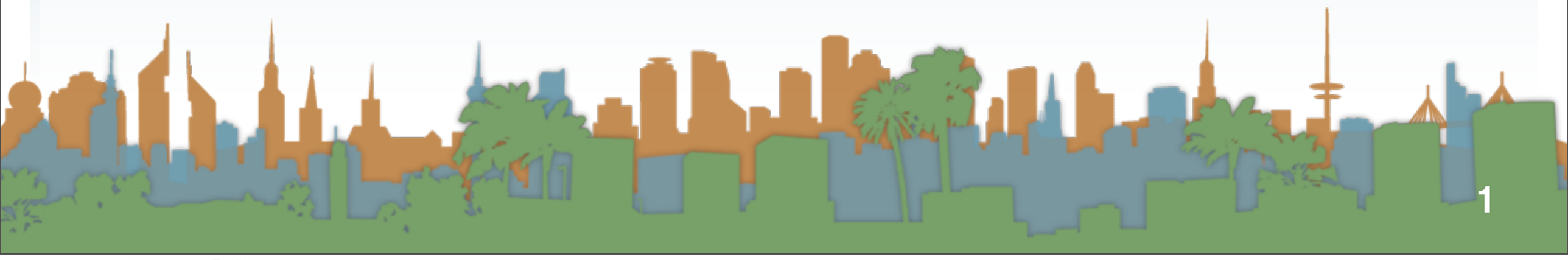
Uni Studies 3:
Intro to Processing 3

Assoc. Professor Donald J. Patterson
Uni Stu 3 Fall 2012



A brief history of Android

- Originally an independent startup that "developed software for mobile phones"
- Business Week quote from founder Andy Rubin in 2003:
- "Rubin said there was tremendous potential in developing smarter mobile devices that are more aware of its owner's location and preferences.

www.techradar.com

What is Android?

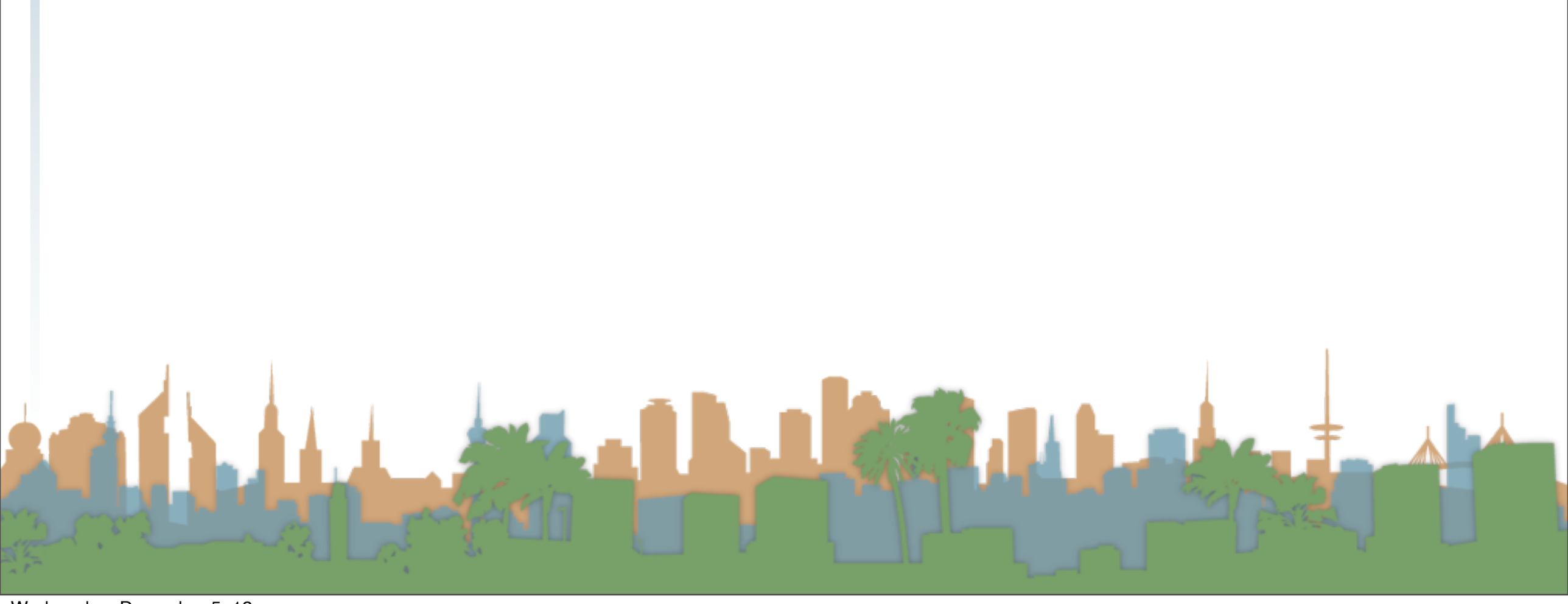
- "Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java programming language."

