

Prototyping

-Arindam Ghosh



Interaction design

- Process to get from your concept to creating flows of how people would complete certain tasks in the interface.
- Then create individual screens.

Three Questions

- What are the use cases?
 - What is the goal of the user.
- What tasks will people try to perform in your system?
 - Tasks leading up to the goal.
- What are the different flows the user will have to go through?
 - What screens will they have to interact with for that.

Ticket Booking

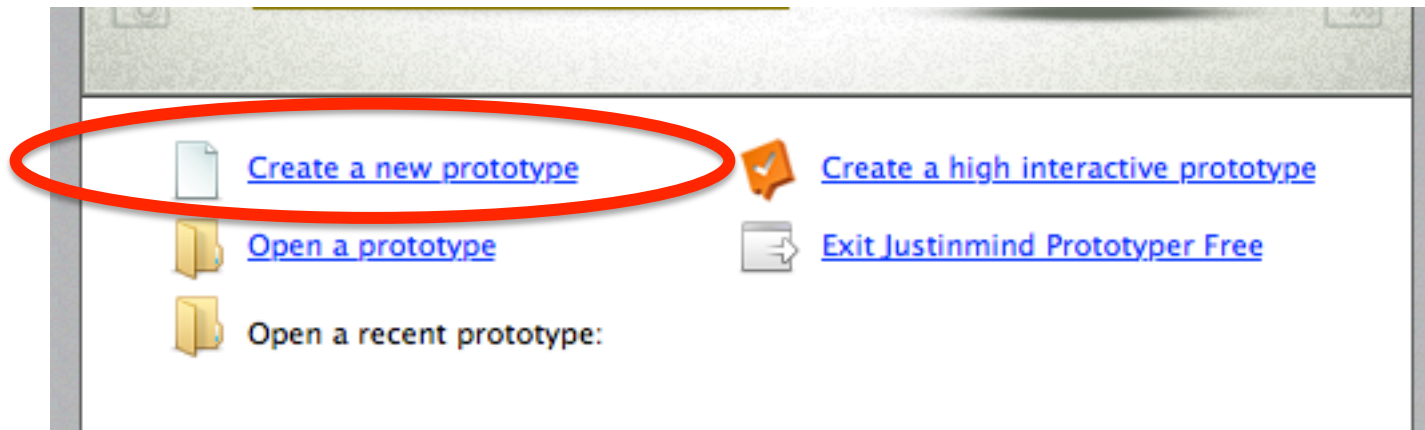
- Goal : Book a flight
- Tasks:
 - Select Flight
 - Book
- Screens?
 - Select Flight
 - Select Source
 - Select Destination
 - Select Time
 - Choose flight
 - Book
 - Enter Passenger info
 - Enter Credit Card Info
 - Confirm Payment

Art of Prototyping

- Leon Battista Alberti
 - De Re Aedificatoria (The Art of Building)
 - Julius Caesar ordered the demolition of a house on his estate in Nemi, because he didn't like how it was built.
 - He recommends in this book the custom of great builders of not only preparing drawings, but also models of wood and paper.

How to prototype - recap

- Launch App
- Then select Create a new prototype



Select device and resolution

What is your prototype for?



Android Tablet

Resolution you want to start with

☐ Predefined: 800 x 600

☒ Custom: Width (px): 480 Height (px): 800

Cancel Next >

Screen sizes

	Low density (120), <i>ldpi</i>	Medium density (160), <i>mdpi</i>	High density (240), <i>hdpi</i>	Extra high density (320), <i>xhdpi</i>
<i>Small</i> screen	QVGA (240x320)		480x640	
<i>Normal</i> screen	WQVGA400 (240x400) WQVGA432 (240x432)	HVGA (320x480)	WVGA800 (480x800) WVGA854 (480x854) 600x1024	640x960
<i>Large</i> screen	WVGA800** (480x800) WVGA854** (480x854)	WVGA800* (480x800) WVGA854* (480x854) 600x1024		
<i>Extra Large</i> screen	1024x600	WXGA (1280x800)[†] 1024x768 1280x768	1536x1152 1920x1152 1920x1200	2048x1536 2560x1536 2560x1600

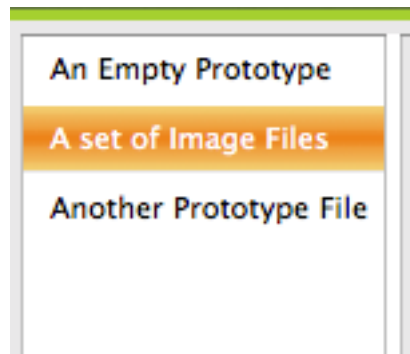
Refer to: http://developer.android.com/guide/practices/screens_support.html

Screen size

Check in Android Emulator for
Screen sizes for standard devices

	Nexus 4 (4.7", 768 × 1280: xhdpi)
	Nexus 10 (10.055", 2560 × 1600: xhdpi)
	Nexus 7 (7.27", 800 × 1280: tvdpi)
	Galaxy Nexus (4.65", 720 × 1280: xhdpi)
	Nexus S (4.0", 480 × 800: hdpi)
	Nexus One (3.7", 480 × 800: hdpi)
	10.1" WXGA (Tablet) (1280 × 800: mdpi)
	7.0" WSVGA (Tablet) (1024 × 600: mdpi)
✓	5.4" FWVGA (480 × 854: mdpi)
	5.1" WVGA (480 × 800: mdpi)
	4.7" WXGA (1280 × 720: xhdpi)
	4.65" 720p (720 × 1280: xhdpi)
	4.0" WVGA (480 × 800: hdpi)
	3.7" FWVGA slider (480 × 854: hdpi)
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	3.2" QVGA (ADP2) (320 × 480: mdpi)
	3.2" HVGA slider (ADP1) (320 × 480: mdpi)
	2.7" QVGA slider (240 × 320: ldpi)

Select prototyping option

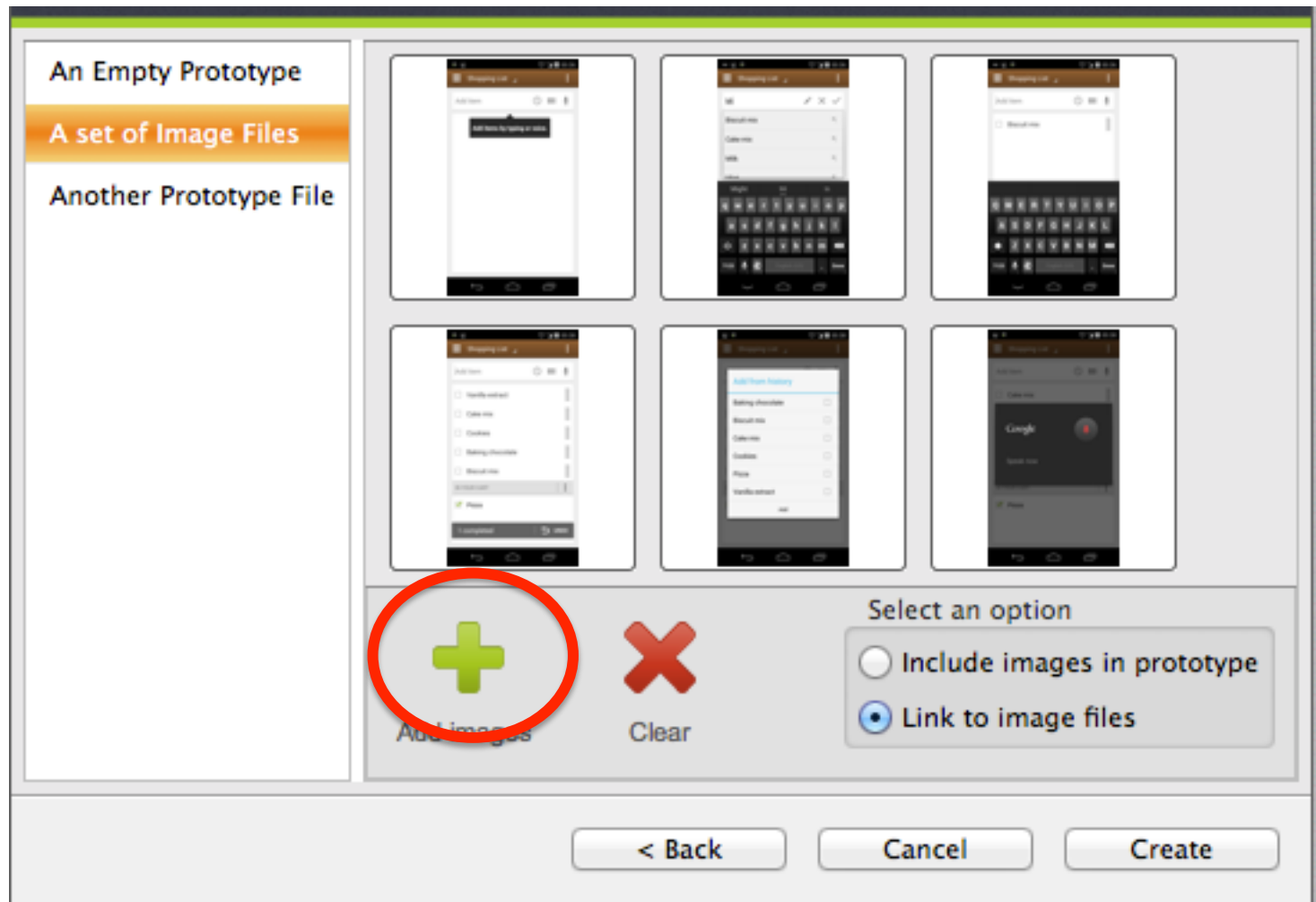


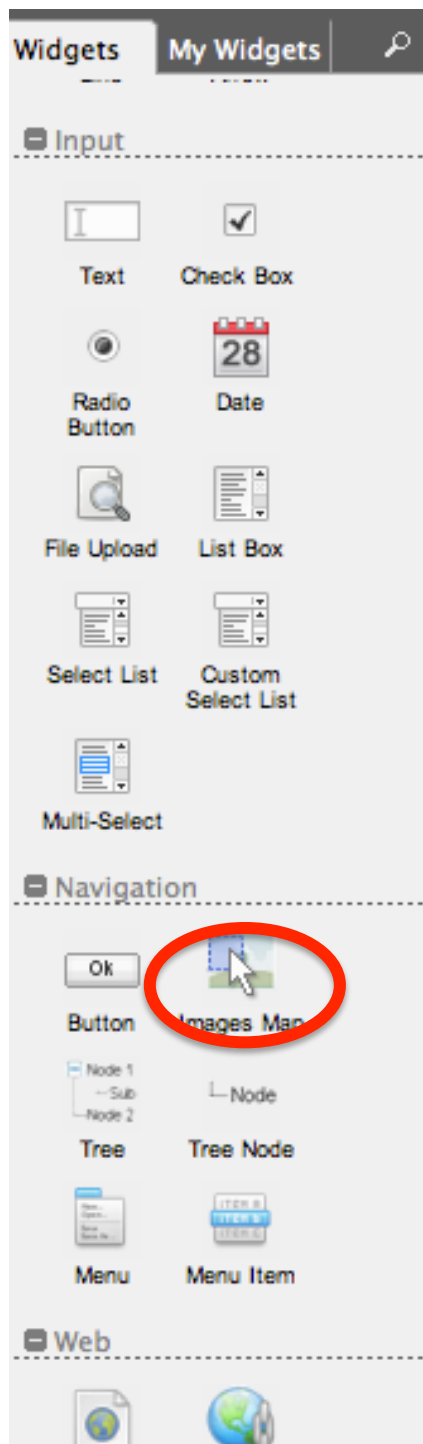
An Empty Prototype: Normal Prototype using the app

A set of Images: If you have designed your prototype on paper or Photoshop or Fireworks.

