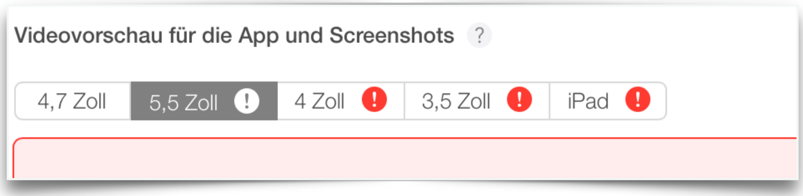
- minor style mods

Information

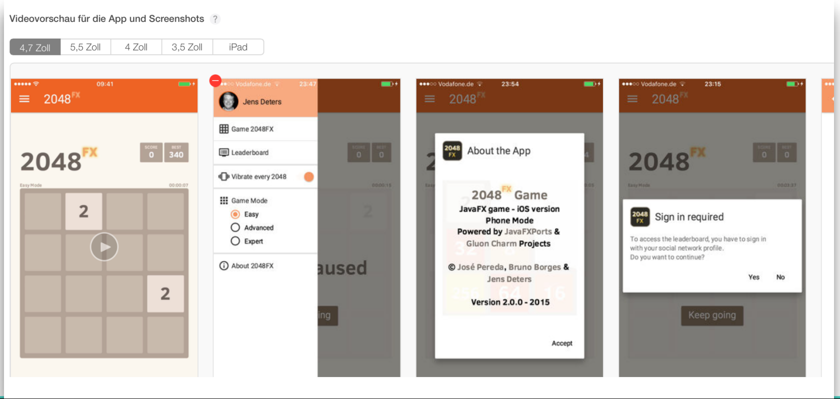
Developer	Jens Deters|274001559
Release Date	19.10.2015
Version	1.7 (2.2)
Size	60,8 MB
Expires	18.11.2015, 23:19
Compatibility	Requires iOS 8.0 or later. Compatible with iPod touch, iPhone, and iPad.

iTunesConnect - Almost there

- Prepare App for release
  - upload a bunch of screenshots of all supported screen sizes
  - Hint: the App icon for Appstore/iTunes is assigned in iTunesConnect later
- video preview required (max length 30 secs)
- fill out all other fields like description, copyright notice, etc.



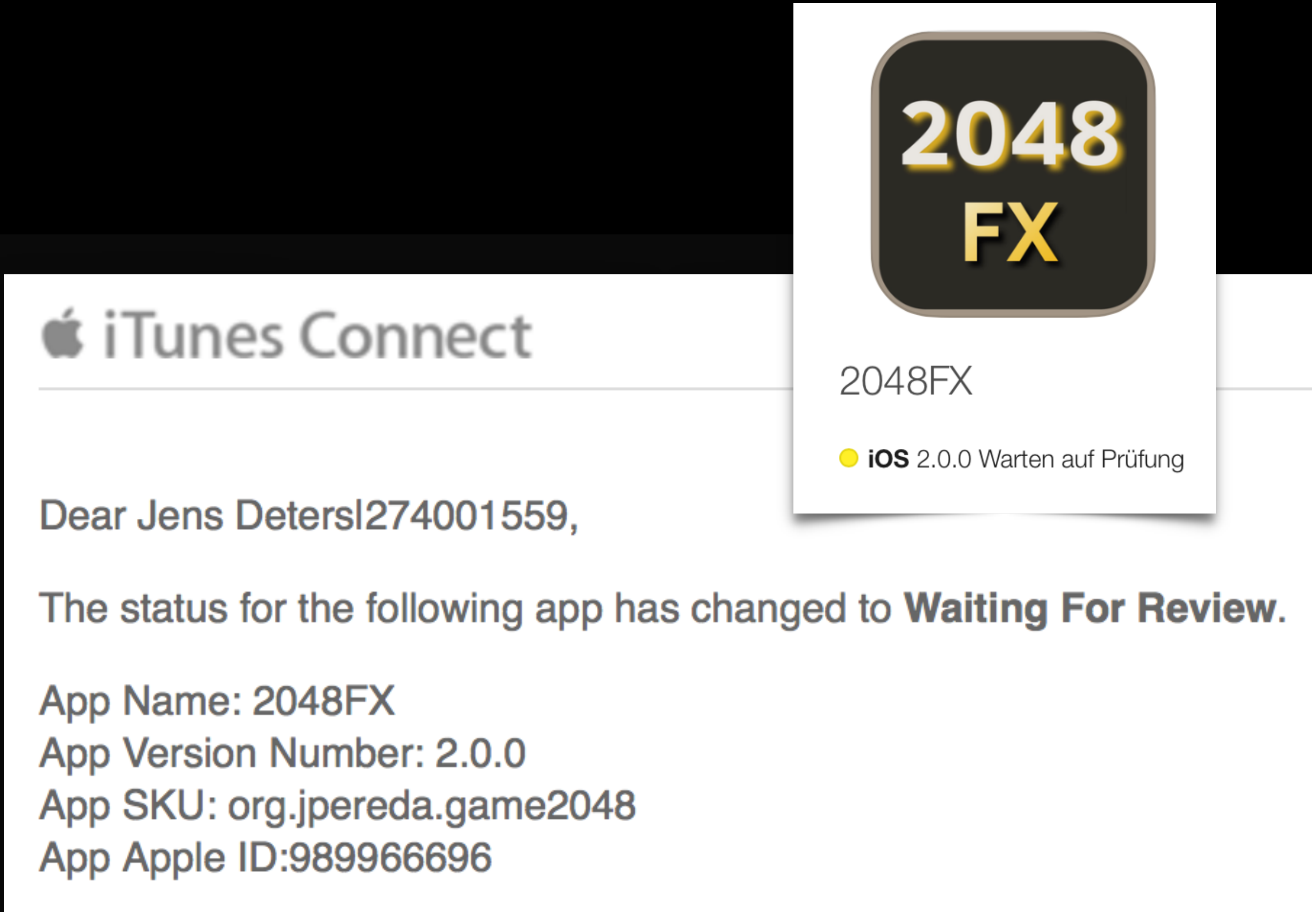
Videovorschau für die App und Screenshots ?



Videovorschau für die App und Screenshots ?

2048FX Game
JavaFX game - iOS version
Phone Mode
Powered by JavaFXPorts & Gluon Charm Projects
© José Pereda, Bruno Borges & Jens Deters
Version 2.0.0 - 2015

Sign in required
To access the leaderboard, you have to sign in with your social network profile.
Do you want to continue?



Dear Jens Detersl274001559,

The status for the following app has changed to **Waiting For Review**.

App Name: 2048FX
App Version Number: 2.0.0
App SKU: org.jpereda.game2048
App Apple ID:989966696