A brief history of Android

- iPhone launched in 2007

A brief history of Android

- Rumors of the “gPhone” started about the time the iPhone launched in 2007



gPhone concepts

http://www.google-phone.com/google-phone-or-gphone-concept-designs

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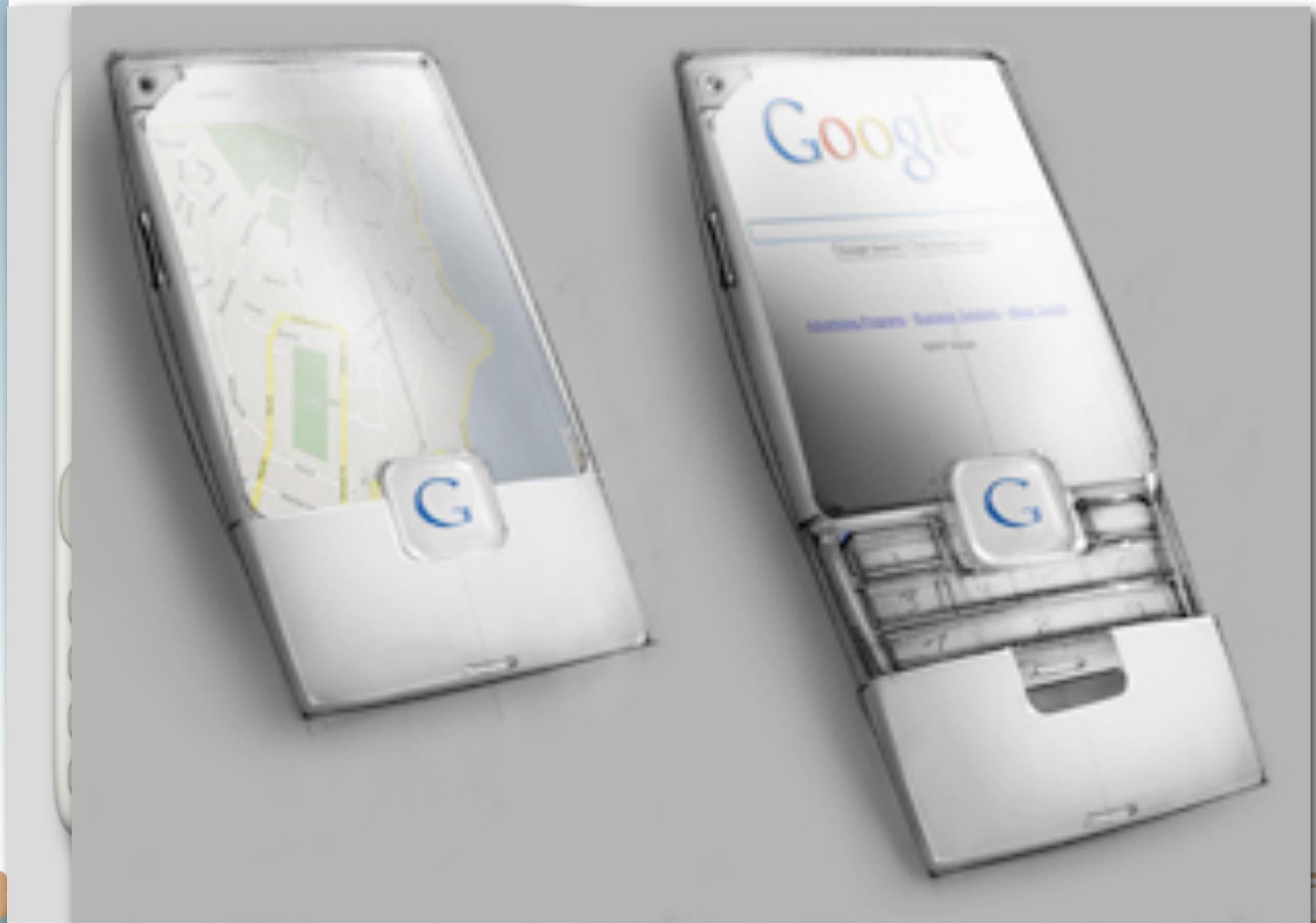
gPhone concepts



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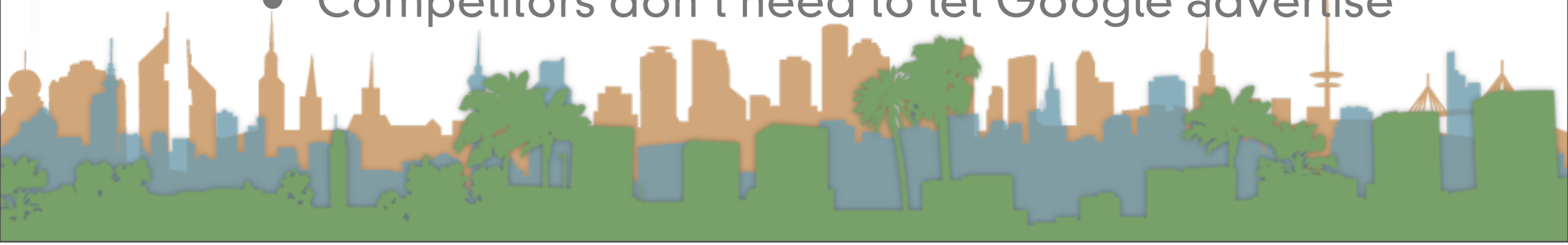
A brief history of Android

- Rumors of the “gPhone” started about the time the iPhone launched
- Google dropped the bomb on 11/5/2007
  - It wasn’t working on a handset
  - It was working on an operating system
    - to compete with Microsoft, Symbian, telephone companies. Who else ?

A brief history of Android

- Why would Google do this?
  - It doesn't want to be locked out of mobile advertising
  - It's the same reason they support Firefox
  - It's the same reason they built Chrome
  - It's the same reason they bought YouTube
  - It's about maintaining access to advertising channels today, and having access to tomorrow's innovations
  - Competitors don't need to let Google advertise



A brief history of Android

- Actually it wasn't just Google
- It was the Open Handset Alliance (OHA)
  - including HTC, LG, Samsung, T-Mobile and more
  - pushing
- Based on Linux
  - optimized for mobile devices

A brief history of Android

- The architecture is highly modular
  - "Location" can come from many places
  - Text messaging handling can be done by any software component
- It is predominantly open-source
- It is predominantly Java-based

A brief history of Android

What would it take to build a better mobile phone?

A commitment to openness, a shared vision for the future, and concrete plans to make the vision a reality.

Welcome to the Open Handset Alliance™, a group of 47 technology and mobile companies who have come together to accelerate innovation in mobile and offer consumers a richer, less expensive, and better mobile experience. Together we have developed Android™, the first complete, open, and free mobile platform.

We are committed to commercially deploy handsets and services using the Android Platform.