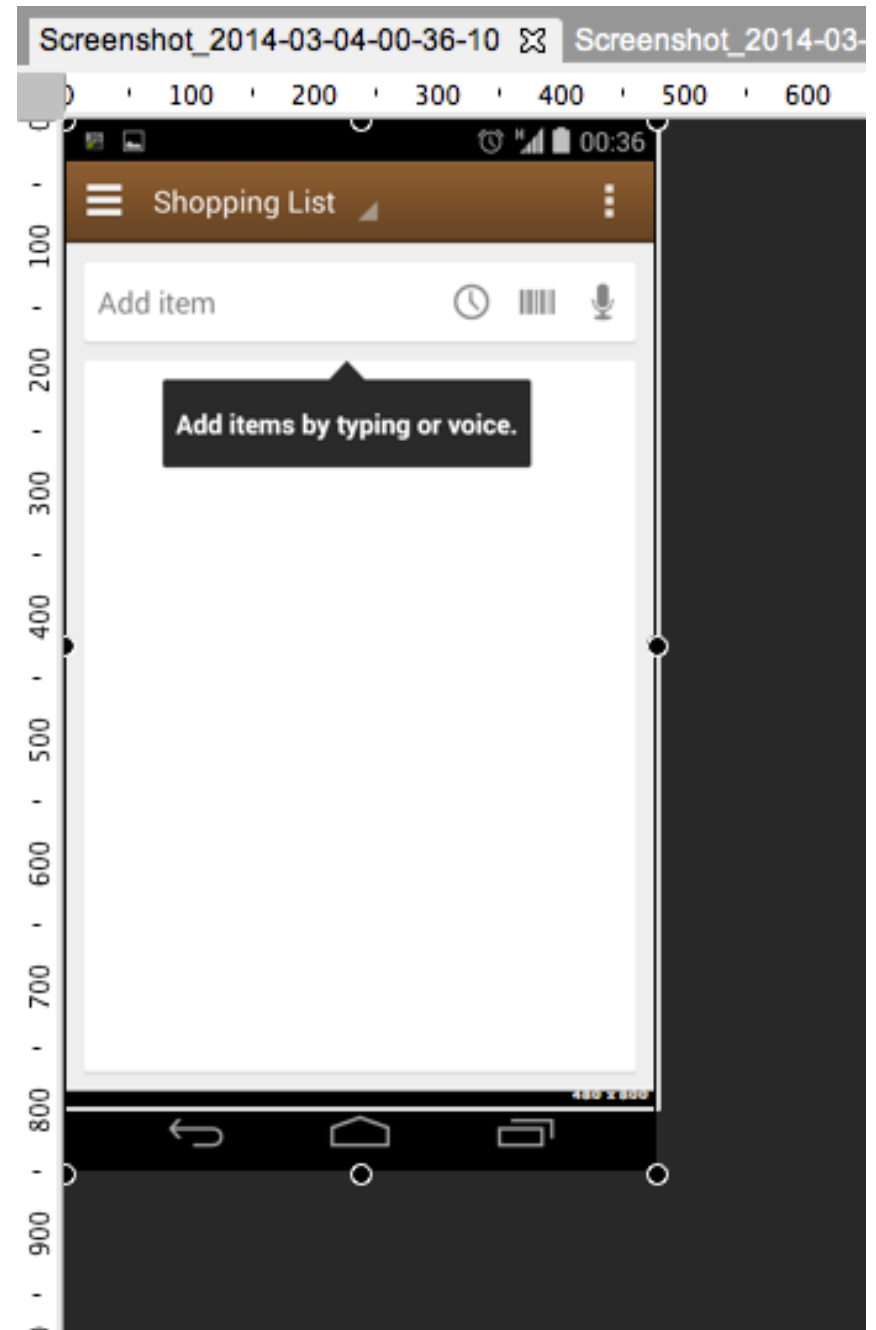
Another Prototype: Editing existing prototypes

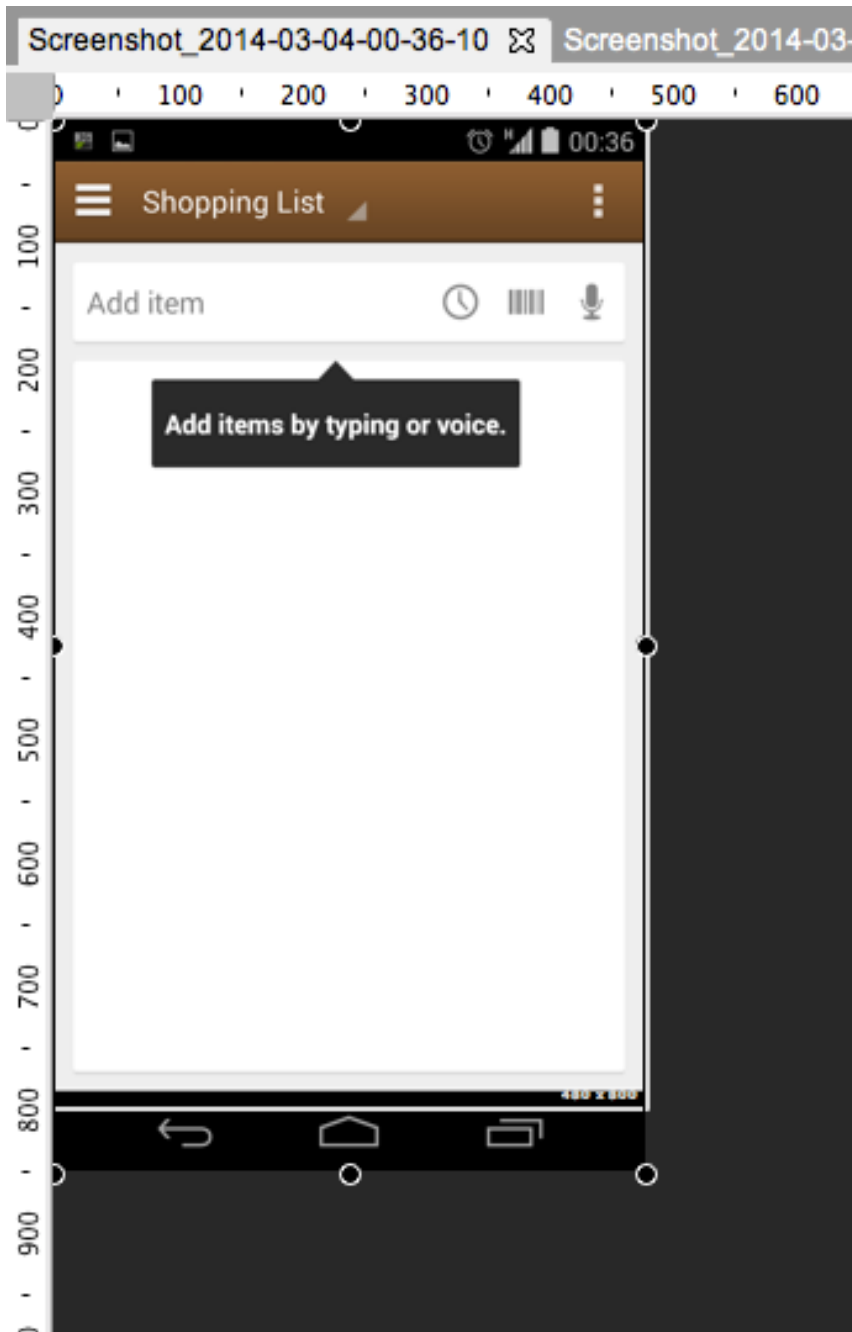
Using A set of Images



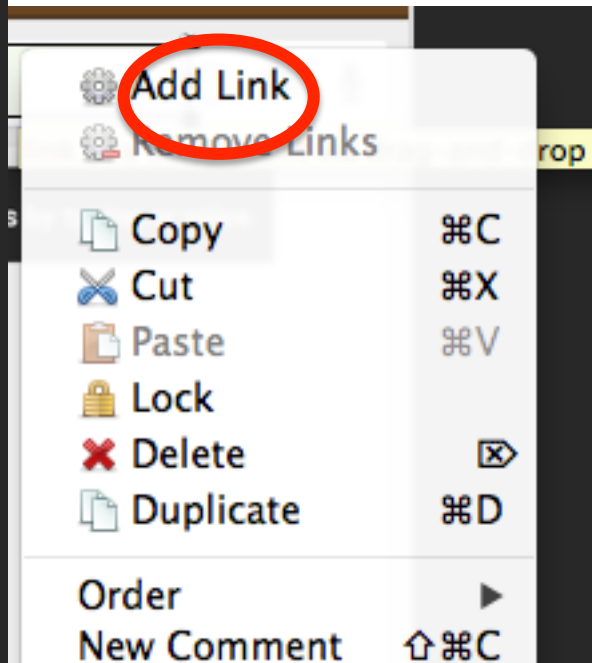


**Drag drop this to
Desired region**

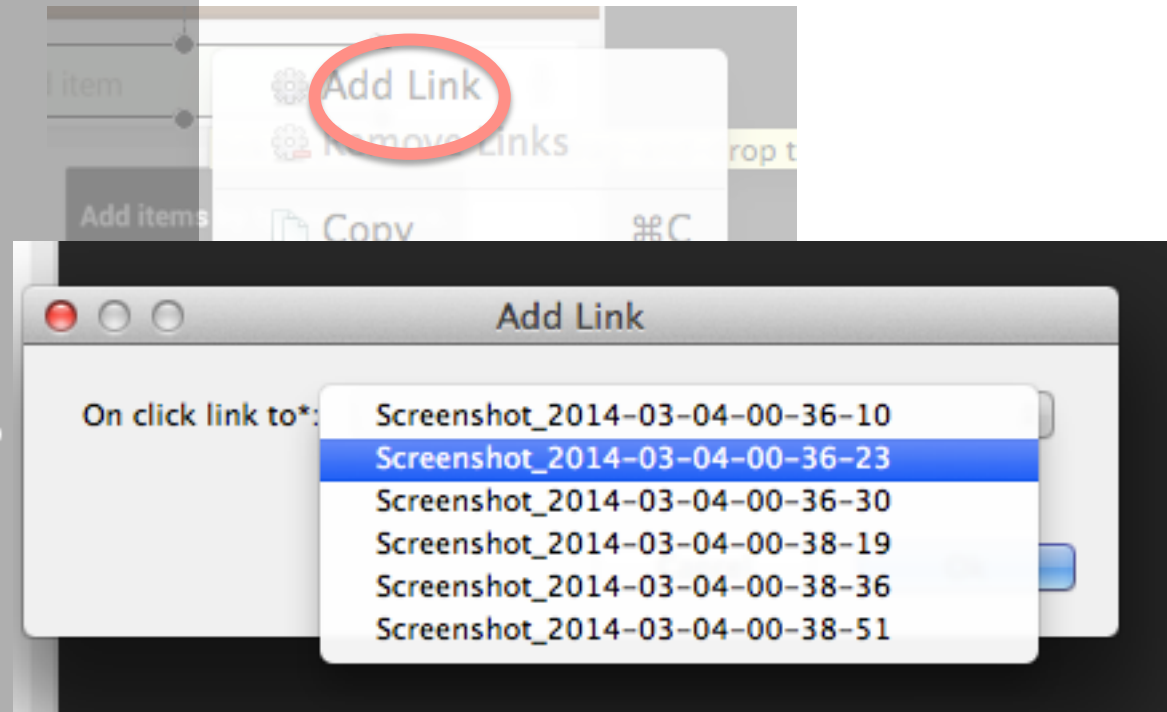
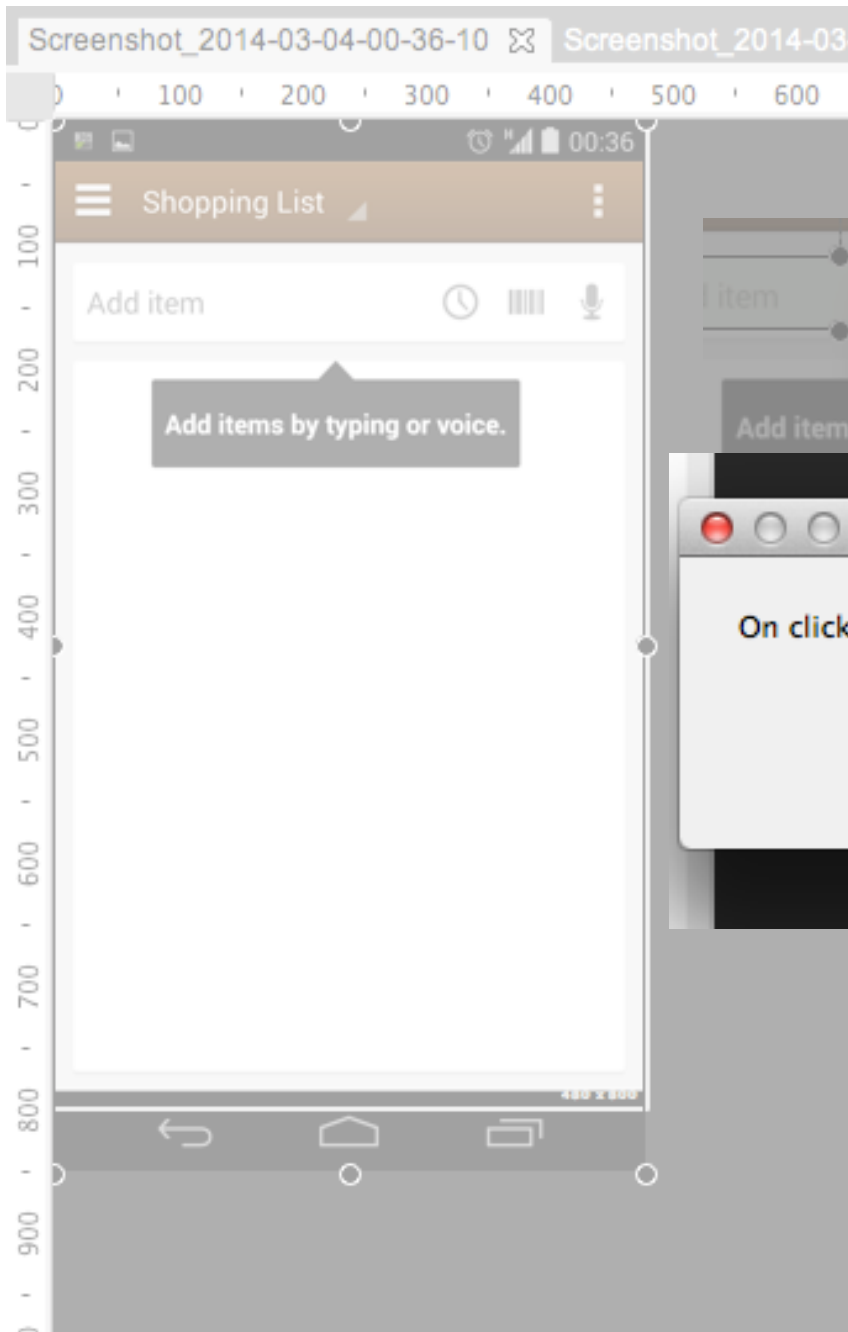