2048FX

● **iOS** 2.0.0 Warten auf Prüfung

SCREENSHOT ACCEPTED APP STORE

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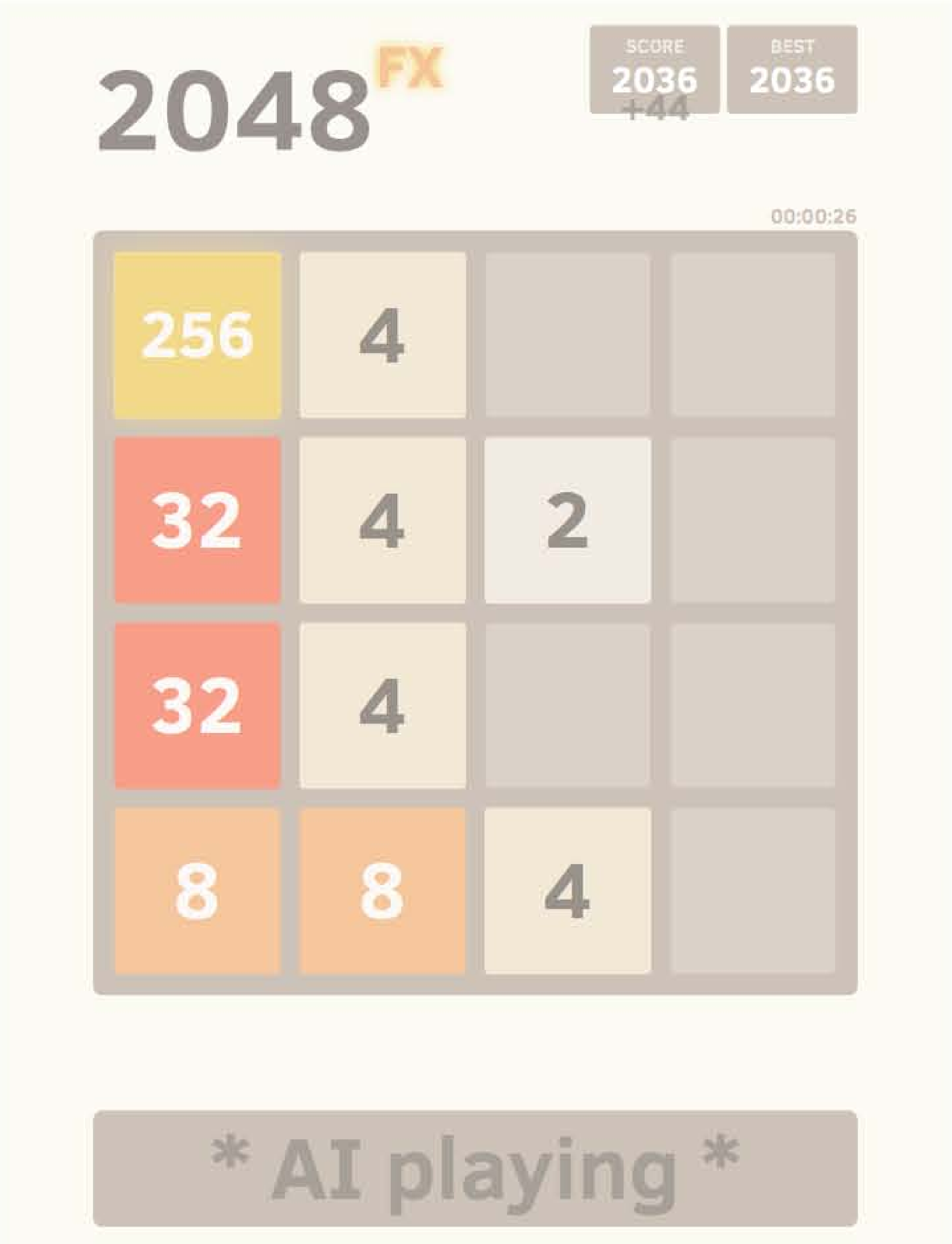
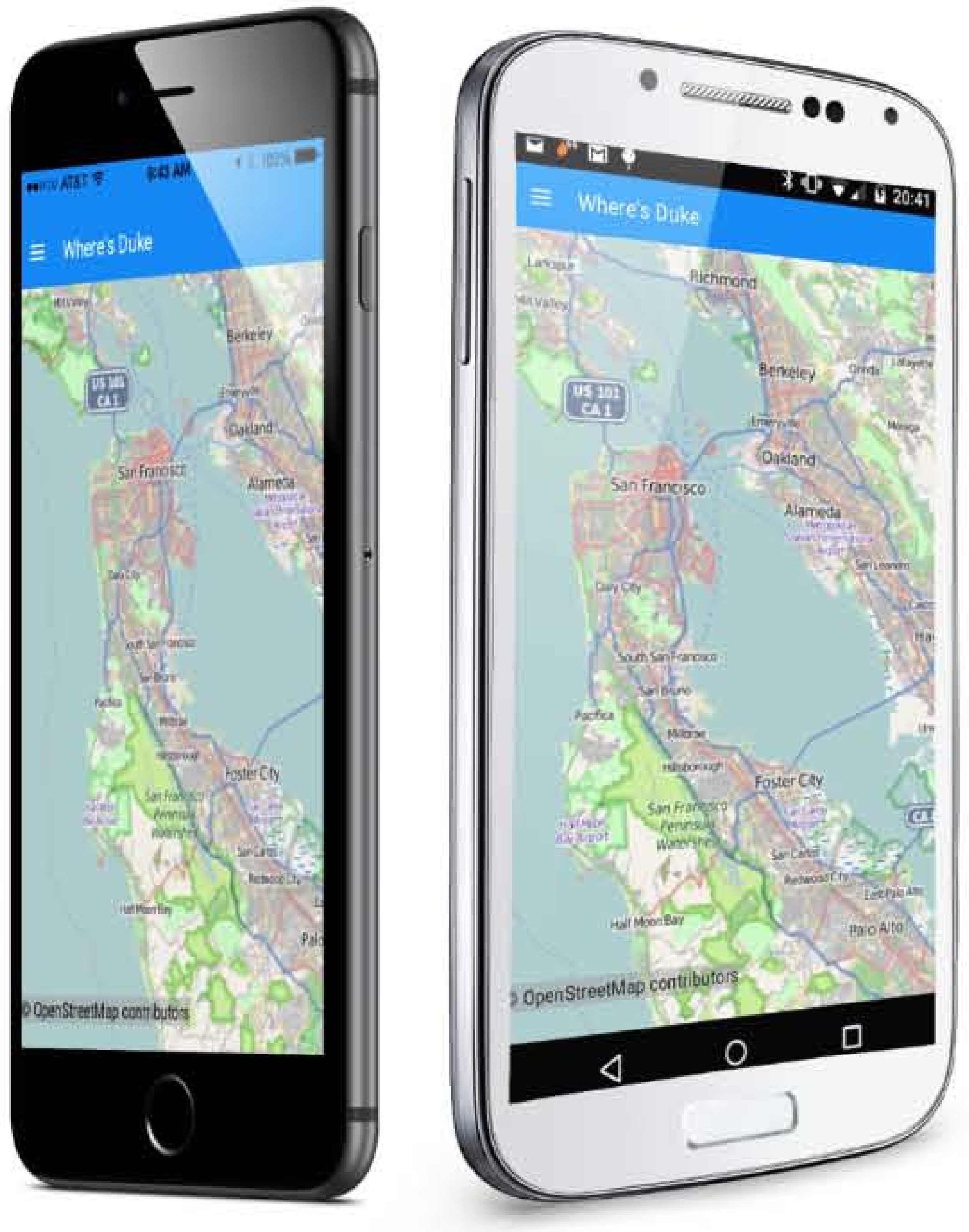
- Q&A



Gluon Precedents

Short story of Gluon

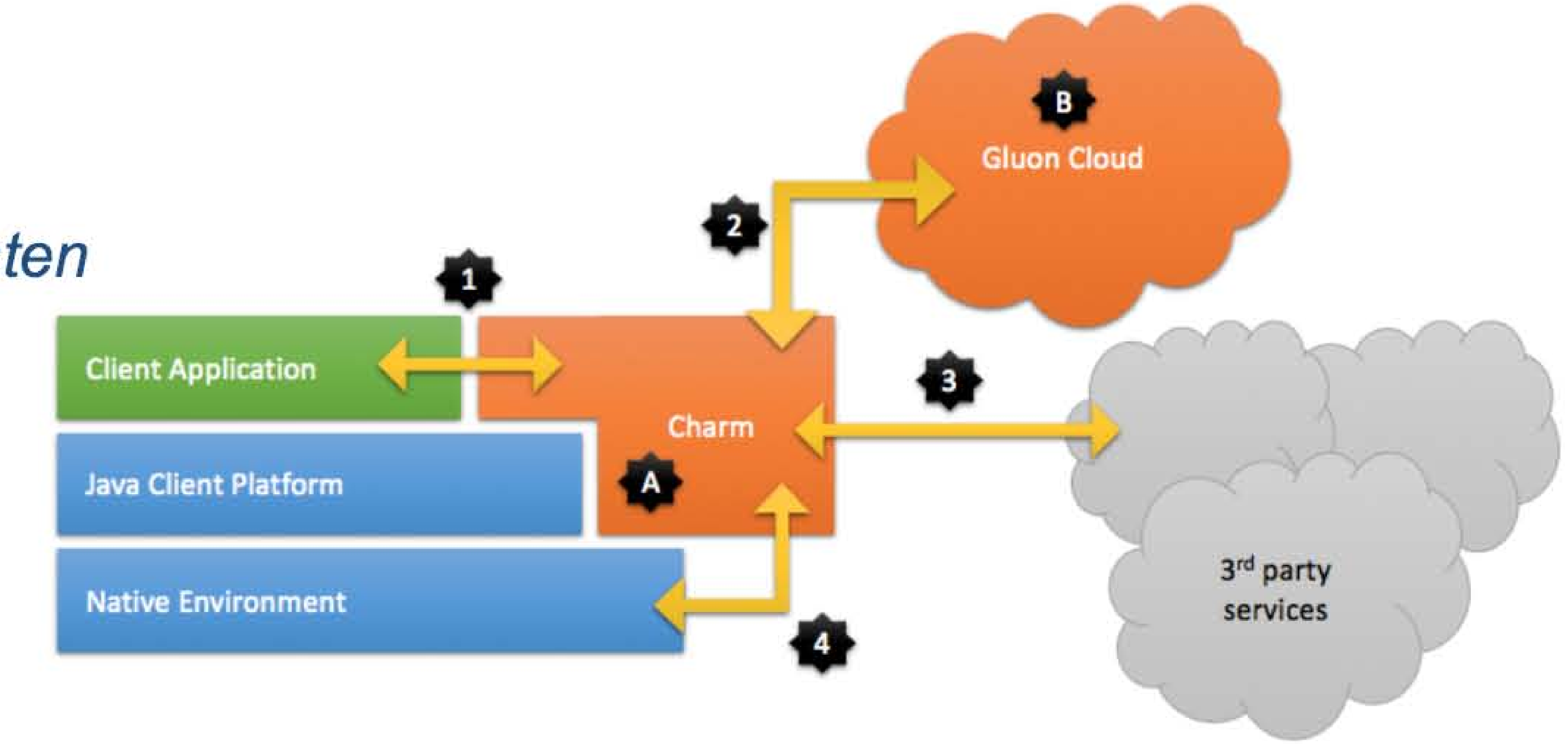
- Founded in February, 2015
  - By experts in Java SE/EE/Cloud, UI/JavaFX
- Main products:
  - Gluon Charm for mobile and tables
  - Consulting, training and projects
  - Open Source: JavaFXPorts, Scene Builder, JavaFX for ARM
- Gluon
  - Gluon Partner Program: *http://gluonhq.com/programs/gluon-partner/*
  - Newsletter: *http://gluonhq.com/about-us/newsletter/*