- **Develop Android applications:** Get the SDK
- **Contribute to the Android Open Source Project:** Get the source code

- http://www.openhandsetalliance.com
- http://www.youtube.com/watch?v=7Y4thikv-OM

A brief history of Android

- First SDK was released on 11/12/2007
- Main conceptual competitor is LiMO
  - Linux for Mobile
    - Verizon and Mozilla key initial players
- Many partners in both projects
- Outside Asia, no one cares

A brief history of Android

- 6/24/2008 Nokia announces purchase of Symbian from Sony Ericsson in response
  - starts the Symbian Foundation to open-source their main platform, gets released in 2011 as “shared-source”
- 10/21/2008, Google puts all of Android into open source using the Apache License
- 12/9/2008 Sony Ericsson joins the OHA
  - Google denies rumors of the gPhone at the same time

http://www.engadget.com/2008/06/24/nokia-buys-symbian/

A brief history of Android

- 8/12/2010 Oracle sues Google over intellectual property in Java
- 2/11/2011 Nokia announces it is abandoning Symbian for Windows 7

http://www.engadget.com/2008/06/24/nokia-buys-symbian/

Overview of Android

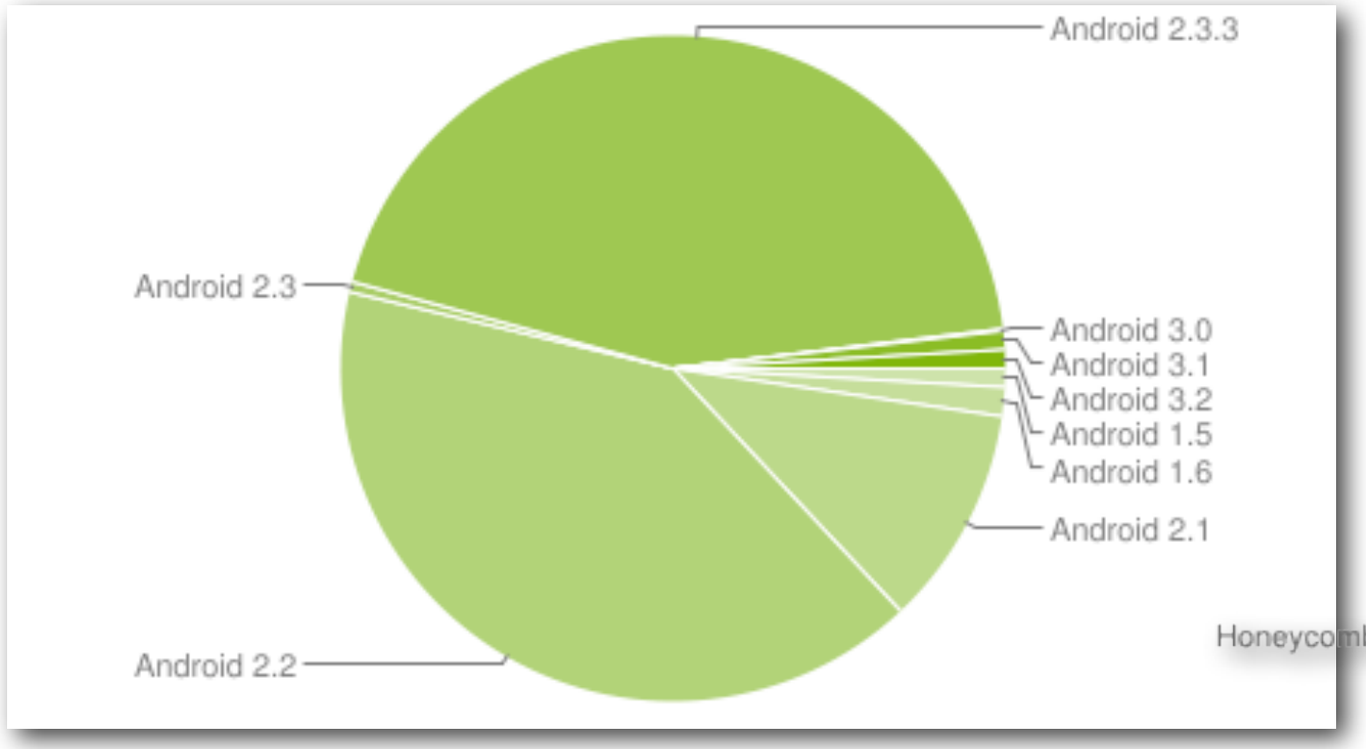
- Platforms running Android
  - in 2009
    - T-Mobile G1 phone
    - HTC developer phone
  - in 2011
    - Hundreds
  - in 2012
    - Silly