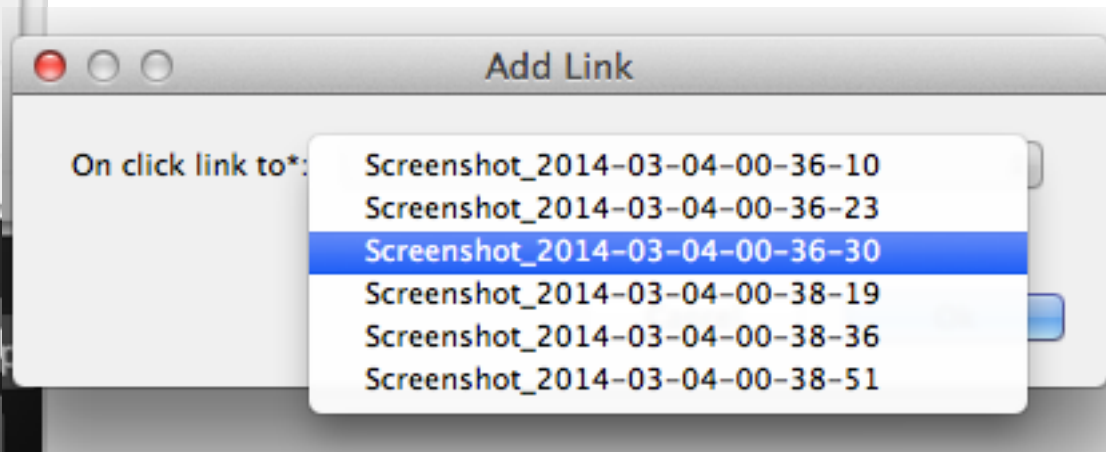


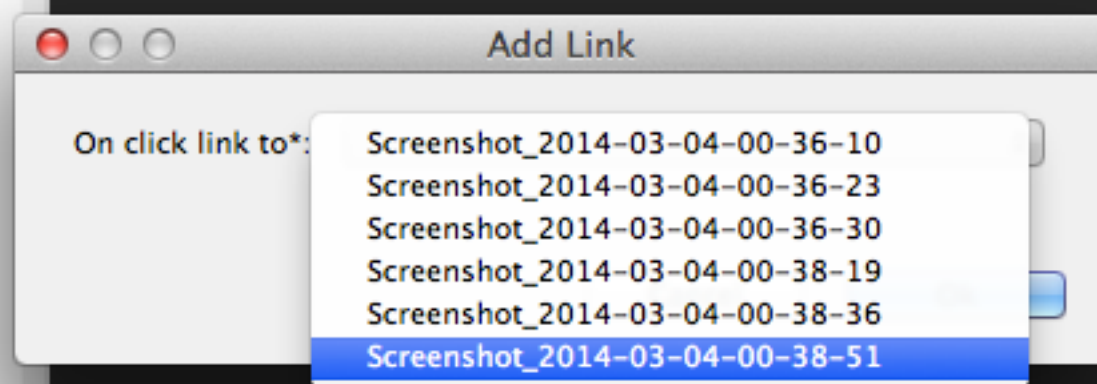
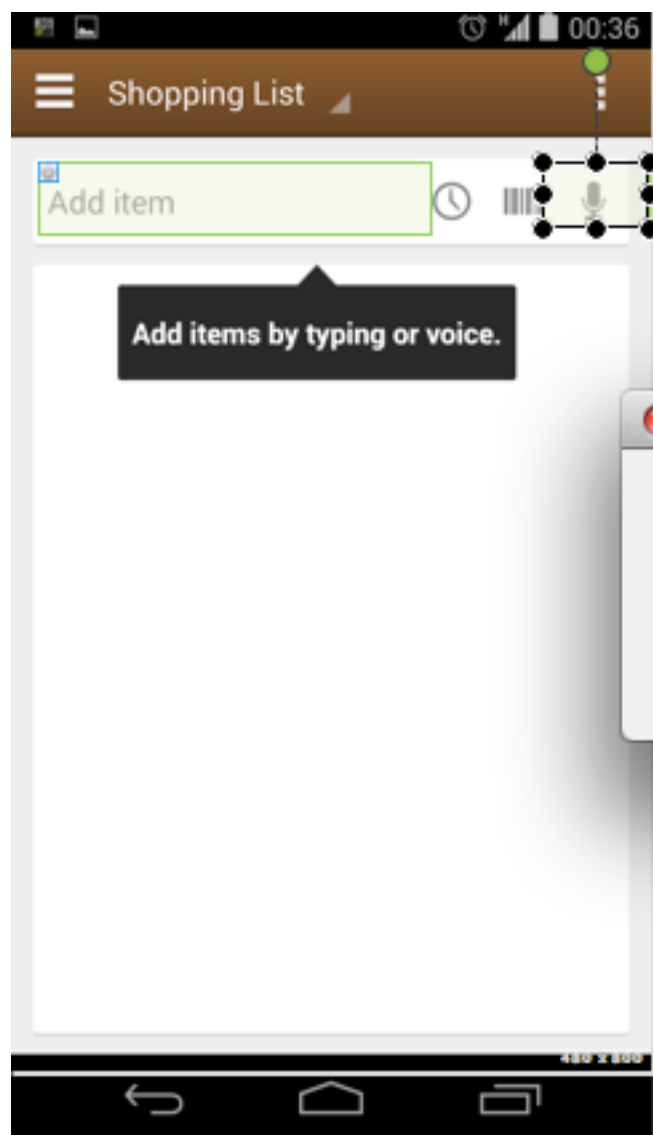
Right click and Select Add Link



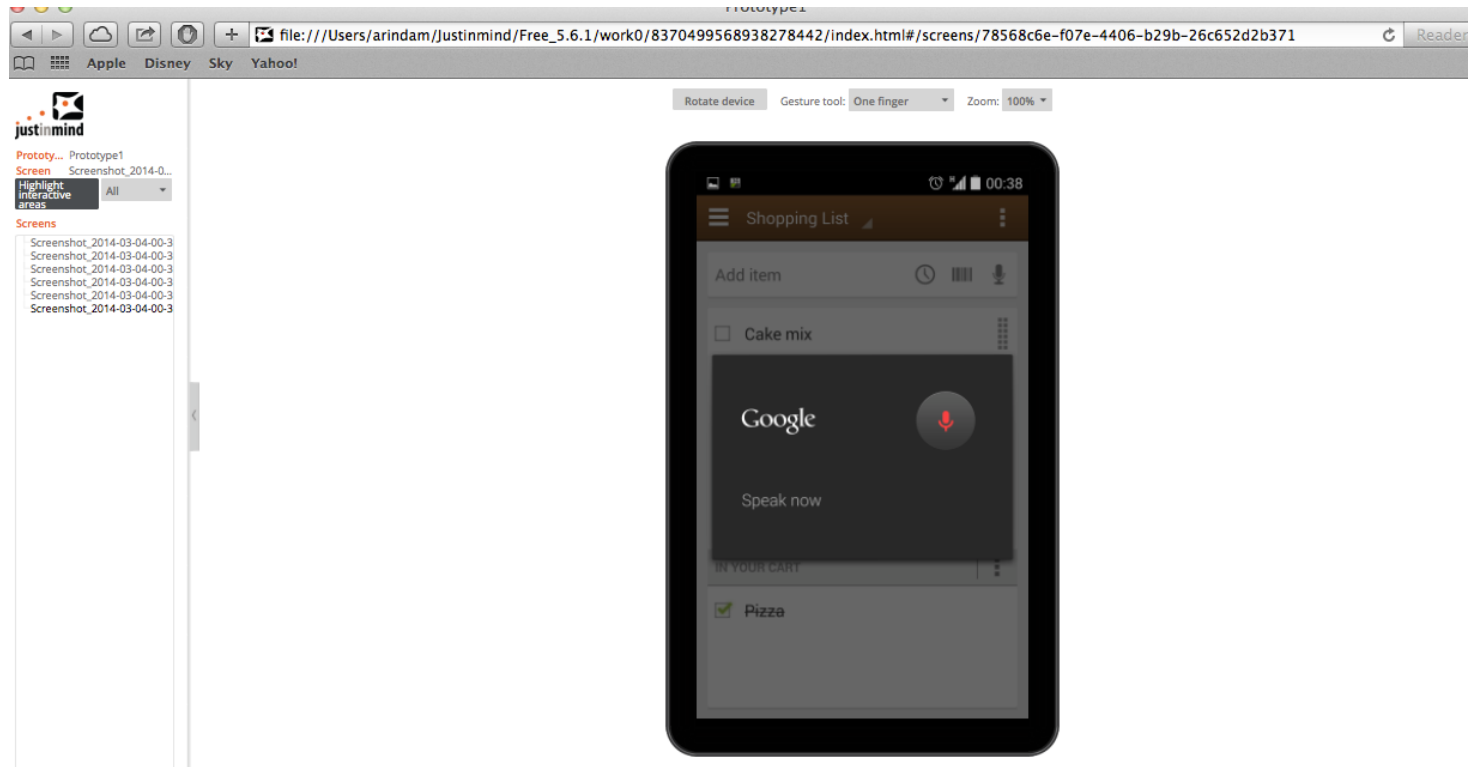
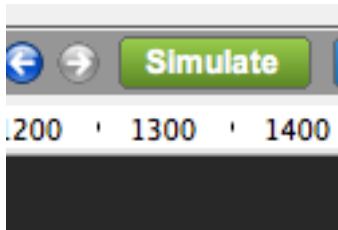
Right click and Select Add Link