Features

Gluon Charm main features

- Three main components
  - UI for mobile (Material Design): *Charm Glisten*
  - Cloud: *Charm Connect*
  - Native access: *Gluon Down*
- Documentation
  - *http://docs.gluonhq.com/charm/0.0.4/*
- DP4, versión 1.0 en JavaOne
- Free for open source projects
- Prices and licenses:
  - *http://gluonhq.com/products/charm/buy/*



Documentation

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Gluon Charm Documentation

For Gluon Charm version 0.0.3 – Published 2015-09-08

1. Gluon High-Level Architecture

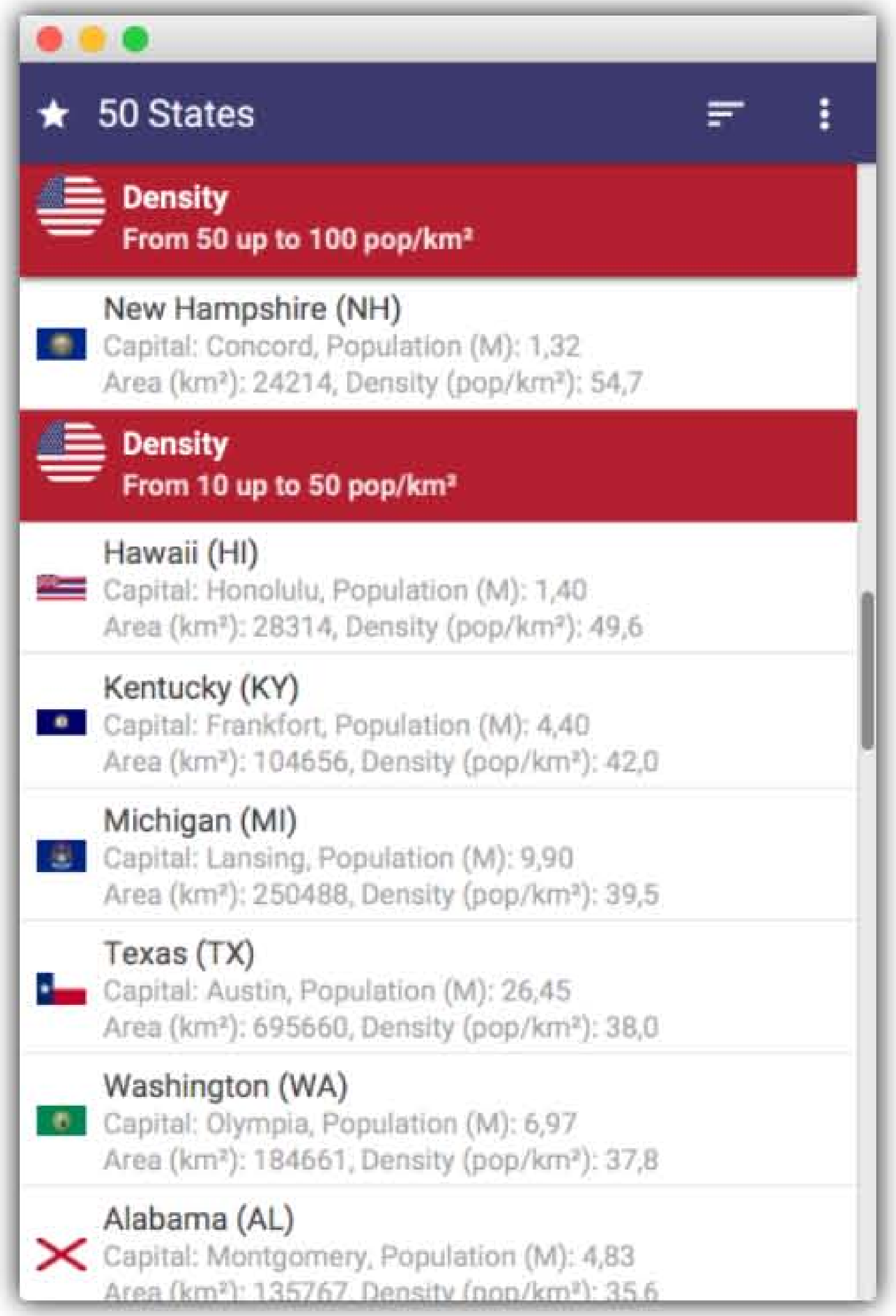
Gluon provides Java Enterprise capabilities for Java Client development. With Gluon, Java Client developers use an API in a familiar language (Java) to perform familiar Enterprise operations.

GLUON consists of [A] a client component named CHARM and [B] a server component named Gluon Cloud.

Resources

Gluon Charm resources

- **Gluon**
  - *Forums: http://gluonhq.com/forums/forum/gluon-charm/*
  - Partner Program: *http://gluonhq.com/programs/gluon-partner/*
- **Charm repository**
  - *http://nexus.gluonhq.com/nexus/content/repositories/releases/*
- **Charm JavaDoc**
  - *http://docs.gluonhq.com/charm/javadoc/0.0.3/*
- **Available samples**
  - Comments: *http://gluonhq.com/comments-app-getting-started-with-gluon-charm/*
  - 50 States: *http://gluonhq.com/charmlistview-new-control-in-town/*
  - Repository: *https://bitbucket.org/gluon-oss/samples*



★ 50 States

Density
From 50 up to 100 pop/km^2

New Hampshire (NH)
Capital: Concord, Population (M): 1,32
Area (km^2): 24214, Density (pop/km^2): 54,7

Density
From 10 up to 50 pop/km^2

Hawaii (HI)
Capital: Honolulu, Population (M): 1,40
Area (km^2): 28314, Density (pop/km^2): 49,6

Kentucky (KY)
Capital: Frankfort, Population (M): 4,40
Area (km^2): 104656, Density (pop/km^2): 42,0

Michigan (MI)
Capital: Lansing, Population (M): 9,90
Area (km^2): 250488, Density (pop/km^2): 39,5

Texas (TX)
Capital: Austin, Population (M): 26,45
Area (km^2): 695660, Density (pop/km^2): 38,0