Overview of Android

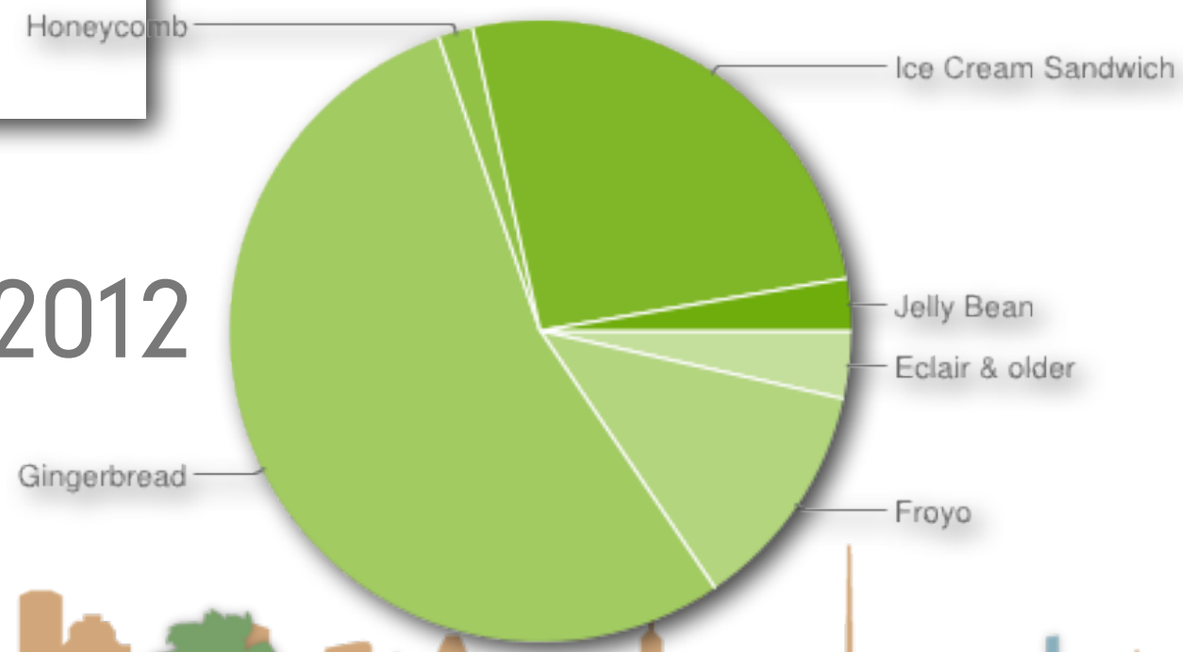
- Various code revisions are named after pastries (sort of)
  - Cupcake (released on 4/30/2009) v1.5
  - Donut (released on 9/15/2009) v1.6
  - Eclair (released on 10/26/2009) v2.1
  - Froyo (released on 5/20/2010) v2.2
  - Gingerbread (?) v2.3 (SIP, NFC)
  - Honeycomb (5/2011) v3.0 (tablet)
  - Ice Cream Sandwich (11/14/2011) v4.0 (face recognition)
  - Jelly Bean (11/13/2012) v4.2 (Google Now)

www.wikipedia.org

Overview of Android 11/2011



Overview of Android 11/2012



www.wikipedia.org

Overview of Android

- Google play (née Android Marketplace)
  - Place to get 3rd-party android apps
  - Utilizes Google Checkout for payment
  - Not exclusive source for applications
    - Applications are not “blessed” at all by Google
    - It is merely a convenience for developers

https://play.google.com/store?hl=en

Android Market

Apps | Music | Books | Movies | My Library | Search

Home › Apps › Lifestyle

Easy Tie

basesign

★★★★★ (98)

$1.99 BUY

OVERVIEW | USER REVIEWS | WHAT'S NEW | PERMISSIONS

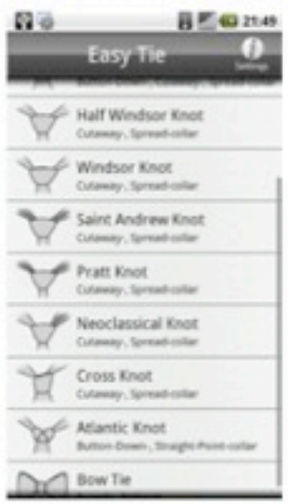
Description

Don't know how to tie a tie?
Learn it with Easy Tie!
Easy Tie is an app that shows you step-by-step how to tie a necktie.
Knots included:
-Simple Knot
-Double K.
-Small K.
-Half Windsor K.
-Windsor K.

MORE

Visit Developer's Website ›

App Screenshots



User Reviews

5 star 71

Average rating:

+1 10

Tweet

ABOUT THIS APP

RATING:
★★★★½
(98)

UPDATED:
June 21, 2010

CURRENT VERSION:
1.6

REQUIRES ANDROID:
1.5 and up

CATEGORY:
Lifestyle

INSTALLS:
1,000 - 5,000

last 30 days

SIZE:
1.0M

PRICE:
$1.99

CONTENT RATING:
Everyone

More from developer

Easy Tie Lite
BASESIGN
★★★★☆ (557)
Free

Lesari - Meine FilmDatenba
BASESIGN
★★★★☆ (42)
Free

Calc n Con
BASESIGN
★★★☆☆ (2)
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Users who viewed this also viewed

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Search

SHOP | MY MUSIC | MY BOOKS | MY MAGAZINES | MY MOVIES & TV | MY ANDROID APPS

Easy Tie

basesign

★★★★★ (106)

$1.99 BUY

⚠ You don't have any devices.

More from developer

Easy Tie Lite
BASESIGN
★★★★☆ (589)
Free

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BASESIGN
★★★★☆ (69)
Free

Calc n Con
BASESIGN
★★★☆☆ (2)
$1.40

See more ›

Users who viewed this also viewed

How to knot a tie
MARC WEBER
★★★★☆ (1,349)

OVERVIEW | USER REVIEWS | WHAT'S NEW | PERMISSIONS

Description

Don't know how to tie a tie?
Learn it with Easy Tie!
Easy Tie is an app that shows you step-by-step how to tie a necktie.
Knots included:
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-Double K.
-Small K.
-Half Windsor K.
-Windsor K.
-Saint Andrew K.

MORE

Visit Developer's Website › Email Developer ›

App Screenshots

User Reviews

Write a Review

5 star 79

Average rating

+1 36

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SIZE:
1.0M

PRICE:
$1.99

CONTENT RATING:
Everyone

Android Features (hardware dependent)

- Rich development environment
  - a device emulator
  - tools for debugging
  - tools for memory profiling
  - tools for performance profiling
  - plugin for Eclipse IDE