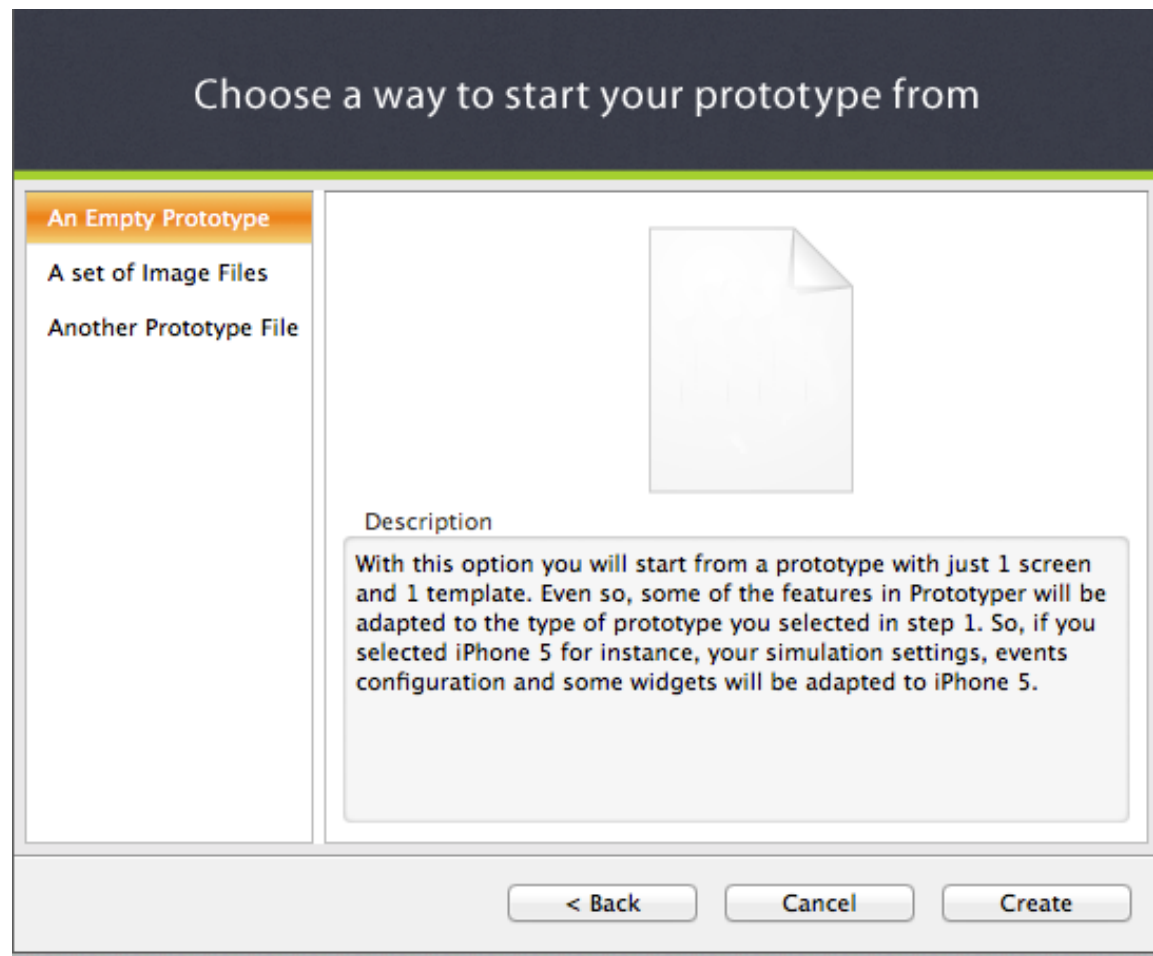




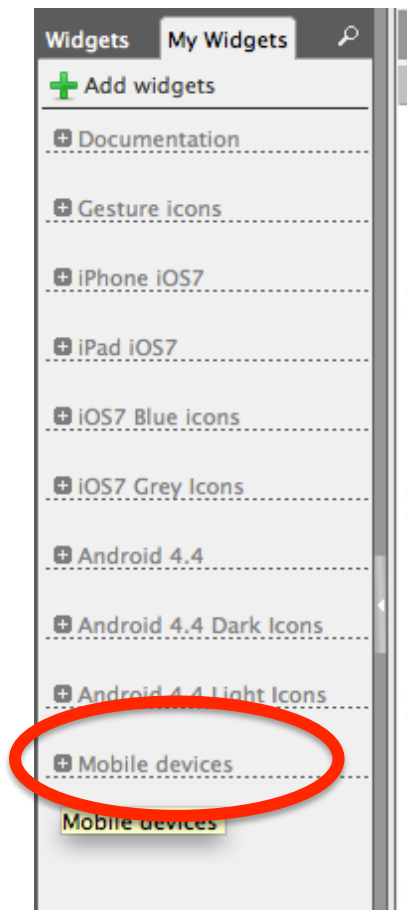
Simulate



Building from scratch



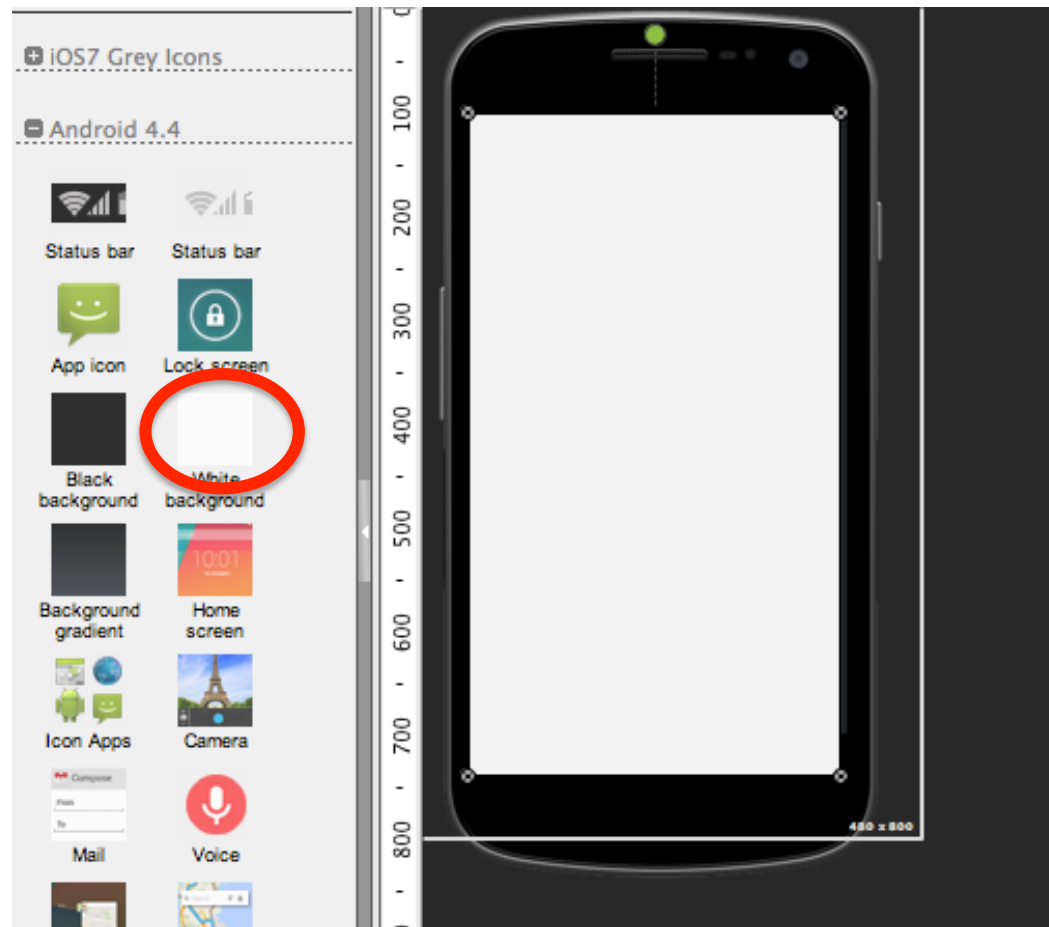
Building from scratch...

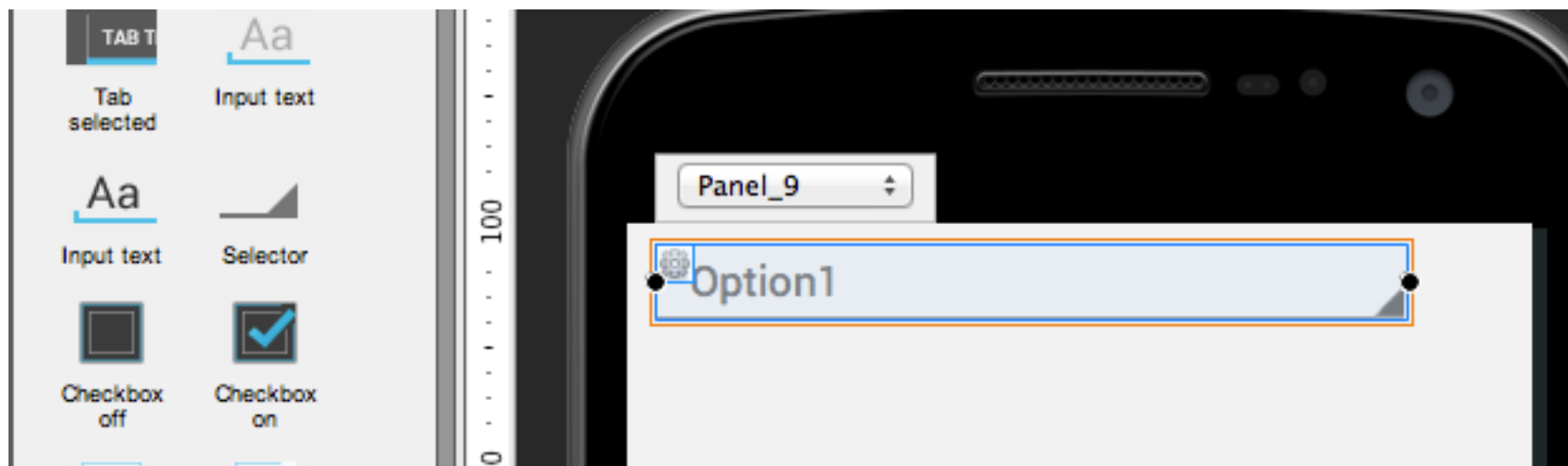


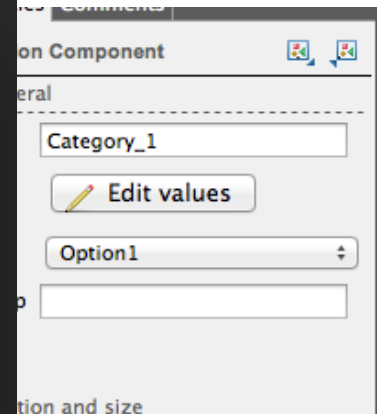
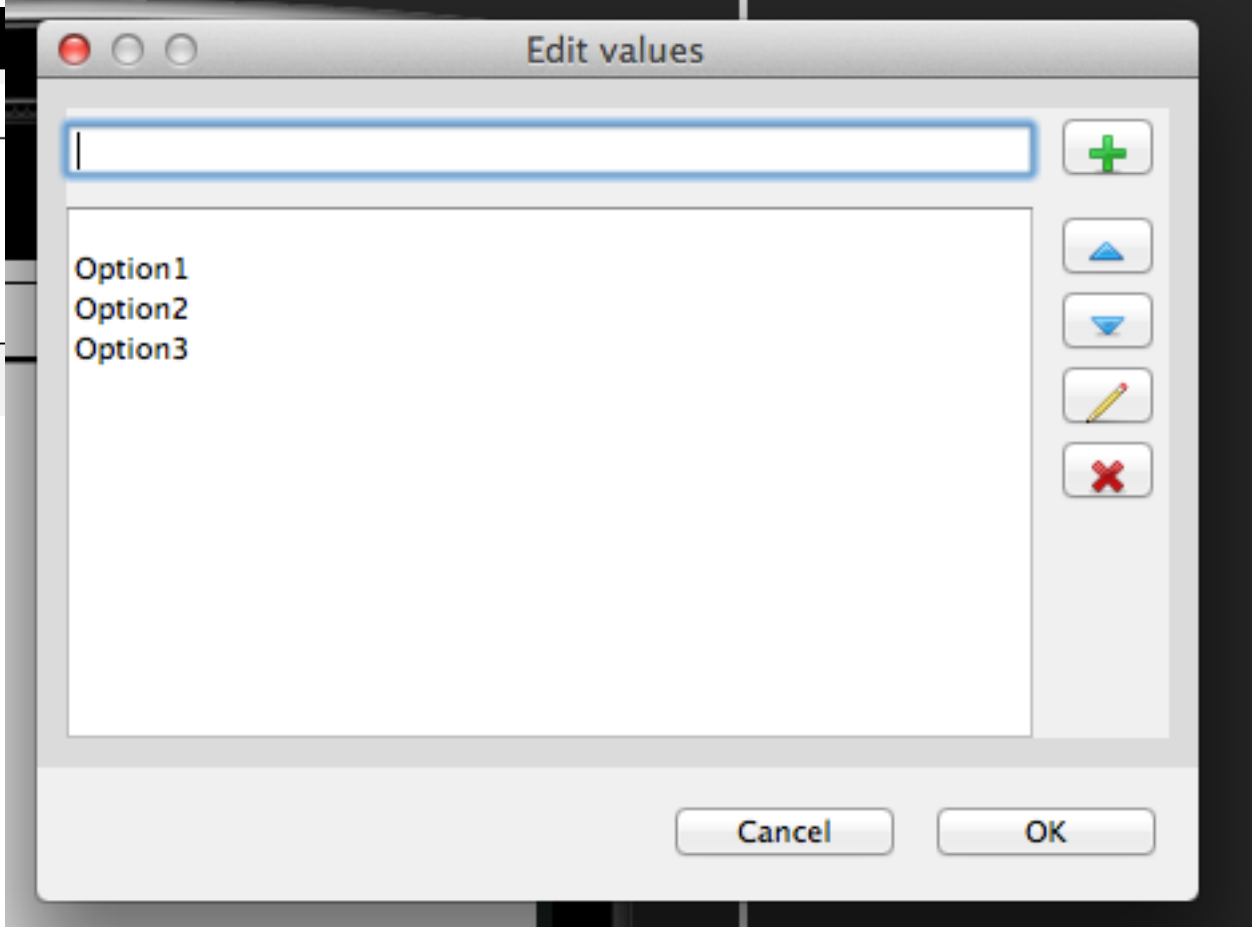
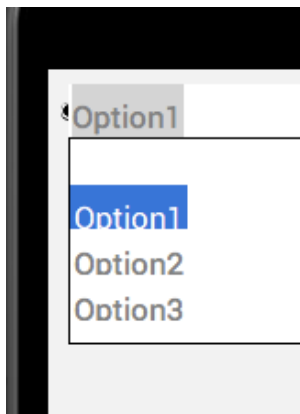
Lets build for portrait mode.

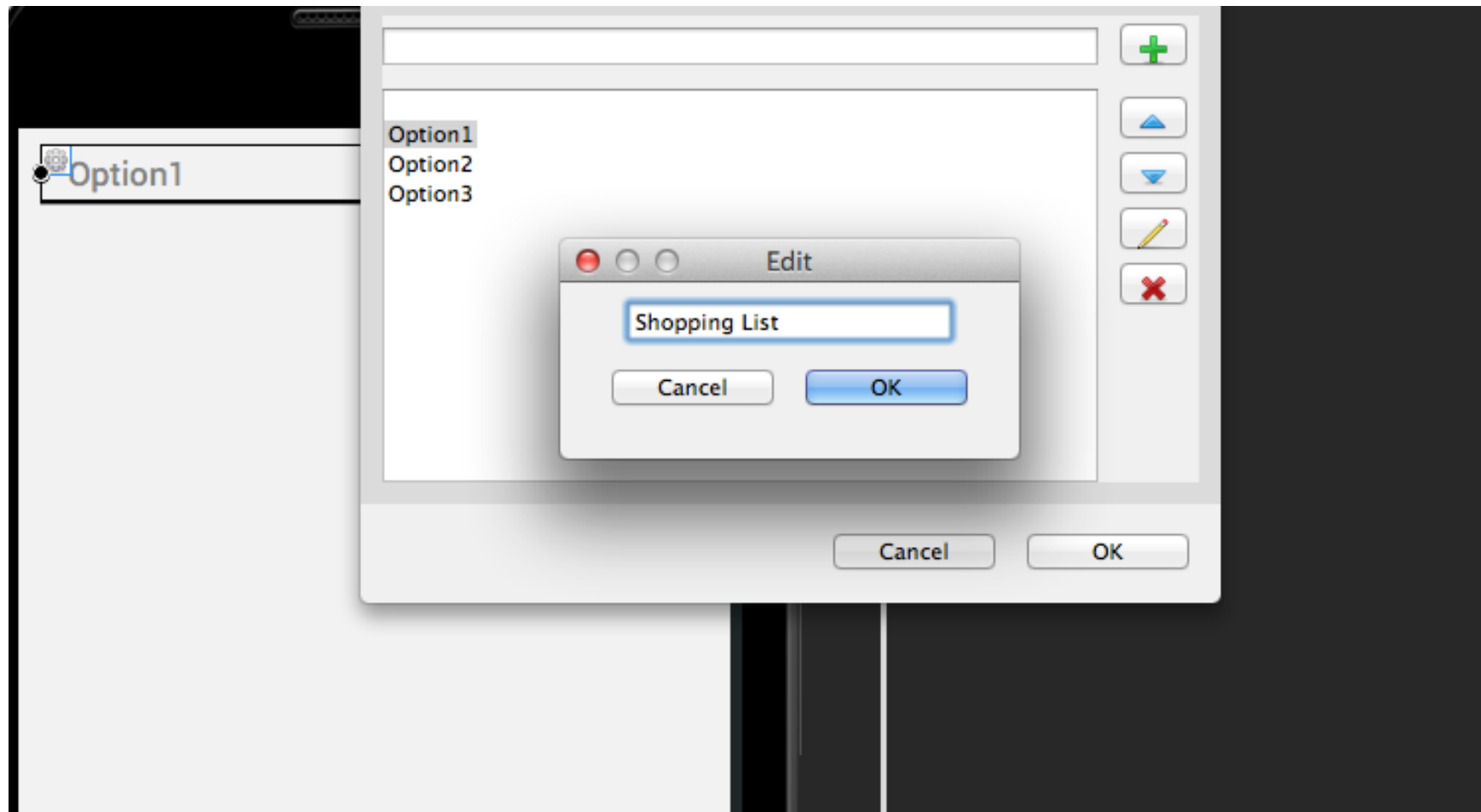
Drag and drop the device of your choice.