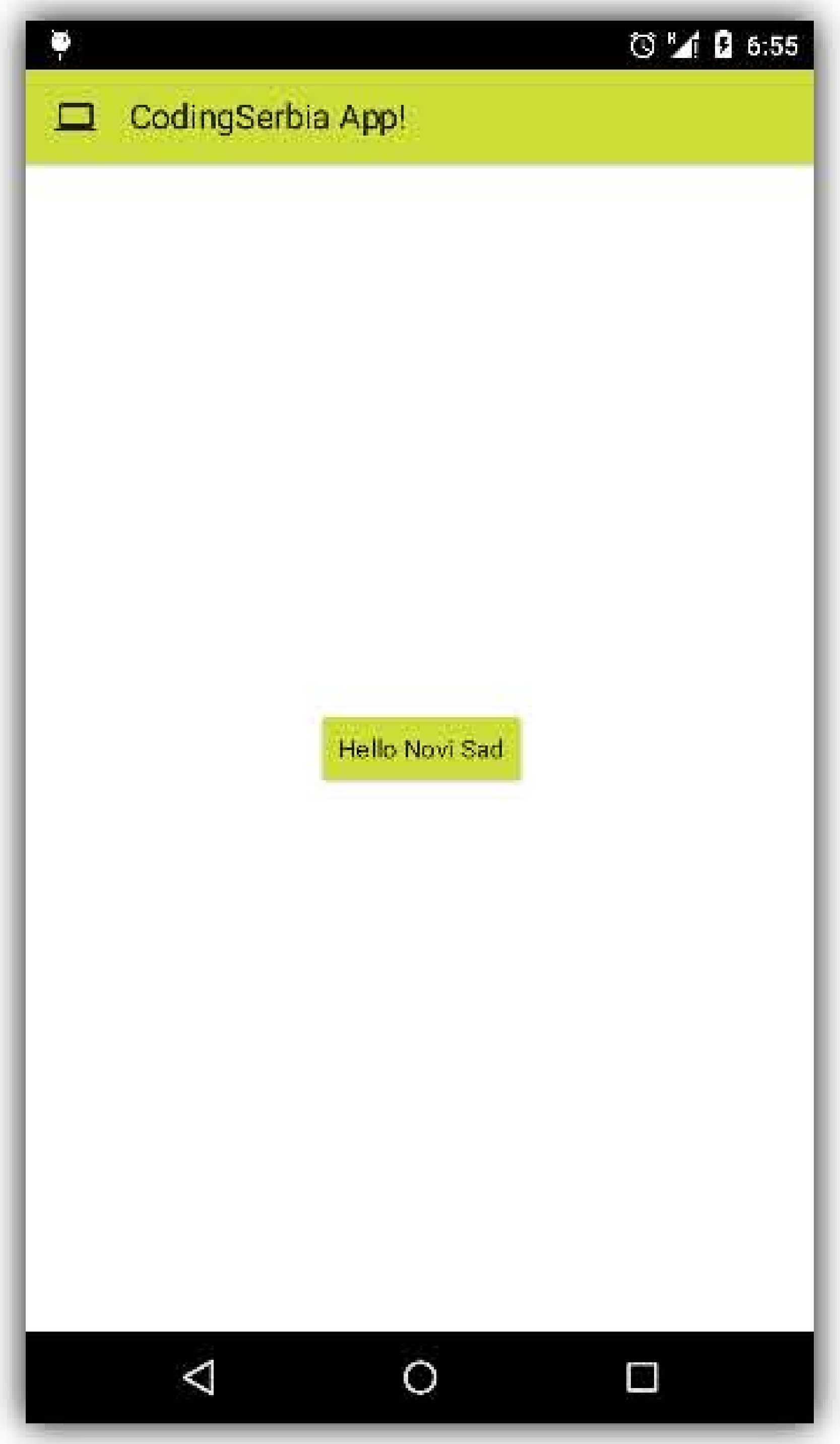
Washington (WA)
Capital: Olympia, Population (M): 6,97
Area (km^2): 184661, Density (pop/km^2): 37,8

Alabama (AL)
Capital: Montgomery, Population (M): 4,83
Area (km^2): 135767, Density (pop/km^2): 35,6

Basic Sample

Basic use of Gluon Charm

- Create new Project, edit build.gradle
  - Plugin version 1.0.3
  - Charm dependencies DP6
- Introduce *MobileApplication*
  - Add *View*
  - Add *Swatch*
- Uso FXML
  - Scene Builder (add charm-0.0.6.jar)
  - Afterburner



Run it!

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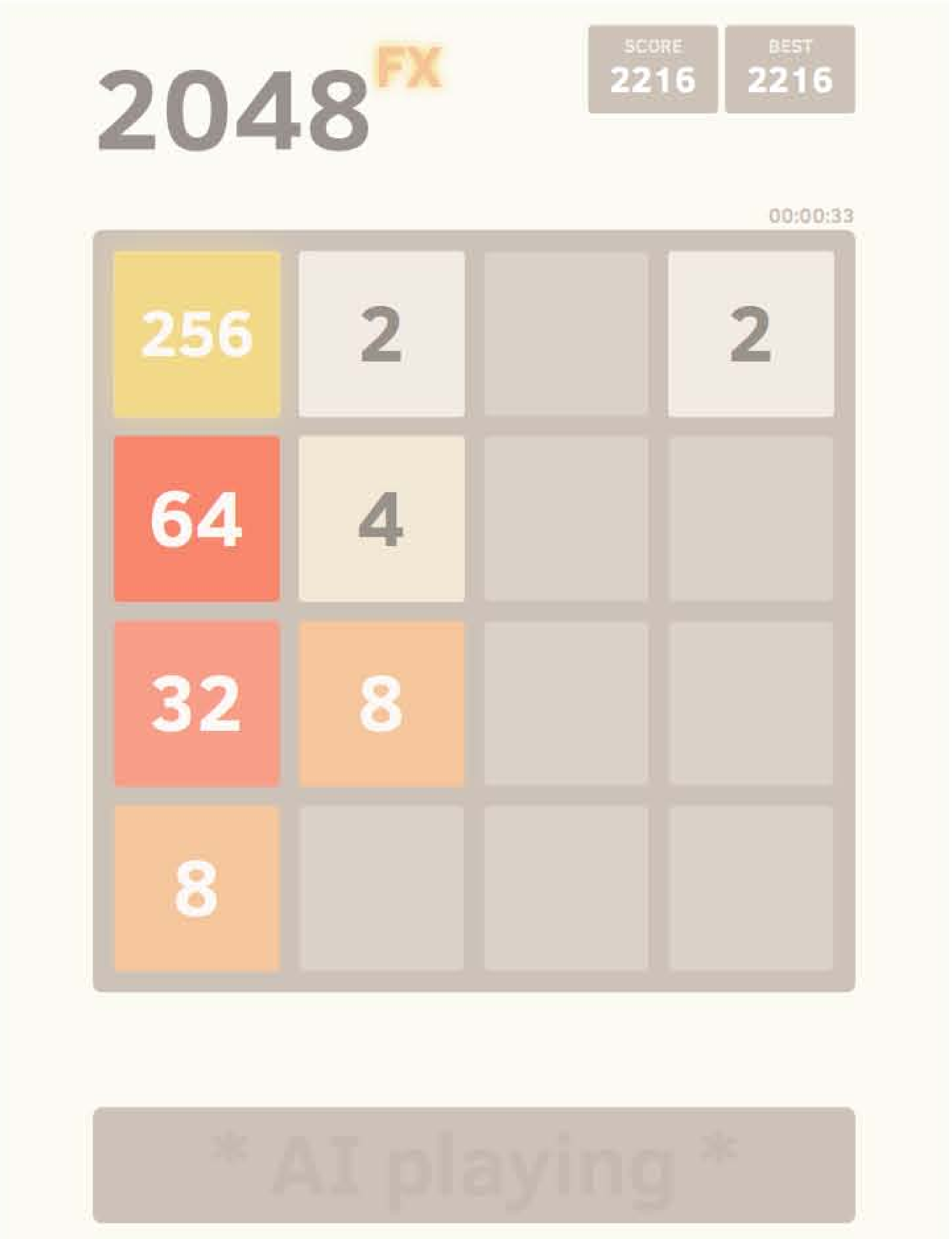
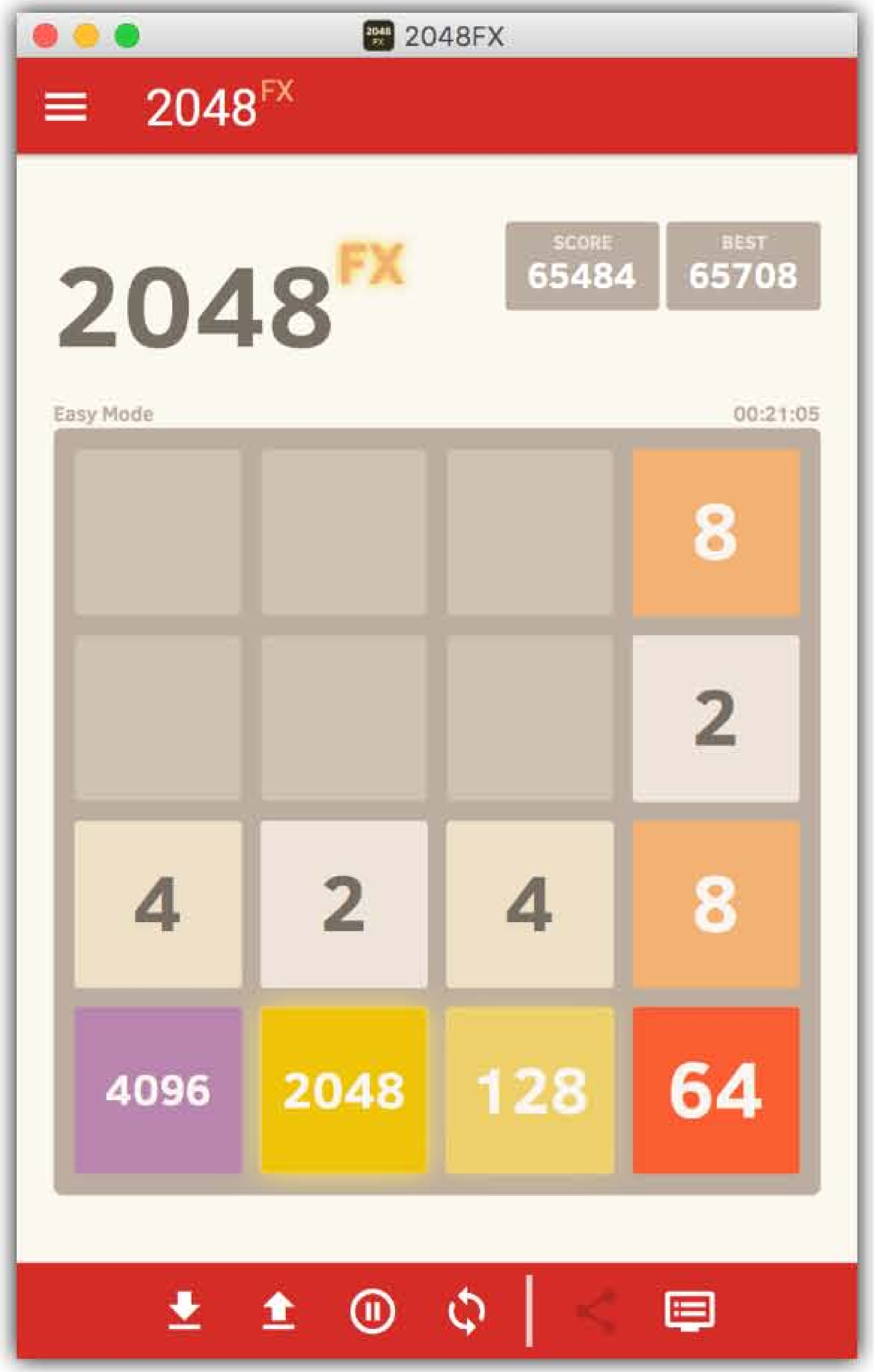