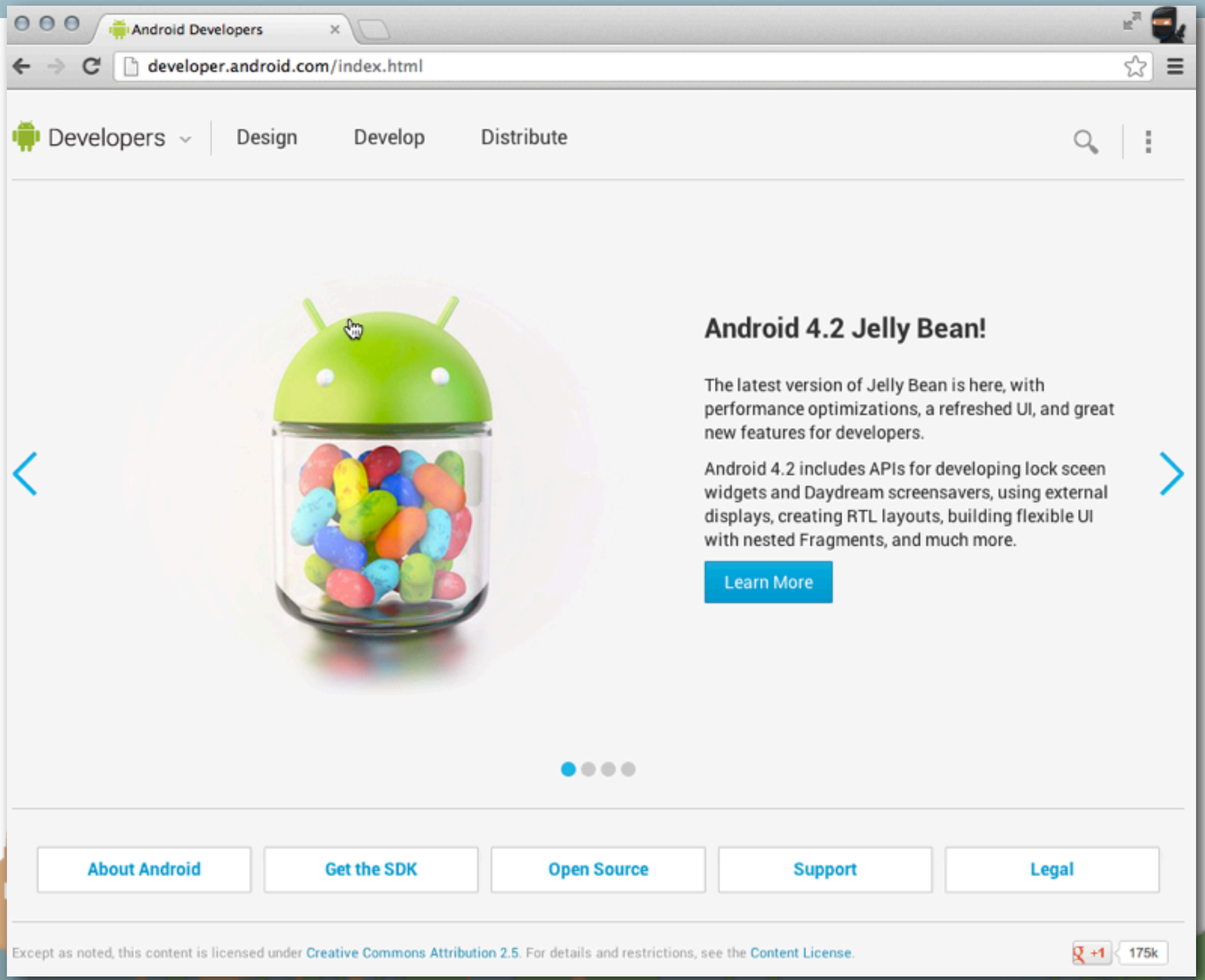
http://developer.android.com/guide/index.html

Actually Developing for Android

- Download and install Eclipse (IDE)
- Download and install the Android SDK (external)
  - http://developer.android.com/sdk/index.html
- Download and install the ADT plugin
  - Use Eclipse's built-in installer
  - Set up SDK path
- Download and install the Android Platform (internal)
- Make a virtual device

http://developer.android.com/guide/index.html

Intro to Android



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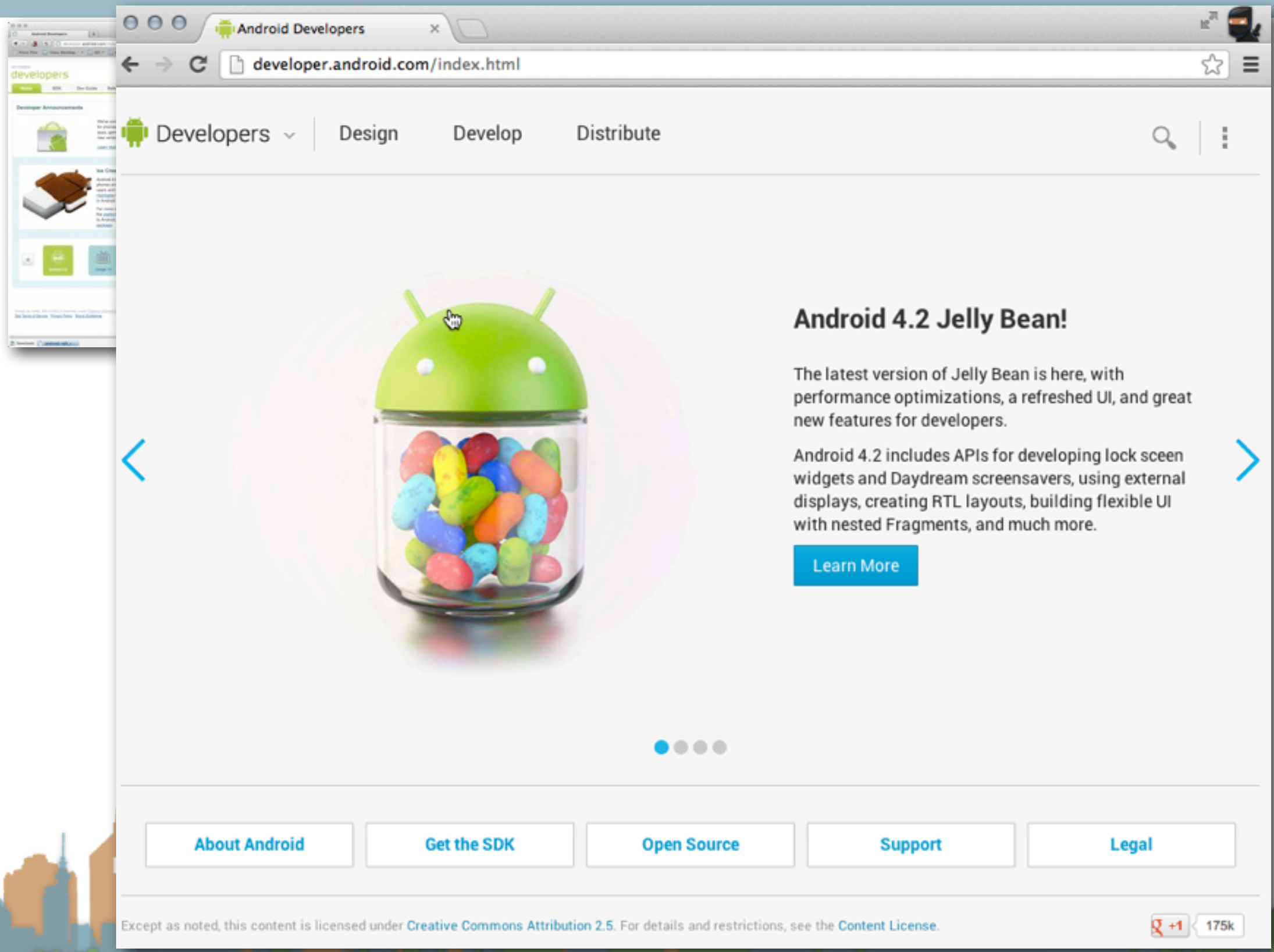