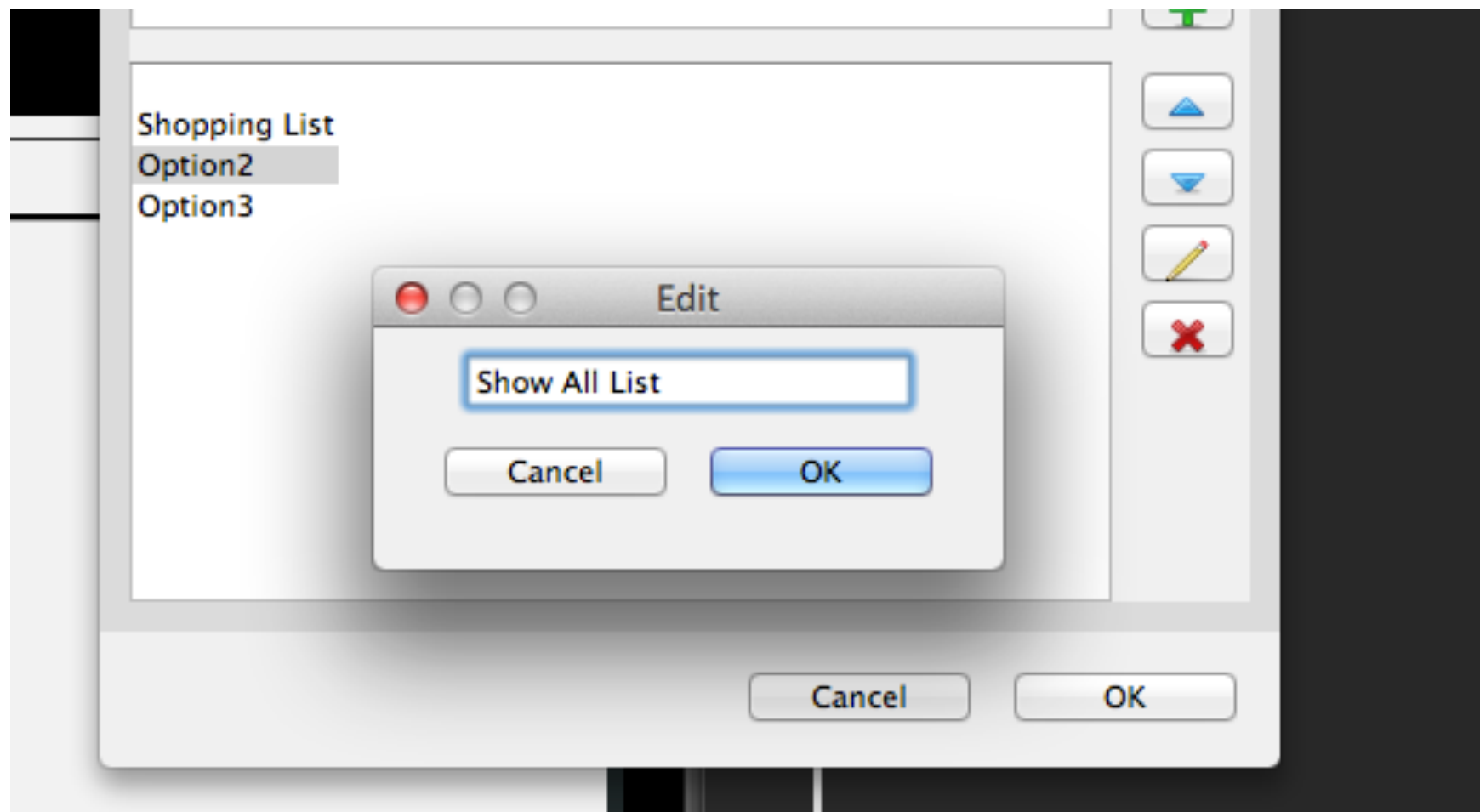
Lets use a white background



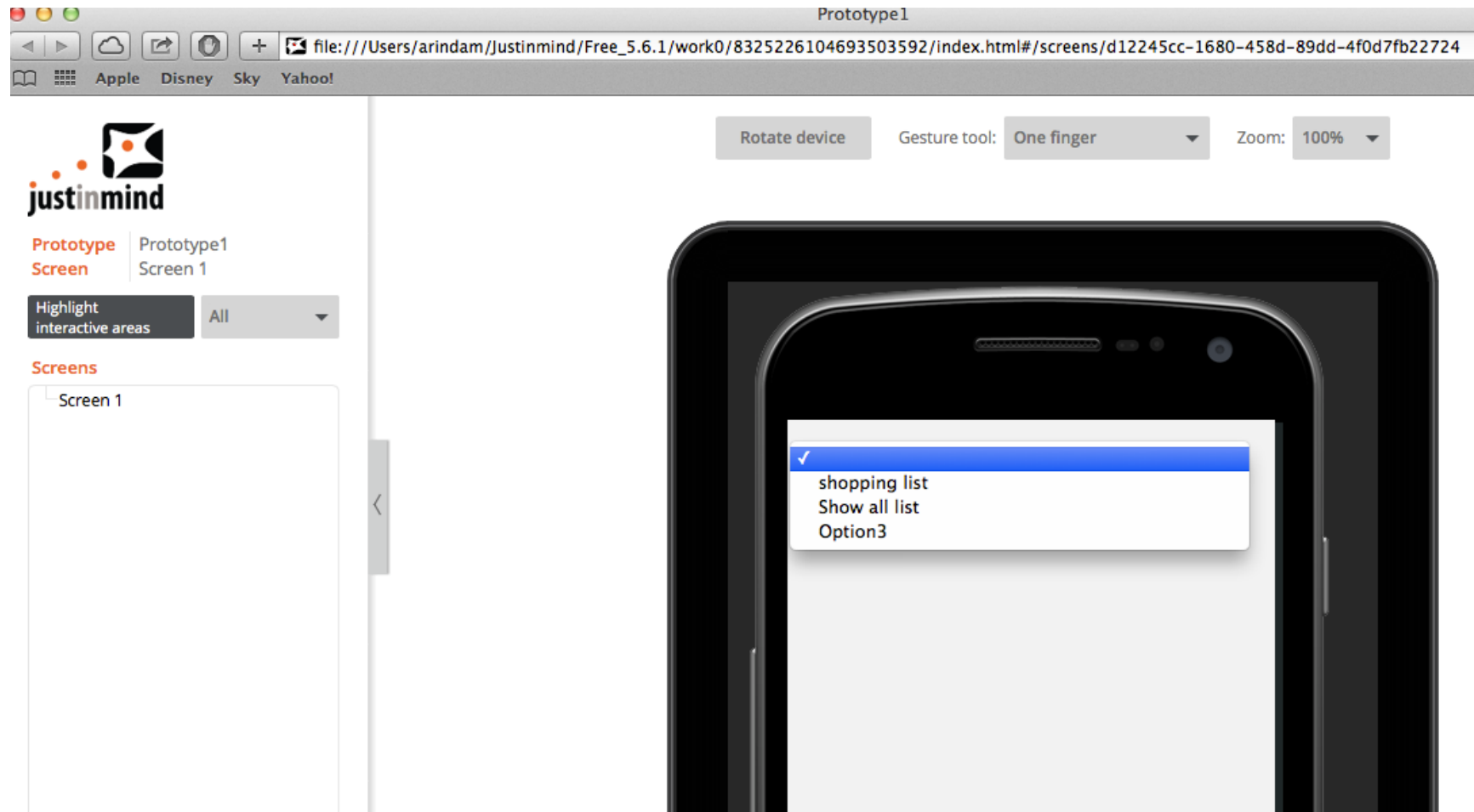


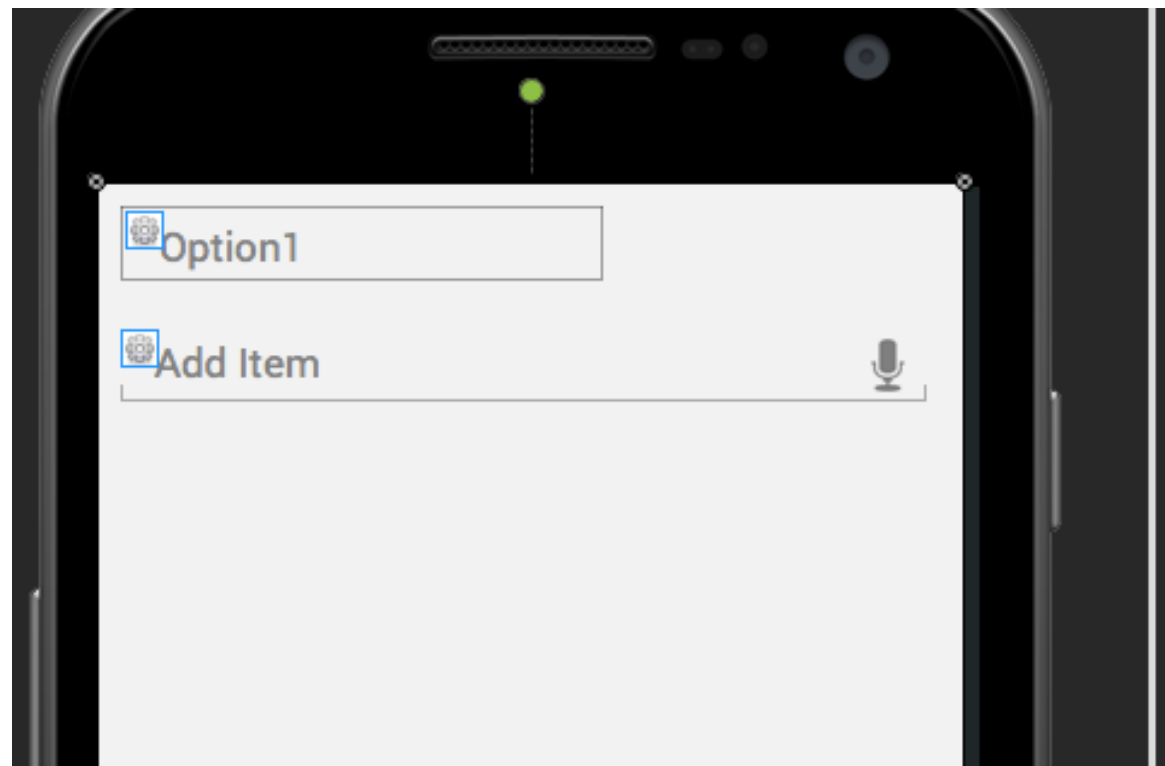
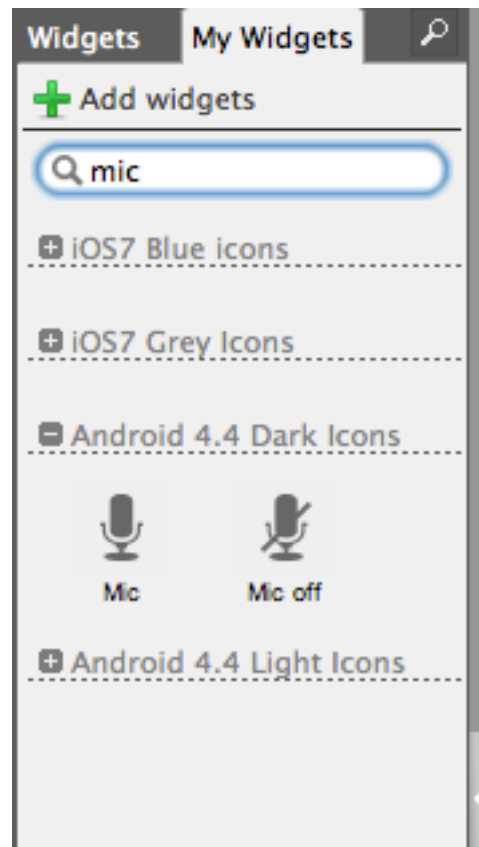