new UI

The new App

New design of the application using Gluon Charm



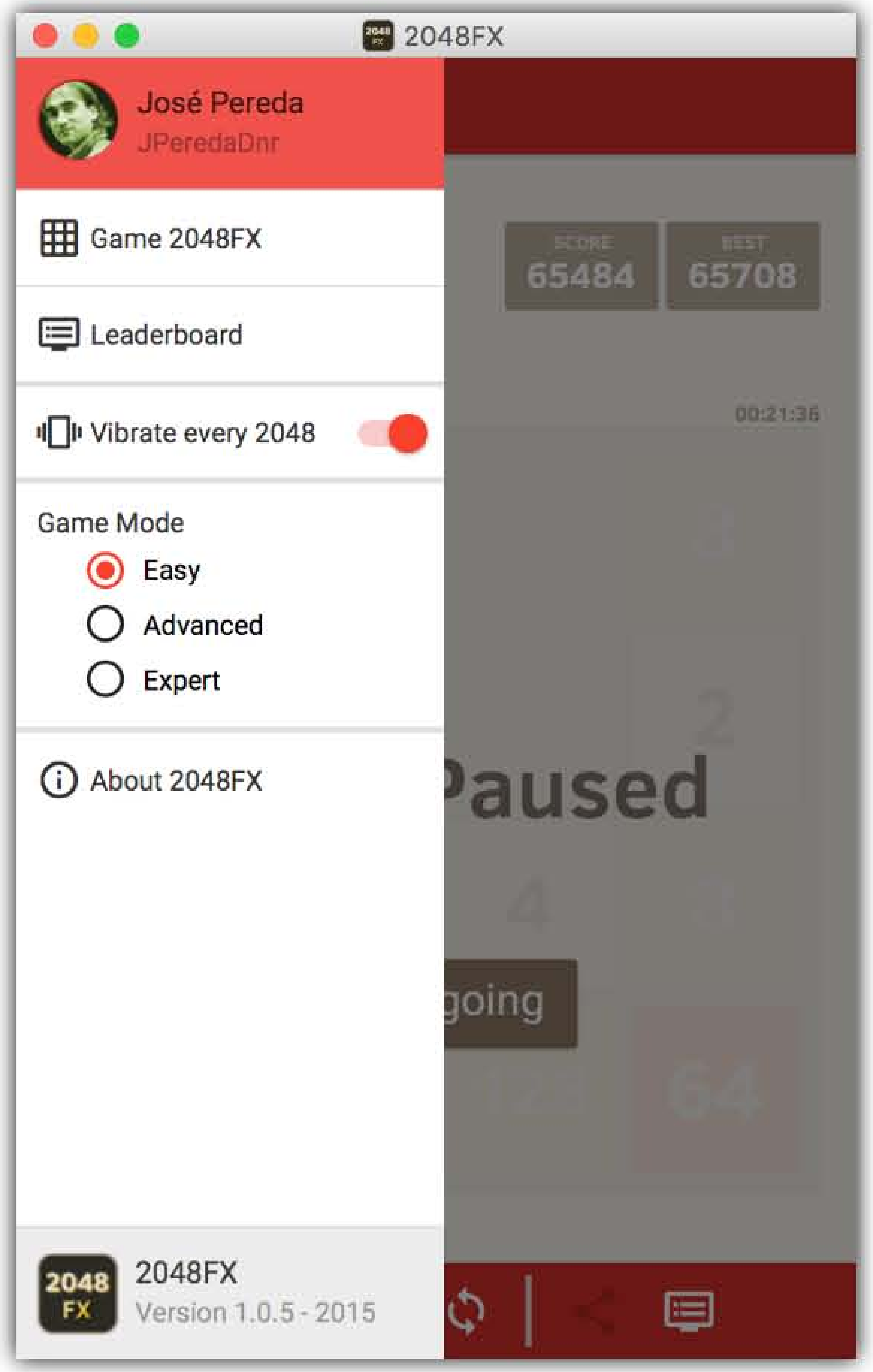
2048FX

2048 FX

SCORE	BEST
65484	65708

Easy Mode 00:21:05

			8
			2
4	2	4	8
4096	2048	128	64



2048FX

José Pereda
JPeredaDnr

Game 2048FX

Leaderboard

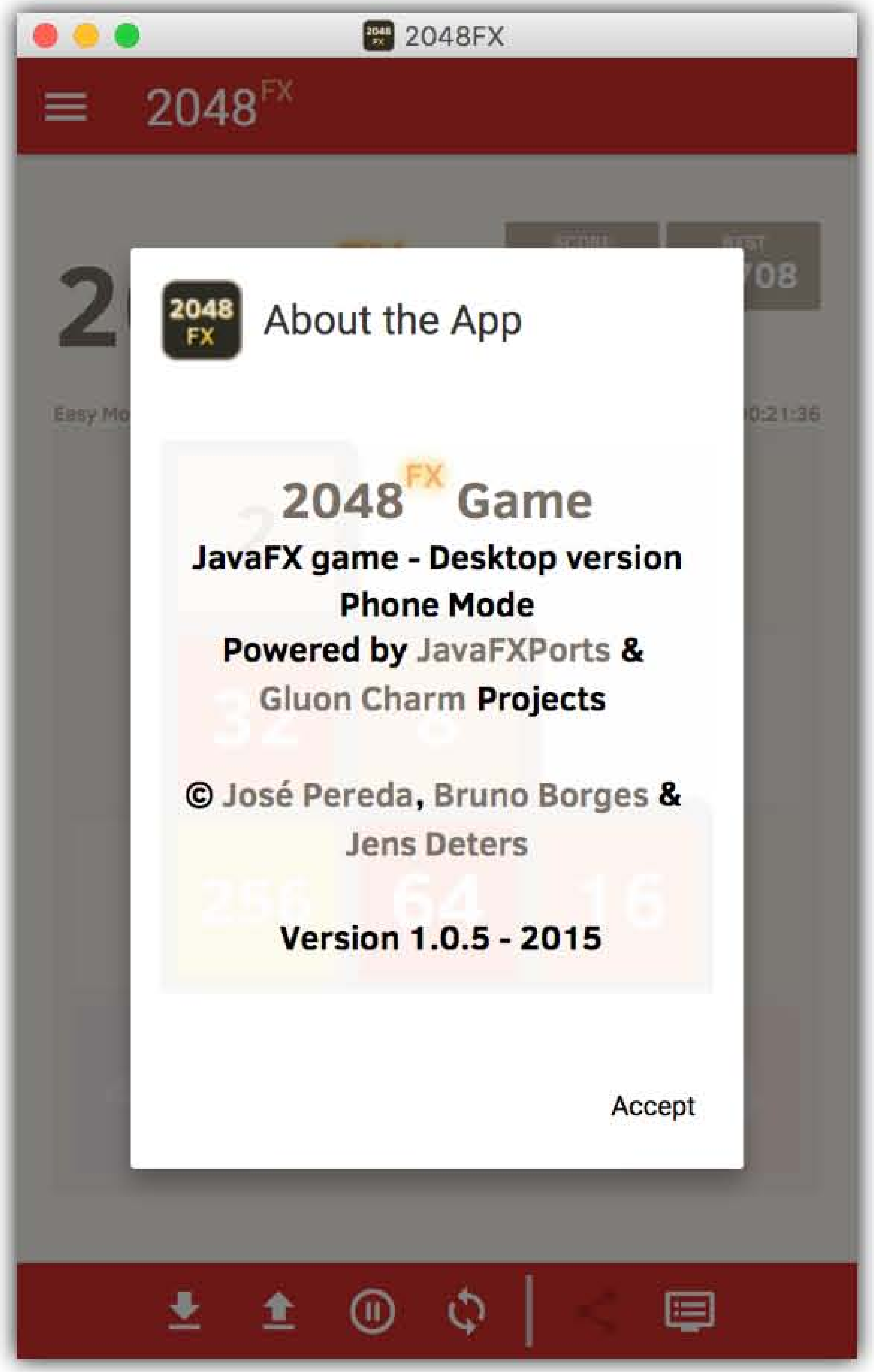