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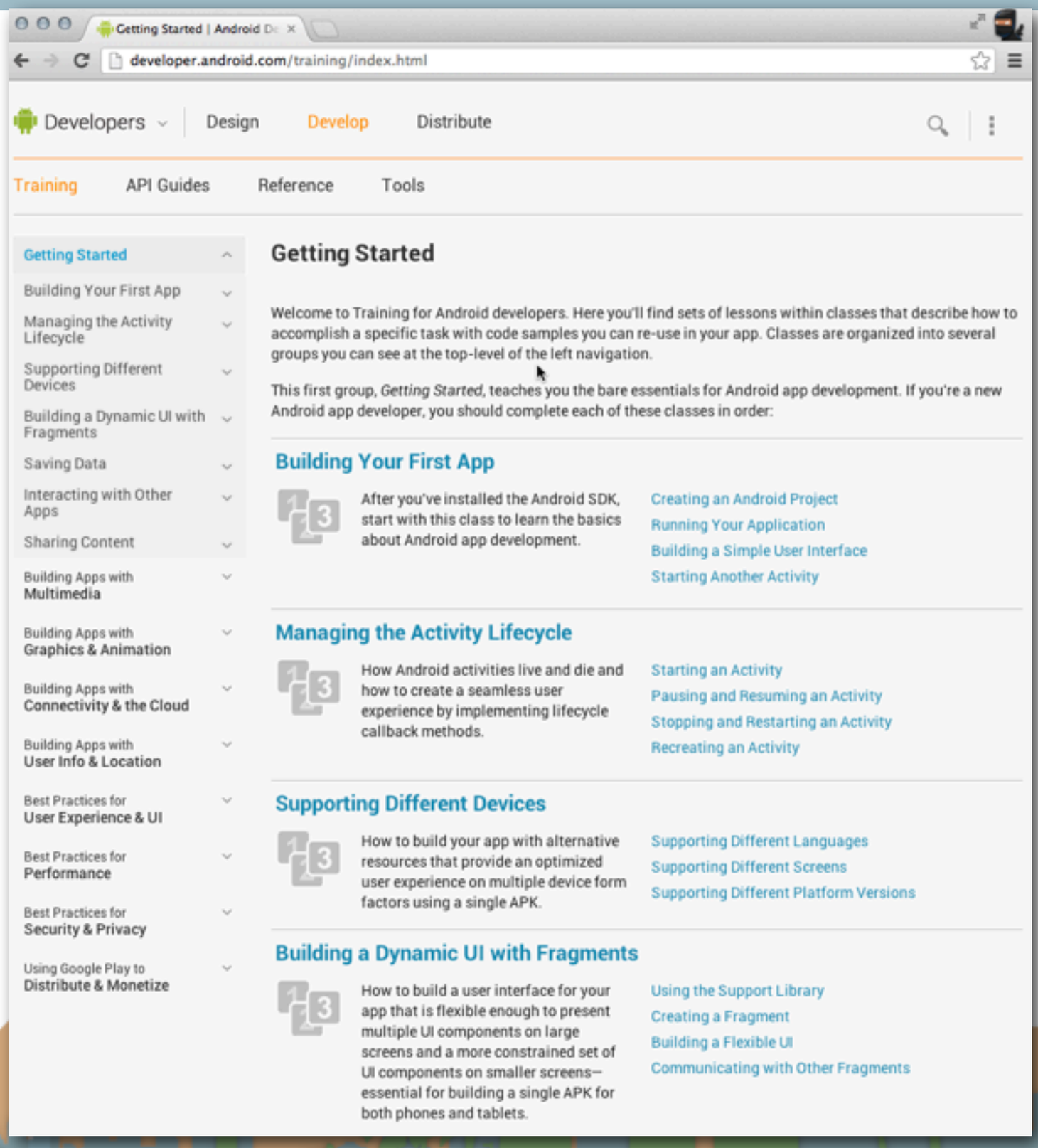
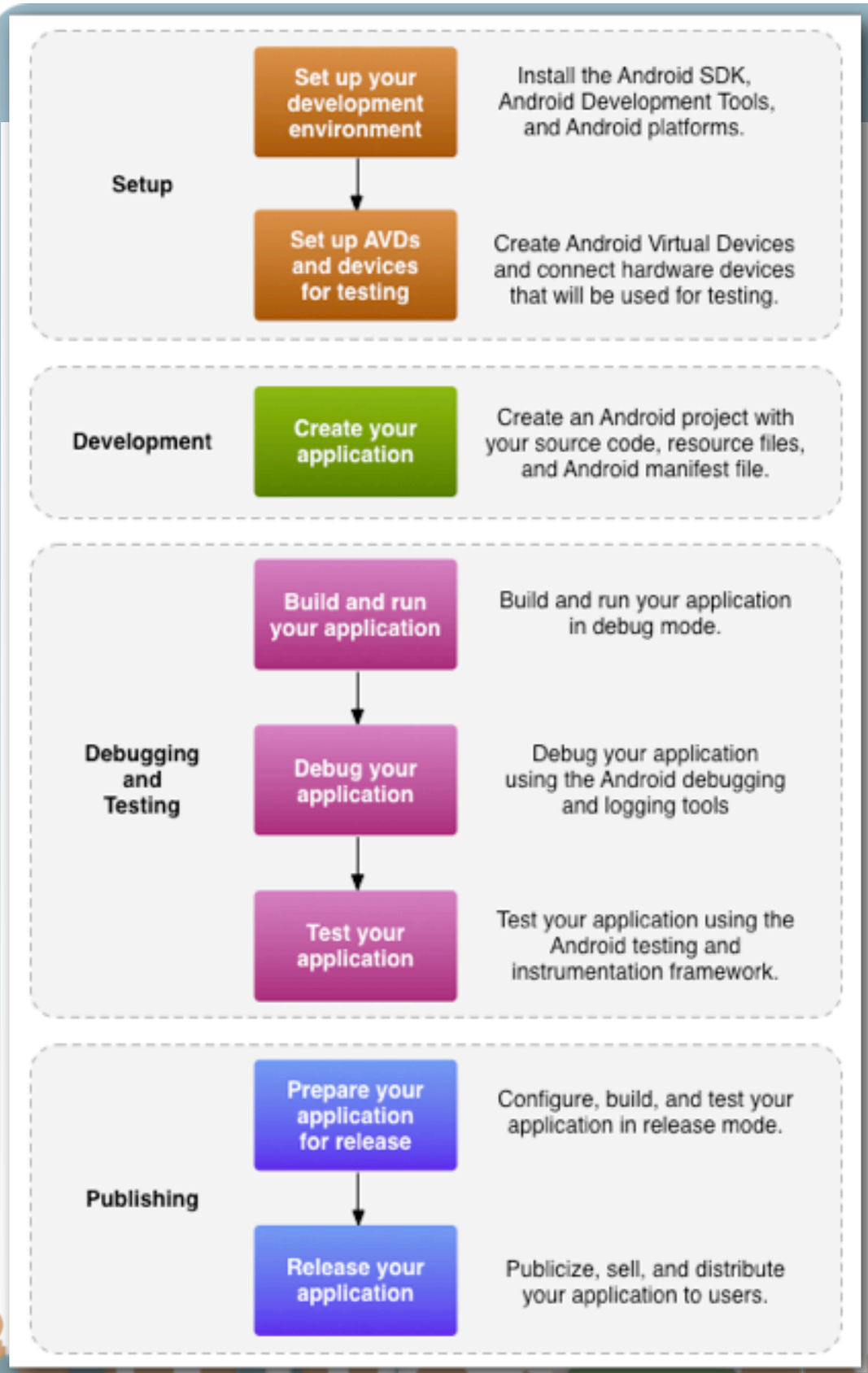
Intro to Android