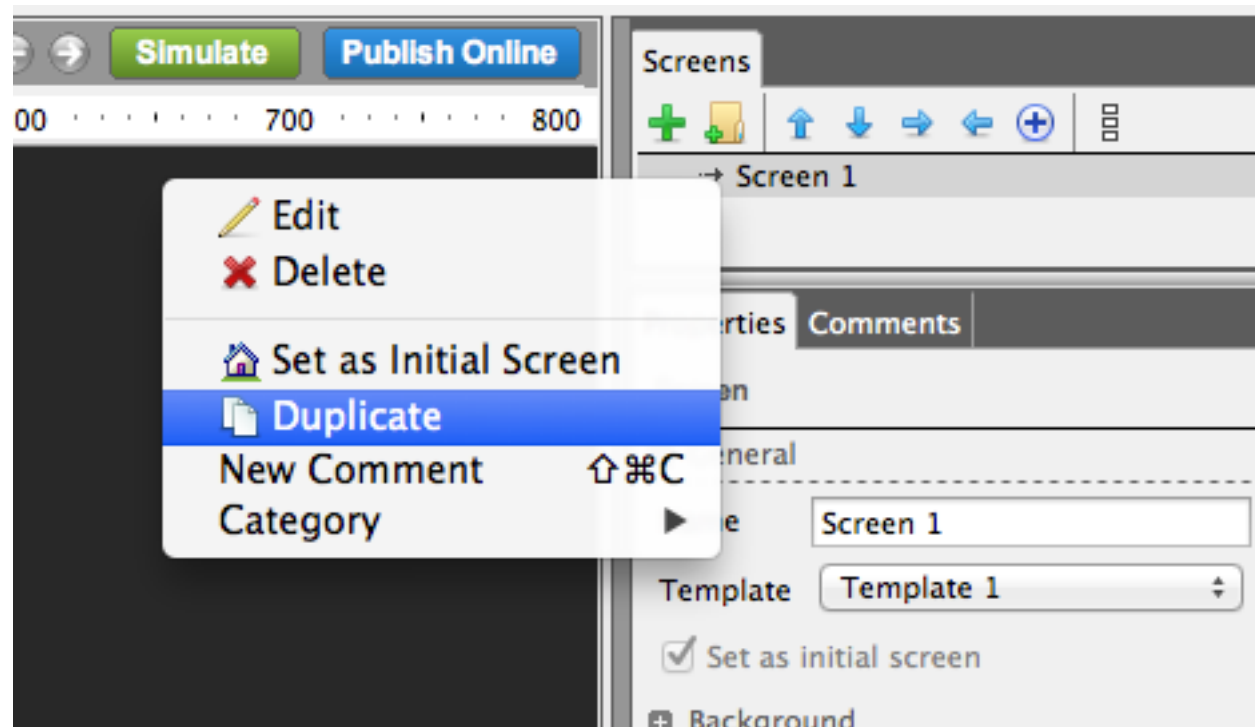


Simulate

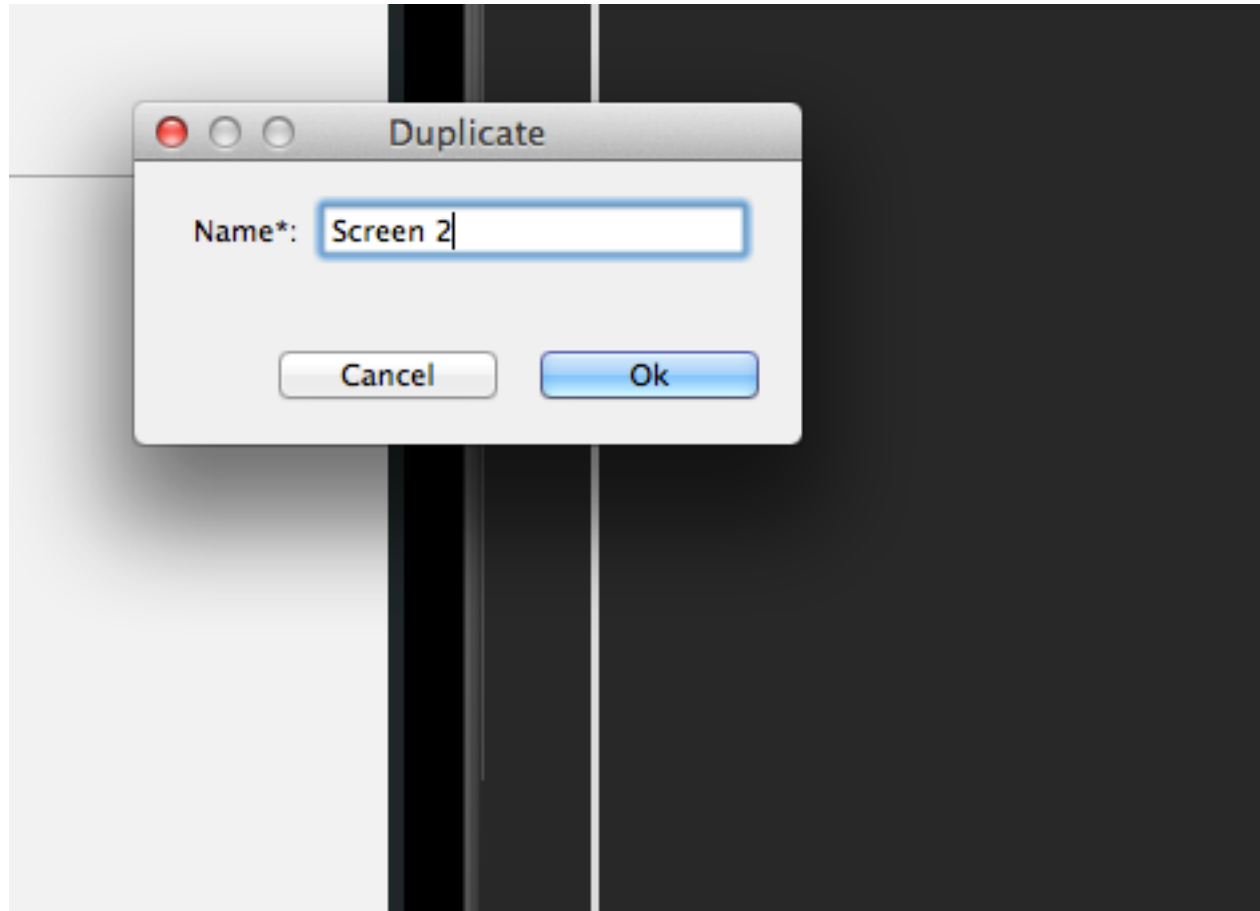




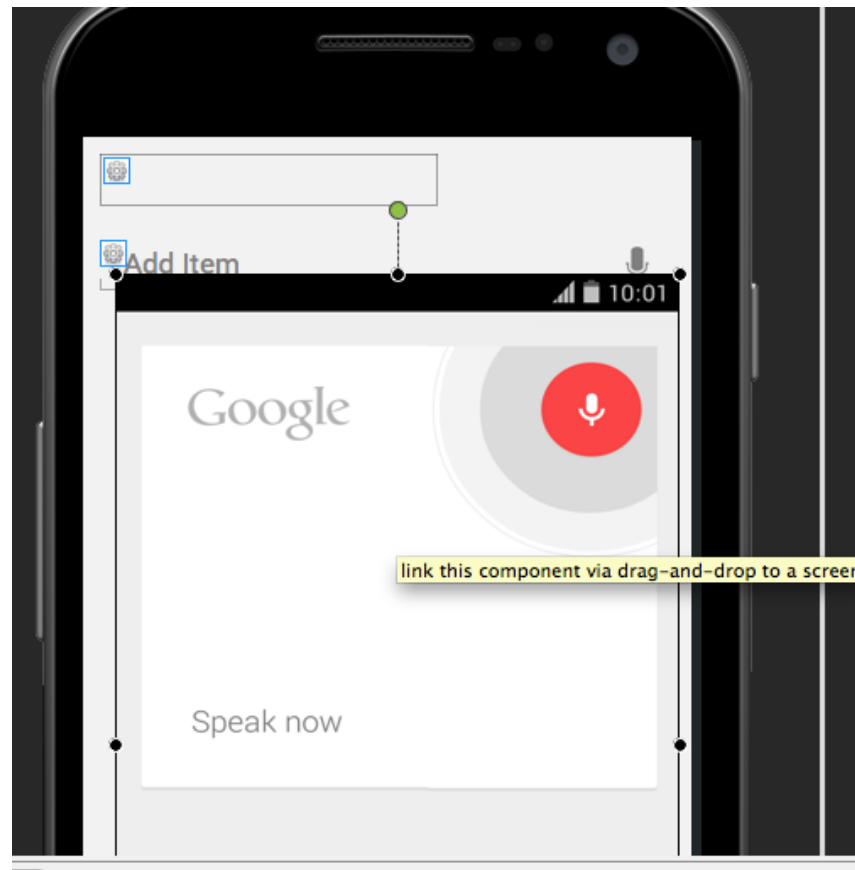
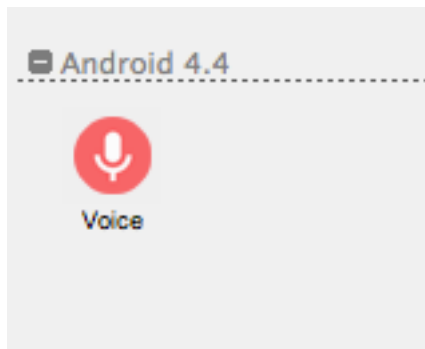
Lets add voice option