Vibrate every 2048 ●

Game Mode

● Easy
○ Advanced
○ Expert

About 2048FX

2048FX
Version 1.0.5 - 2015



2048FX

About the App

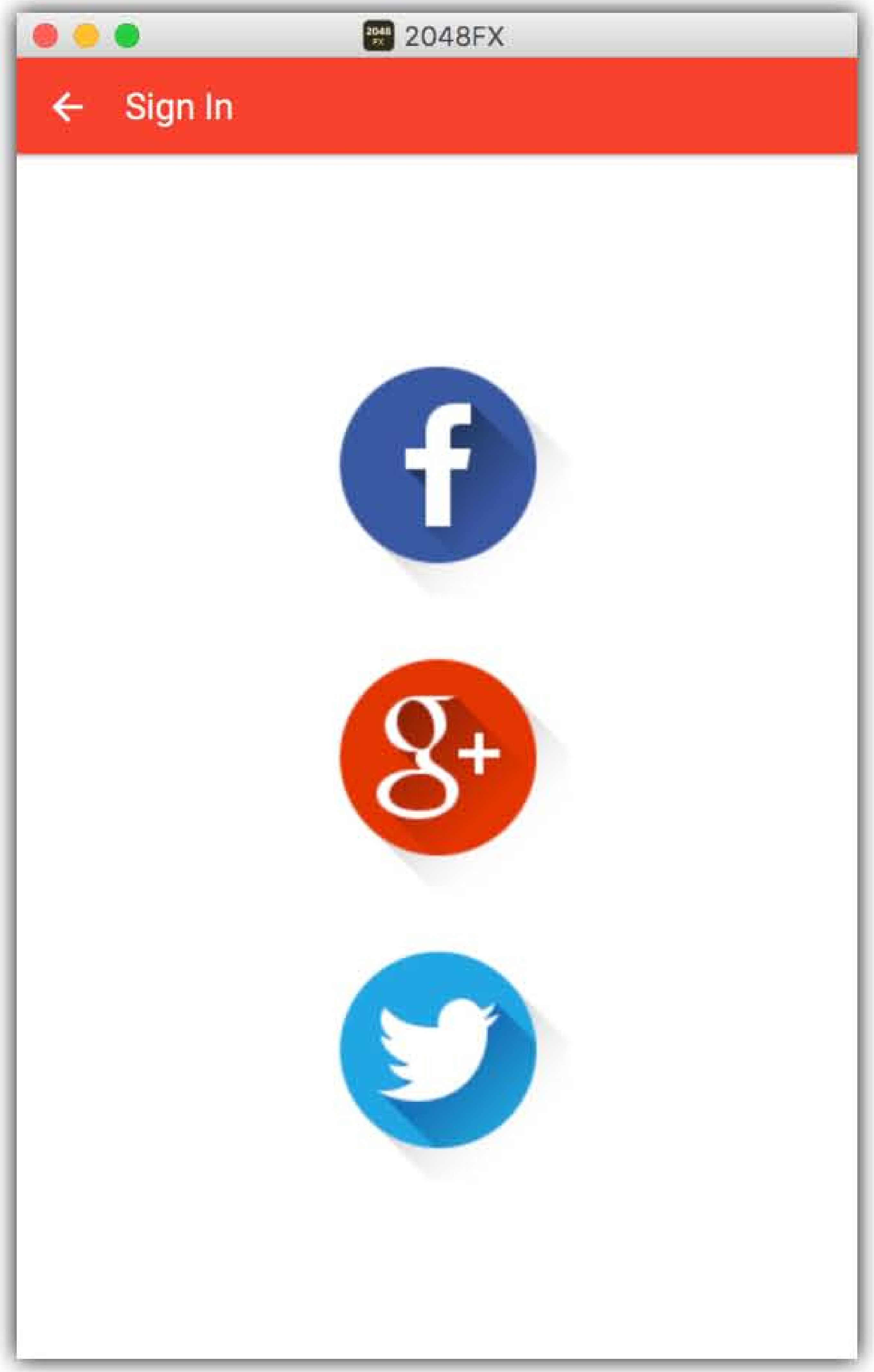
2048 FX Game
JavaFX game - Desktop version
Phone Mode
Powered by JavaFXPorts & Gluon Charm Projects