http://developer.android.com/training/index.html



- SDK (Software development kit)
- AVD (Android Virtual Device)
- .apk (Android application package file)
- “platform”: Gingerbread v2.3.6 / v2.3.4 is our target
- ADT (Android Development Tools) Eclipse plug-ins plus command line tools

http://developer.android.com/guide/index.html

Getting the Android DK

- Download and unpack the appropriate “Android SDK”
  - “Download for other platforms”
  - “SDK Tools Only”

SDK Tools Only

Platform	Package	Size	MD5 Checksum
Windows	android-sdk_r21-windows.zip	99093893 bytes	731145282347036 5f7975a545f8a2be4
	installer_r21-windows.exe (Recommended)	77523031 bytes	29ca8cb8f0bc8db627fa2adc2139a3cc
Mac OS X	android-sdk_r21-macosx.zip	65792626 bytes	67e46adca90dd18d7291443f6c15d6af
Linux	android-sdk_r21-linux.tgz	91378351 bytes	7f8d73b629f808cdcfc9f9900bbd7580

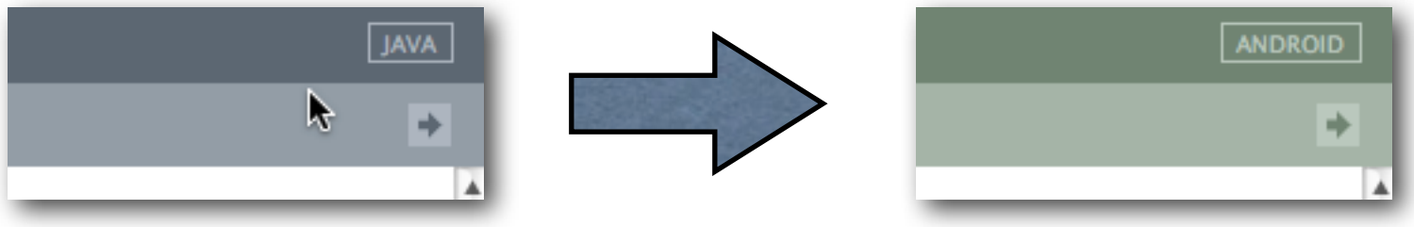
http://developer.android.com/sdk/index.html

Making the phone work

- Turn on developer mode
  - "home"->"menu"->"settings"->"applications" -> "Development"
    - "USB debugging" on
    - "Stay awake" on
    - "Allow mock locations" on
- Dial *#*#CHECKIN#*#*
  - to update phone software