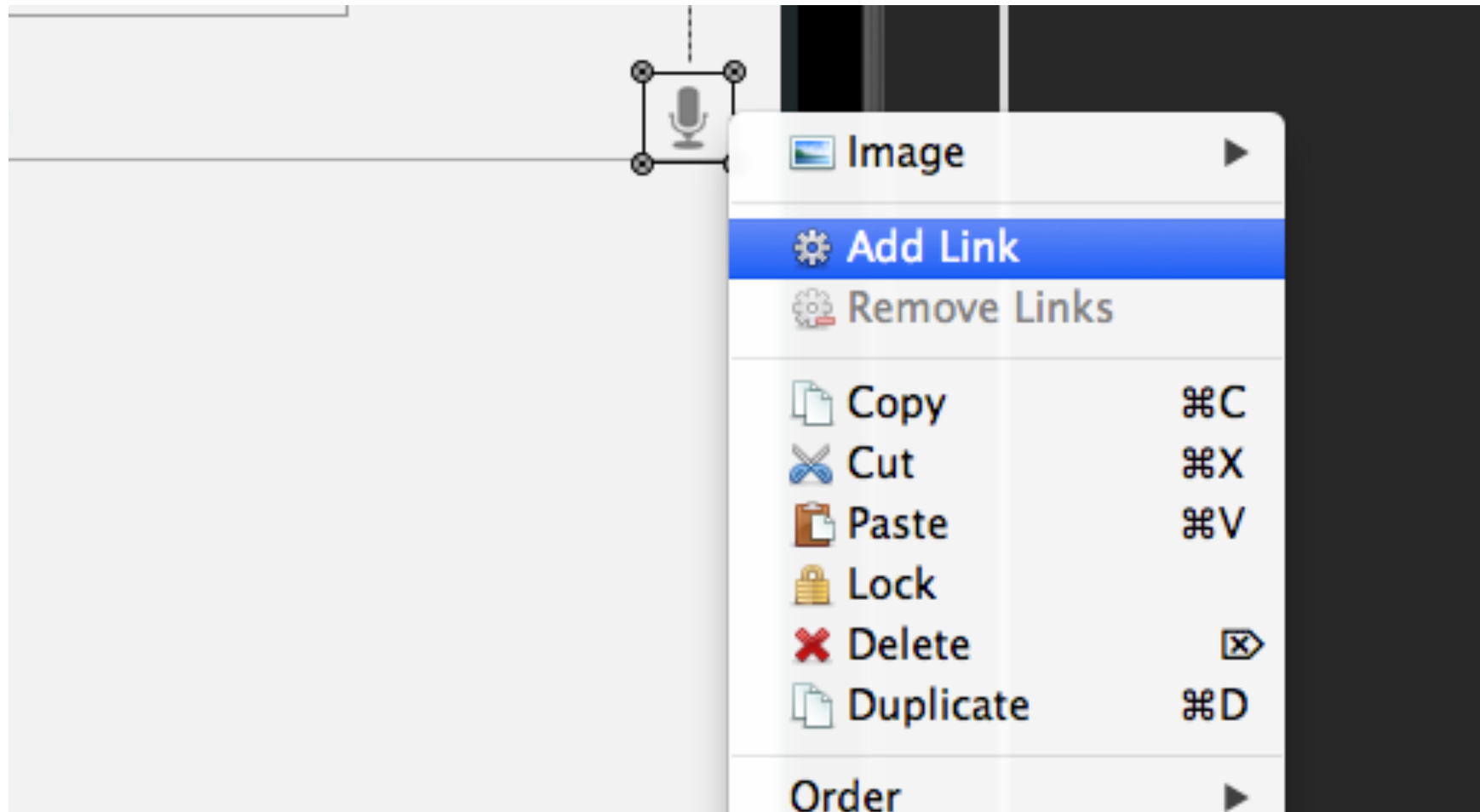
Call it screen 2



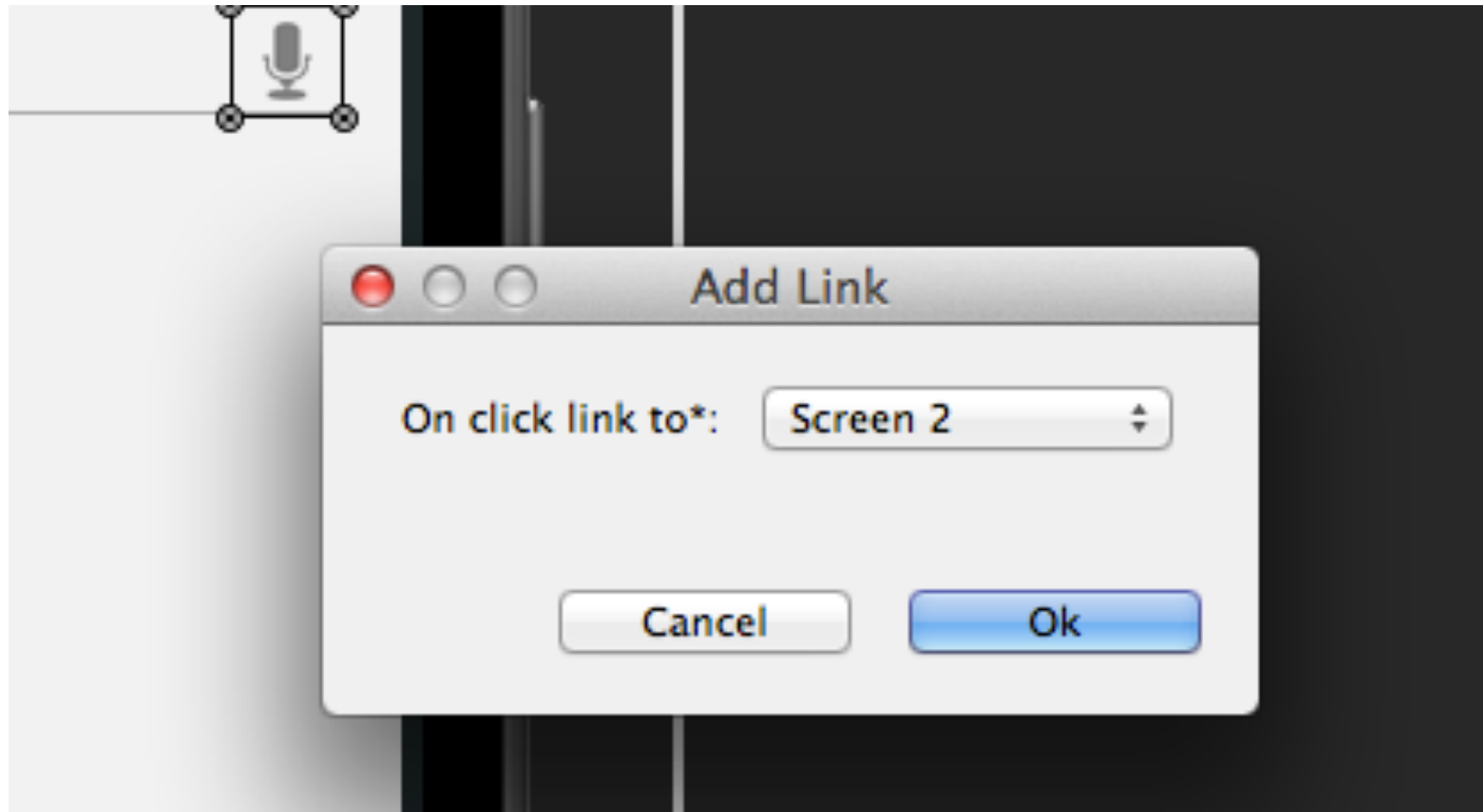
Add speech input



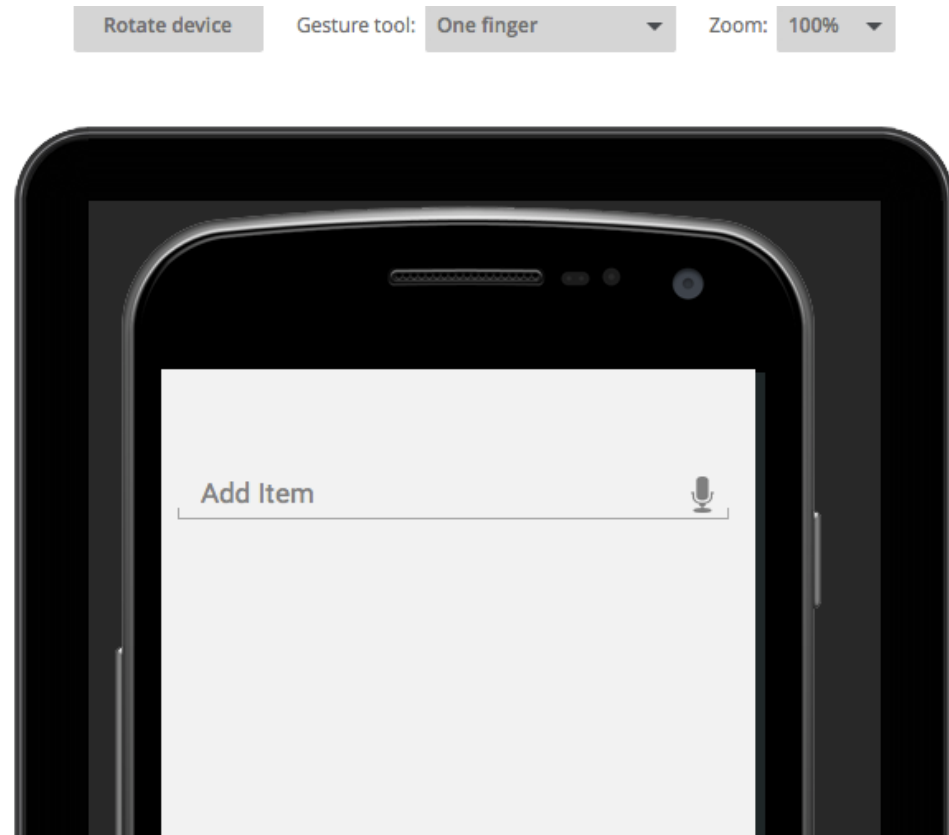
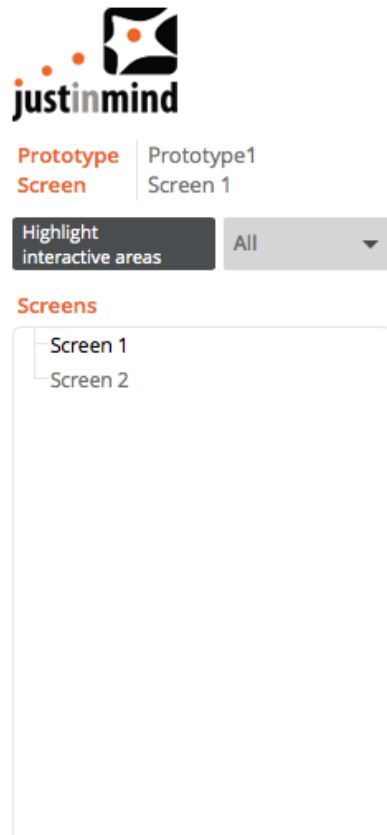
Go back to screen one



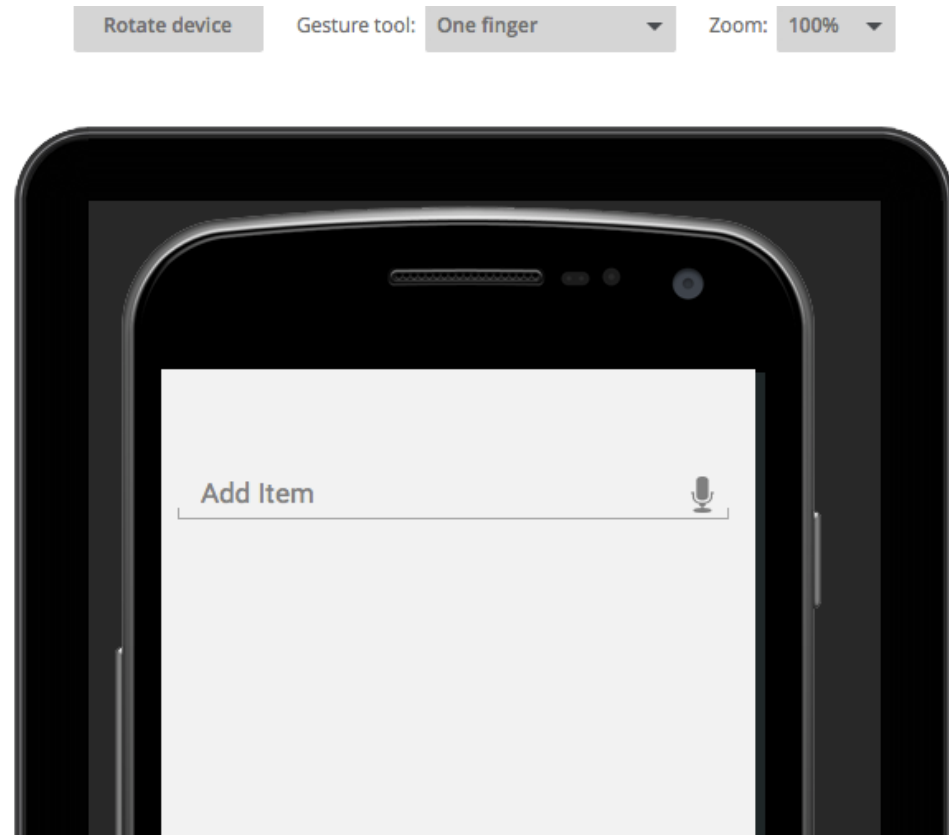
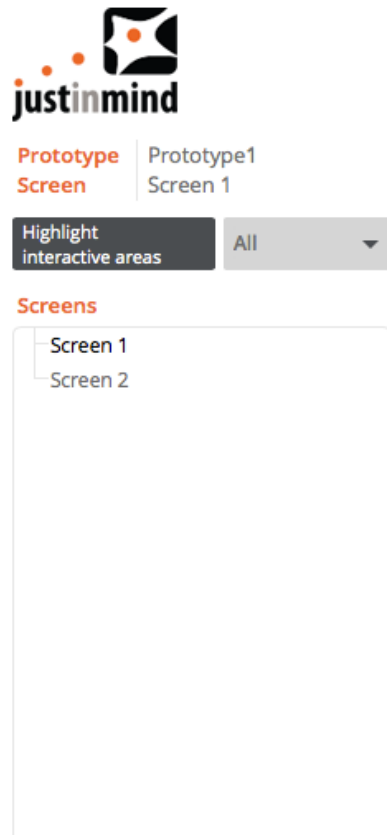
Link to screen 2