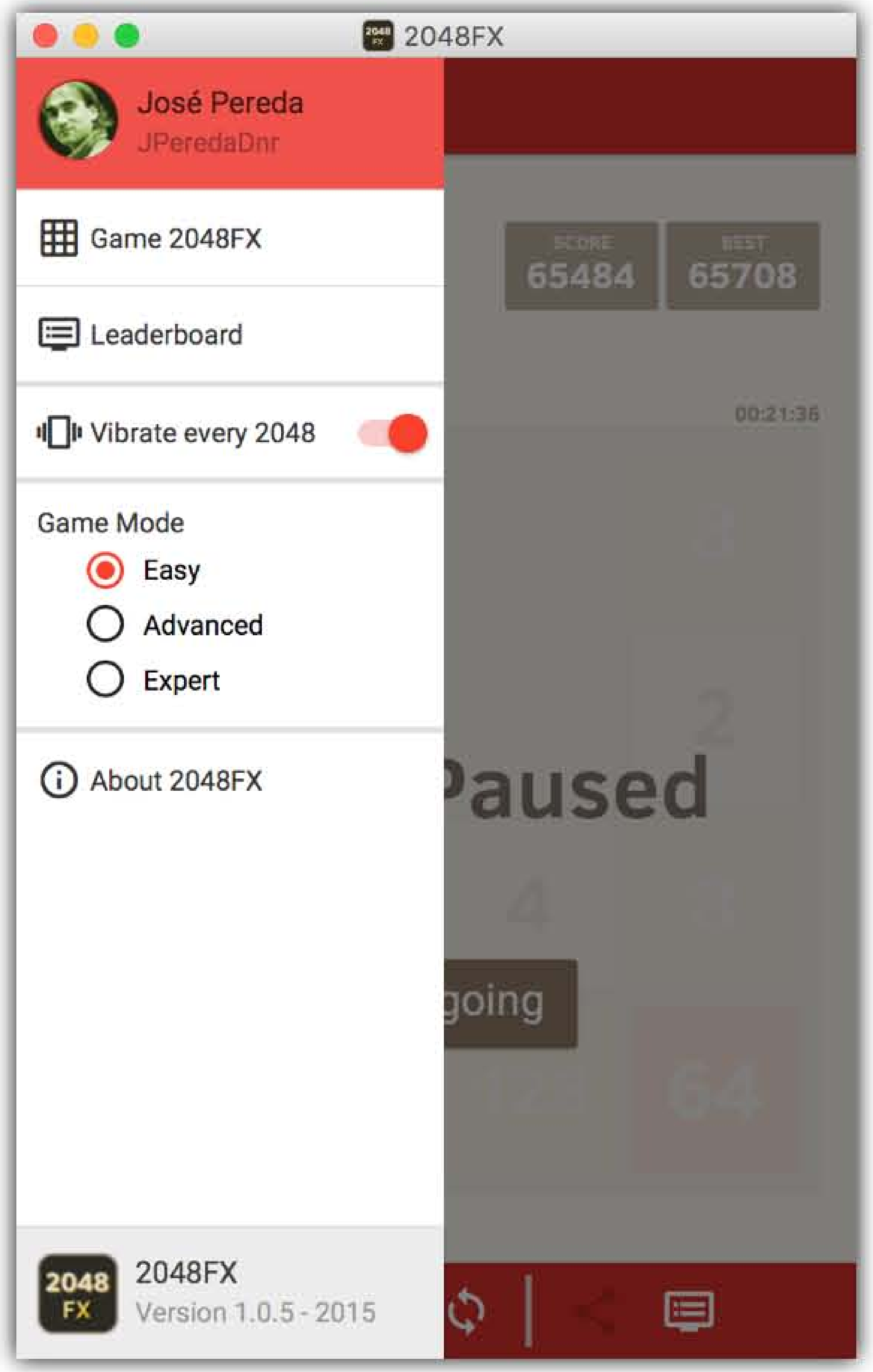
© José Pereda, Bruno Borges & Jens Deters

Version 1.0.5 - 2015

Accept

Leaderboard with Gluon Cloud





José Pereda
JPeredaDnr

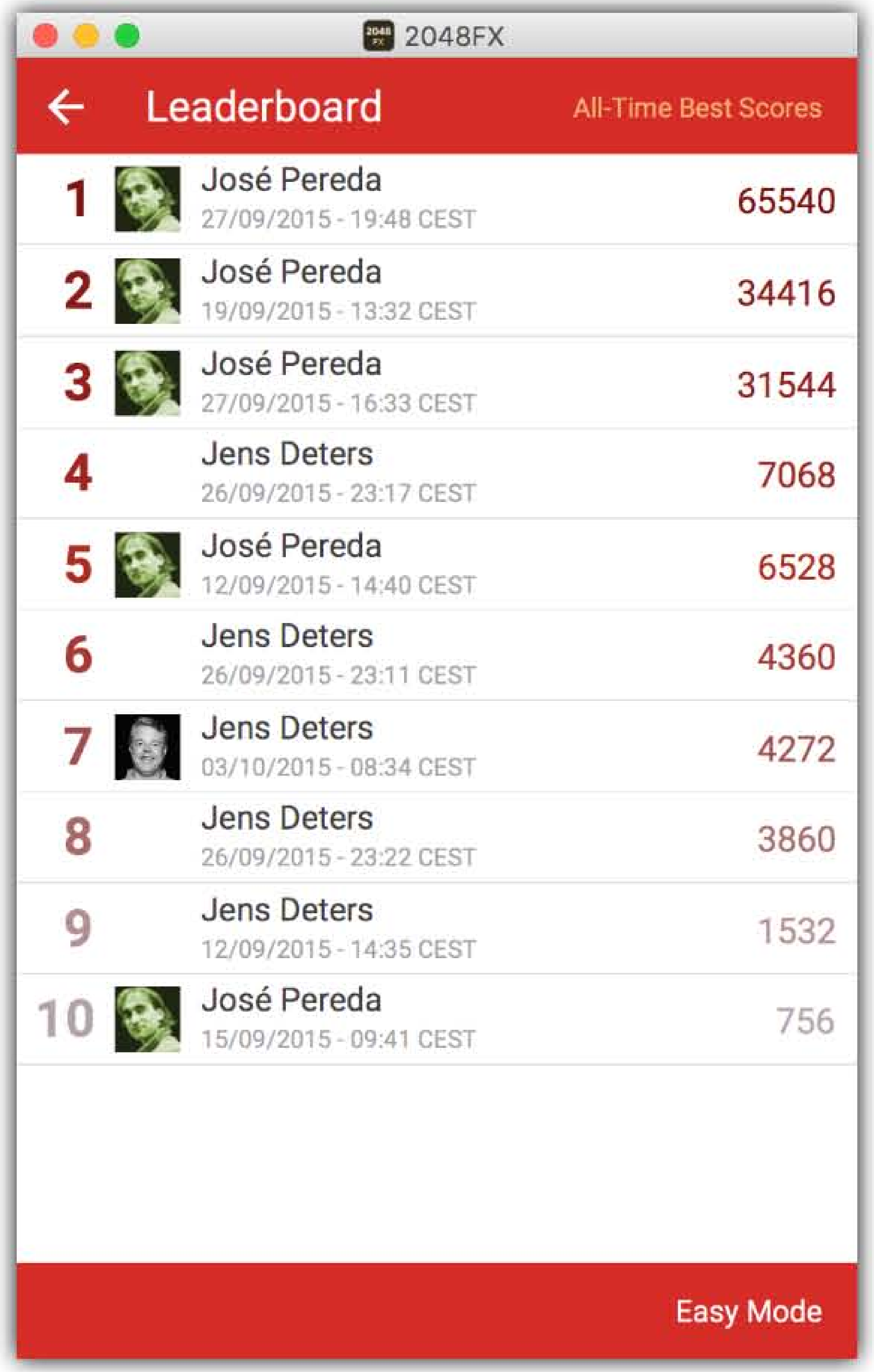
- Game 2048FX
- Leaderboard
- Vibrate every 2048 ●