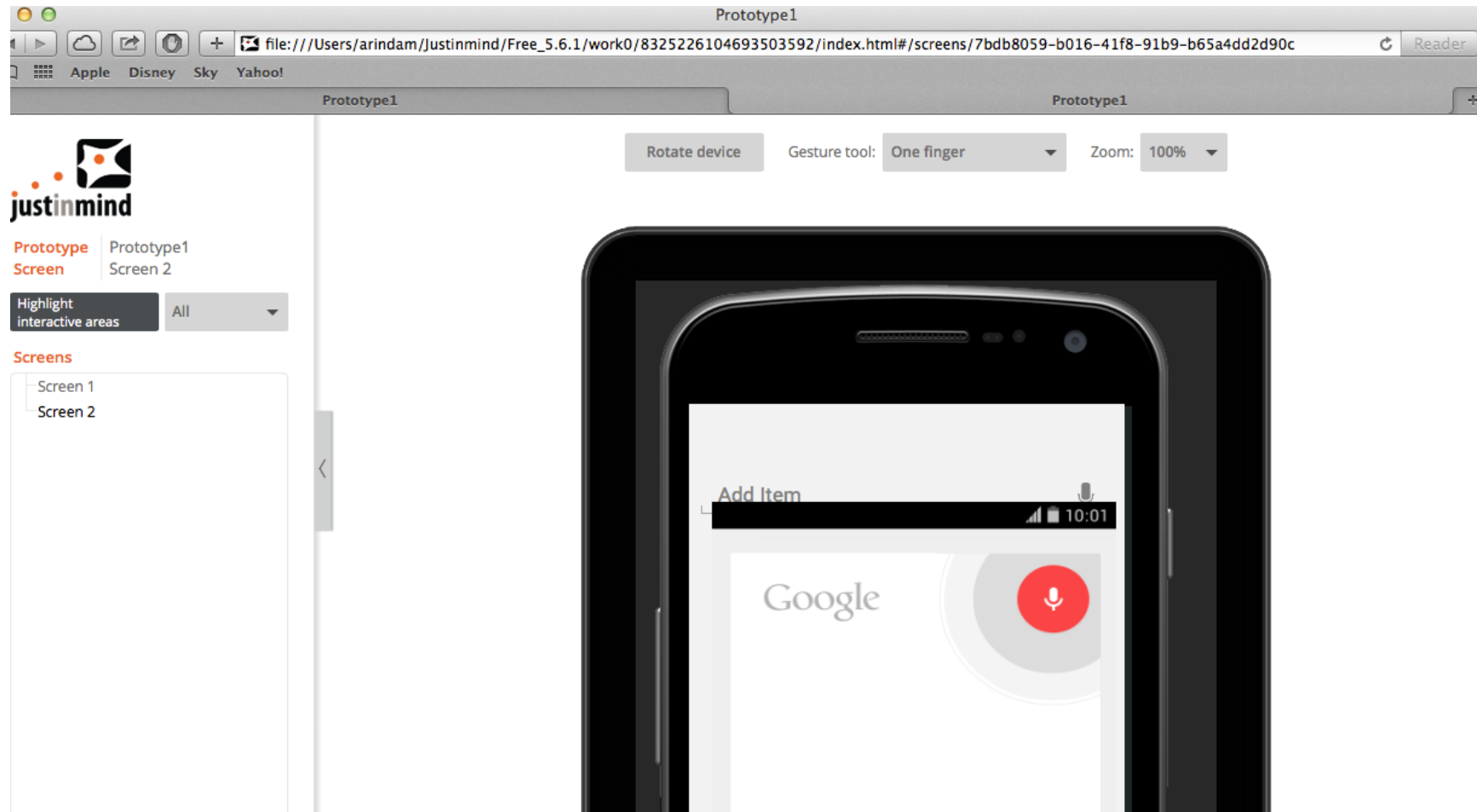
simulate



simulate

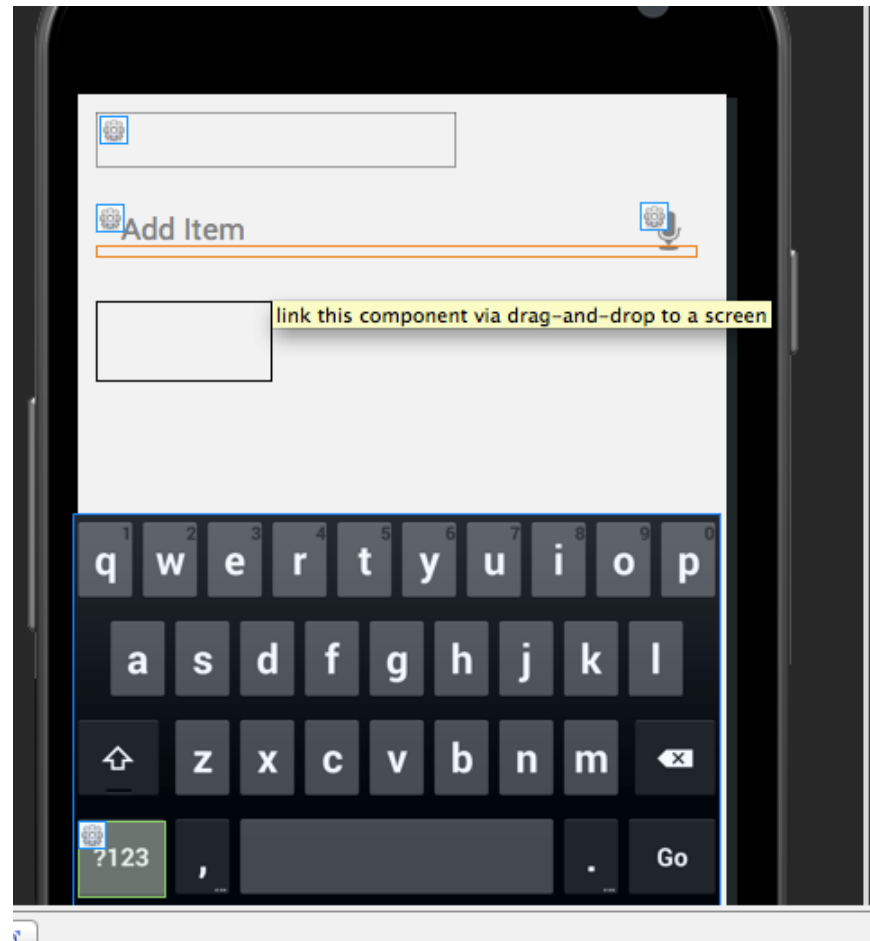


Voilà...



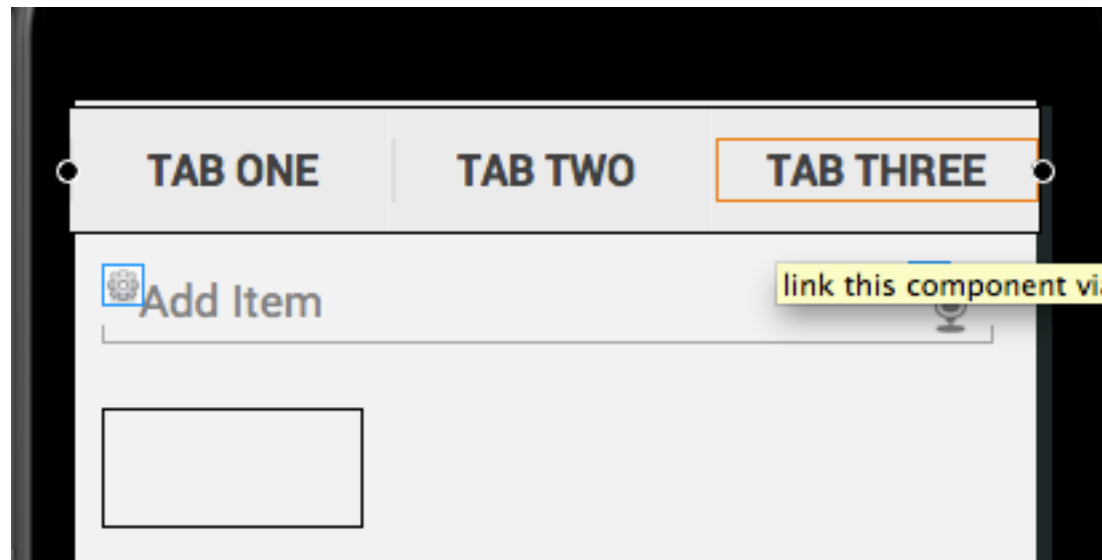
Misc features

Add Keyboard



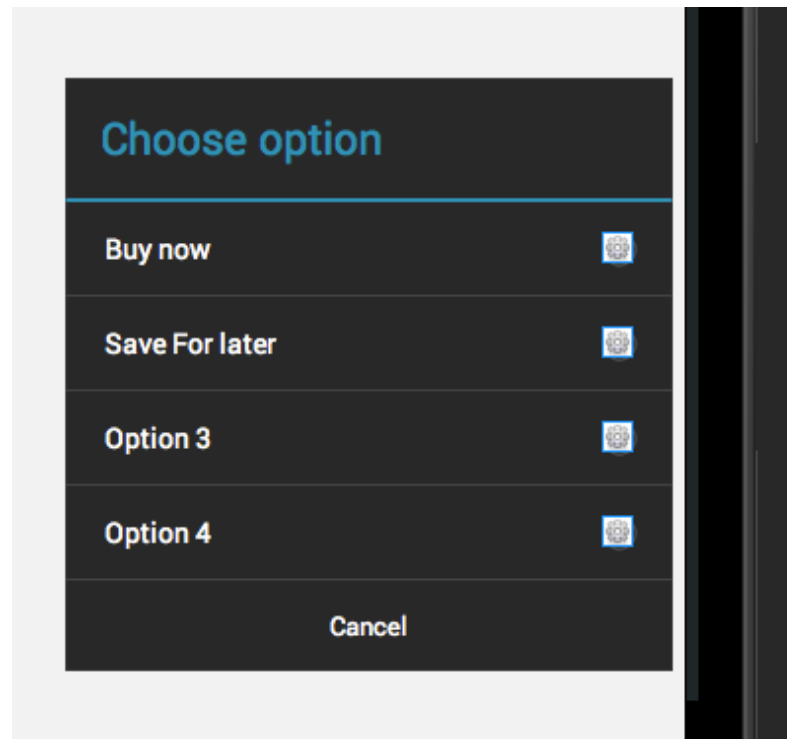
Misc features

Tab bars

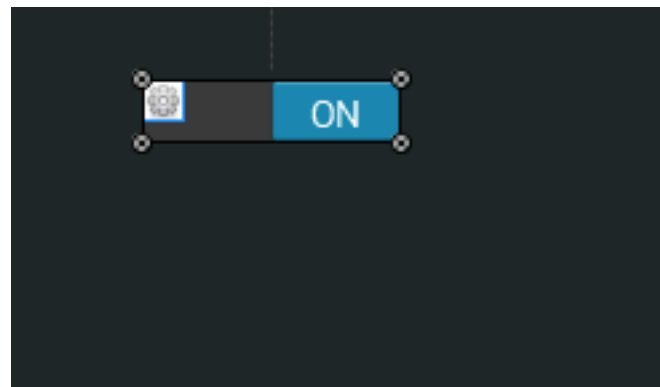


Misc features

Options dialog



Interactive switches



Justinmind Features

- Free Vs Pro
 - Pro
 - Gestures and interactions
 - Free version is limited to touch
 - Unlimited Prototypes on usernote
 - Free version is limited to 10 Mb space
 - Add widgets
 - Google glass, etc

Testing Prototypes

- How your app looks and behaves on
 - Multiple screen size and resolution
 - Different UI principles maybe required for different screen sizes.
 - Total overhaul of design if you want your app to be used on both phone and tablet
 - What about users on smaller phones?
 - Multiple versions of Android
 - Do you want users on lower versions of android to use it?
 - What design considerations must you make to ensure backward compatibility?
 - UI should be consistent with the version of Android – Kitkat UI might not look great on a Phone running Honeycomb.

Designing for multiple screens

Test on different phones and different screen sizes

- a) Small screens
- b) Large Screens
- c) Tablets
- d) Phablets

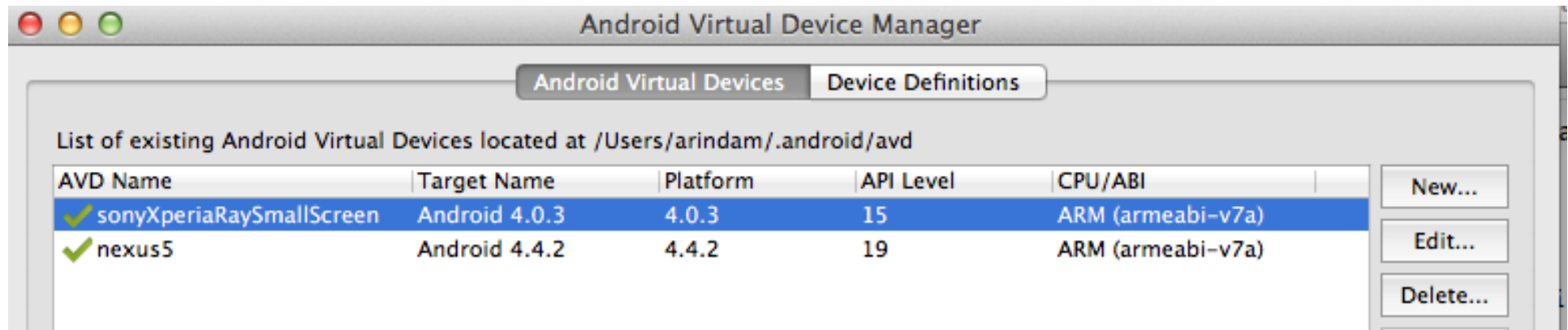


<http://developer.android.com/design/style/devices-displays.html>

Testing prototypes

- Mobile
 - Self contained prototype apps.
 - Pros: Users can test the prototypes on the phones, as if they were real apps.
 - Cons: Either find users with Android phones (of the version you want to test on), or go to the users with your device.
- Browsers
 - Pros: Handy, send the link and ask them to test on either their computer or the mobile phone browser
 - Cons: Done on computer – using the mouse is different from touching on screen.
- Emulator
 - Pros: Test on different Phone resolution easily
 - Cons: Not so easy, since users might not have emulators (unless they themselves are developers) – bring users to you. Using mouse is different than touching a screen.

Testing on emulator



- Nexus 10 (10.055", 2560 × 1600: xhdpi)
- Nexus 7 (7.27", 800 × 1280: tvdpi)
- Galaxy Nexus (4.65", 720 × 1280: xhdpi)
- Nexus S (4.0", 480 × 800: hdpi)
- Nexus One (3.7", 480 × 800: hdpi)
- 10.1" WXGA (Tablet) (1280 × 800: mdpi)
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Different Screen size

Create your Emulator on Android Studio/Eclipse

- Google APIs (Google Inc.) – API Level 12
- Android 3.2 – API Level 13
- Google APIs (Google Inc.) – API Level 13
- Android 4.0 – API Level 14
- Google APIs (Google Inc.) – API Level 14
- ✓ Android 4.0.3 – API Level 15
- Google APIs (Google Inc.) – API Level 15
- Android 4.1.2 – API Level 16
- Google APIs (Google Inc.) – API Level 16
- Android 4.2.2 – API Level 17
- Google APIs (Google Inc.) – API Level 17

Different Versions of Android

Testing on emulator

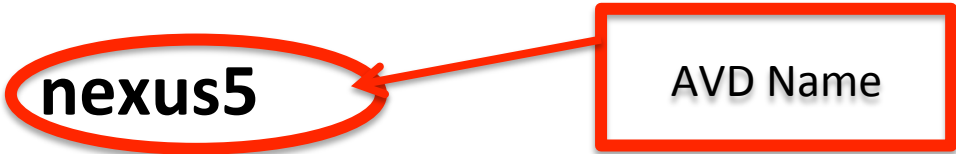
Launch Emulator from command Line:

Your emulator is located under:

~ANDROID_PATH/sdk/tools/

Launch it using:

./emulator -avd nexus5



AVD Name

The diagram illustrates the command line `./emulator -avd nexus5`. The text `nexus5` is circled in red. A red arrow points from a red-bordered box containing the text "AVD Name" to the circled `nexus5`, indicating that `nexus5` is the AVD Name.

Launch Android Emulator from Eclipse/Android Studio