Game Mode

- ◉ Easy
- ○ Advanced
- ○ Expert

- About 2048FX

2048FX
Version 1.0.5 - 2015



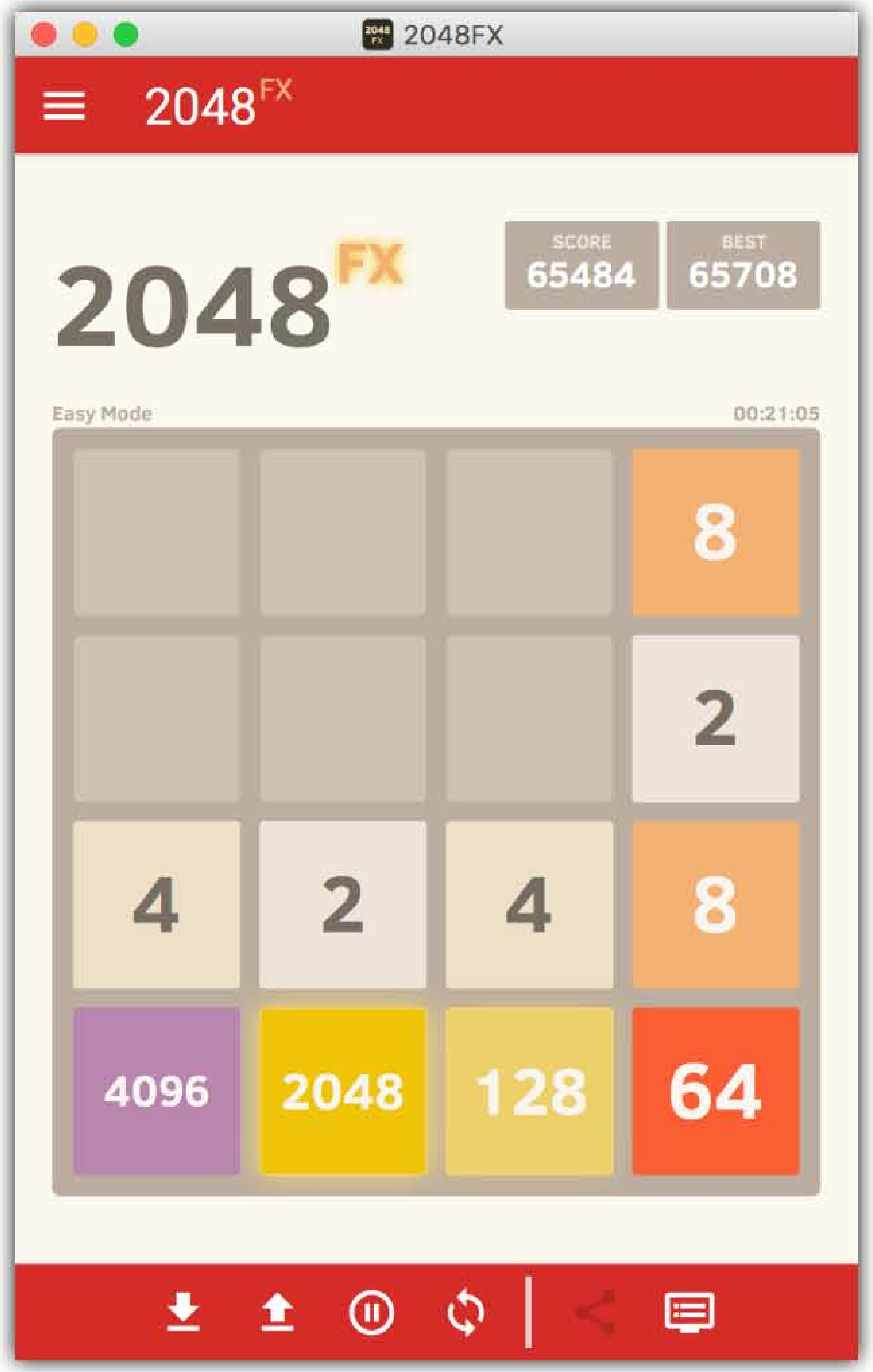
← Leaderboard — All-Time Best Scores

1	José Pereda	27/09/2015 - 19:48 CEST	65540
2	José Pereda	19/09/2015 - 13:32 CEST	34416
3	José Pereda	27/09/2015 - 16:33 CEST	31544
4	Jens Deters	26/09/2015 - 23:17 CEST	7068
5	José Pereda	12/09/2015 - 14:40 CEST	6528
6	Jens Deters	26/09/2015 - 23:11 CEST	4360
7	Jens Deters	03/10/2015 - 08:34 CEST	4272
8	Jens Deters	26/09/2015 - 23:22 CEST	3860
9	Jens Deters	12/09/2015 - 14:35 CEST	1532
10	José Pereda	15/09/2015 - 09:41 CEST	756

Easy Mode

Playing

new App



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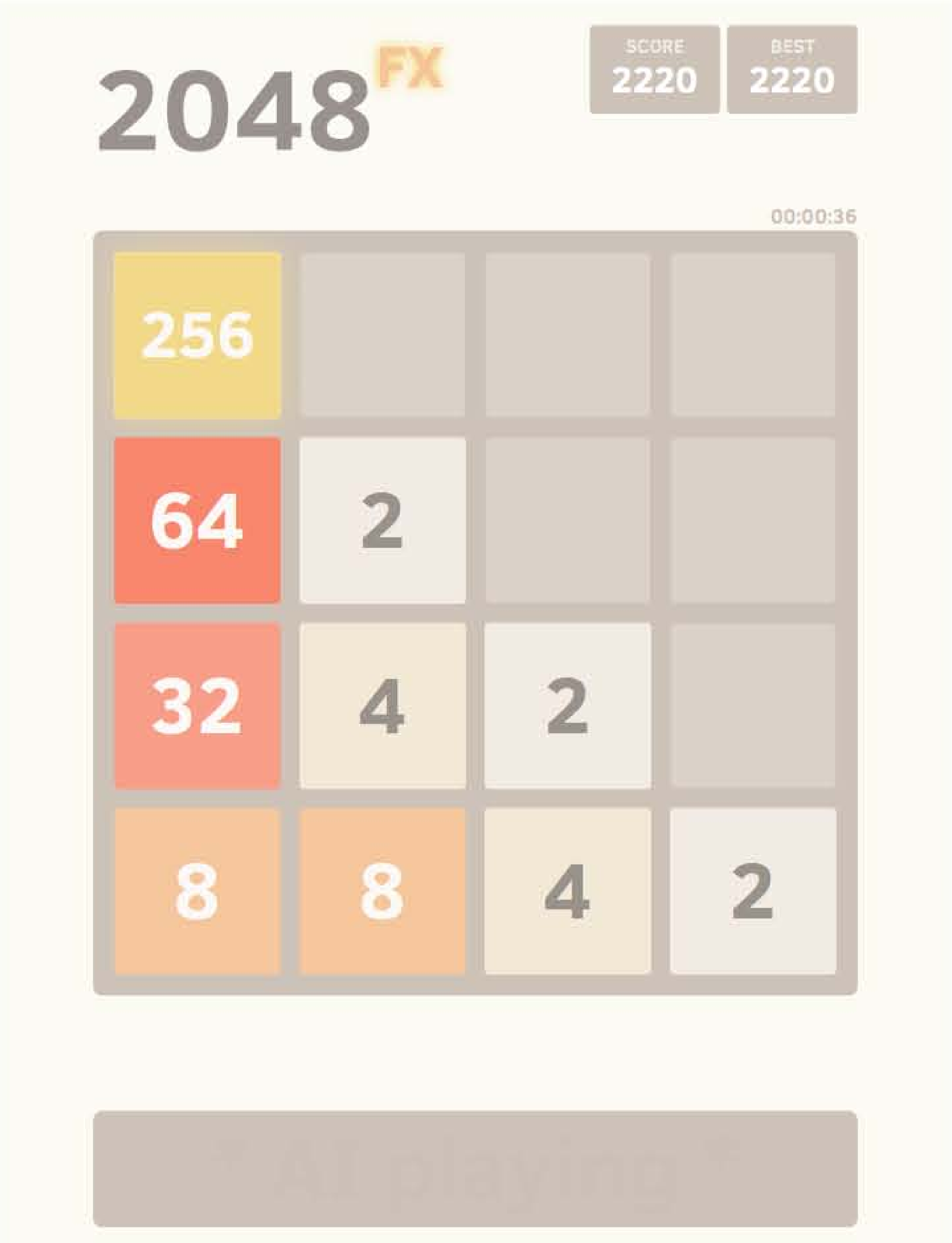

Conclusions

Main Conclusions

- 2048^{FX} as a game
  - Perfect excuse to play with latest technologies:
  - Java 8 on desktop first
  - JavaFXPorts on Mobile
- JavaFXPorts
  - Allows easy deployment of Java/JavaFX projects on mobile platforms
  - Mature enough
- Gluon Charm
  - On top of JavaFXPorts, allows native UI, Cloud and native services
  - Speeds up development and time to market

Questions?

Q & A

JavaOne

October, 29 2015

One Codebase to Rule Them All

Going Mobile with 2048 FX

2048 FX

José Pereda & Jens Deters

CON3255

JavaOne