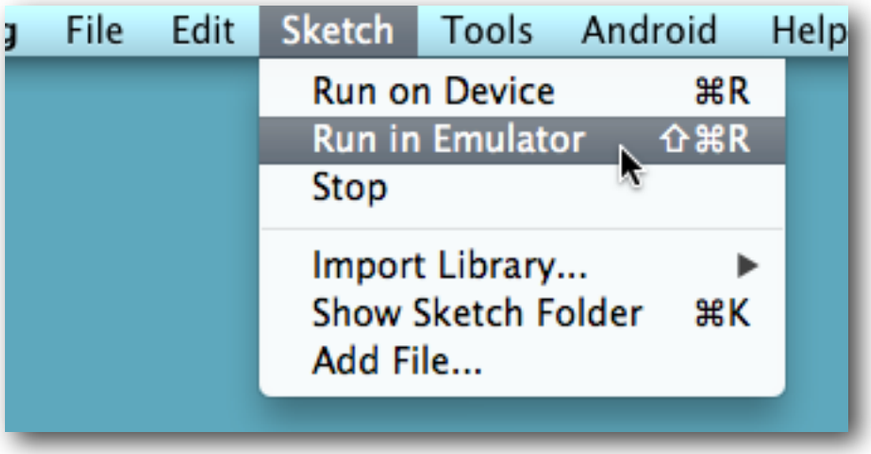
http://www.google.com/support/android/bin/topic.py?hl=en&topic=28930

Switch to Android Mode



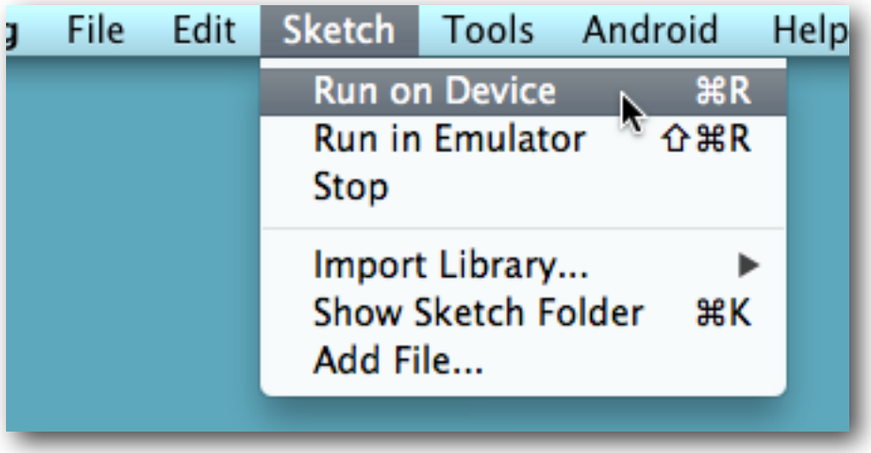
- You will be asked where you put the SDK on your hard drive

Run in the emulator



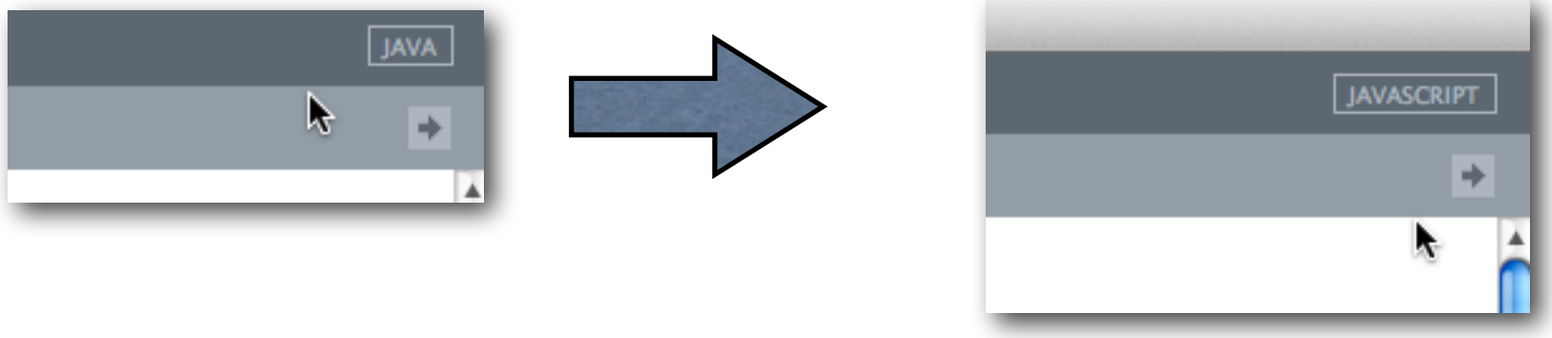
- What is the emulator?
- Make sure you set your sketch to the right resolution
  - 480x800?
- Demo

Run on a real phone

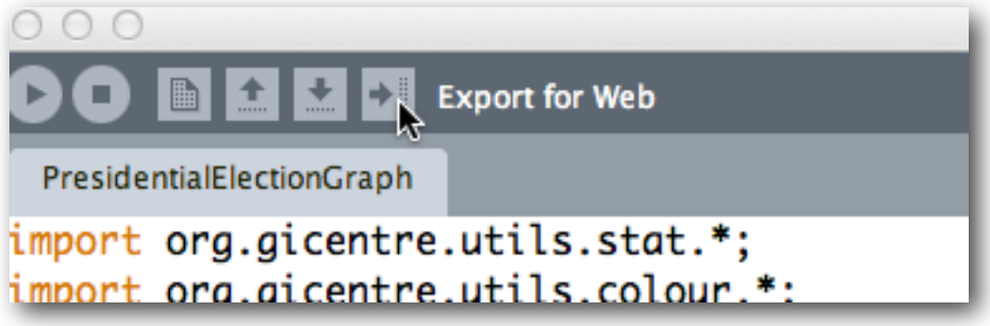


- What is the emulator?
- Make sure you set your sketch to the right resolution
  - 480x800?
- Demo

Run on a website

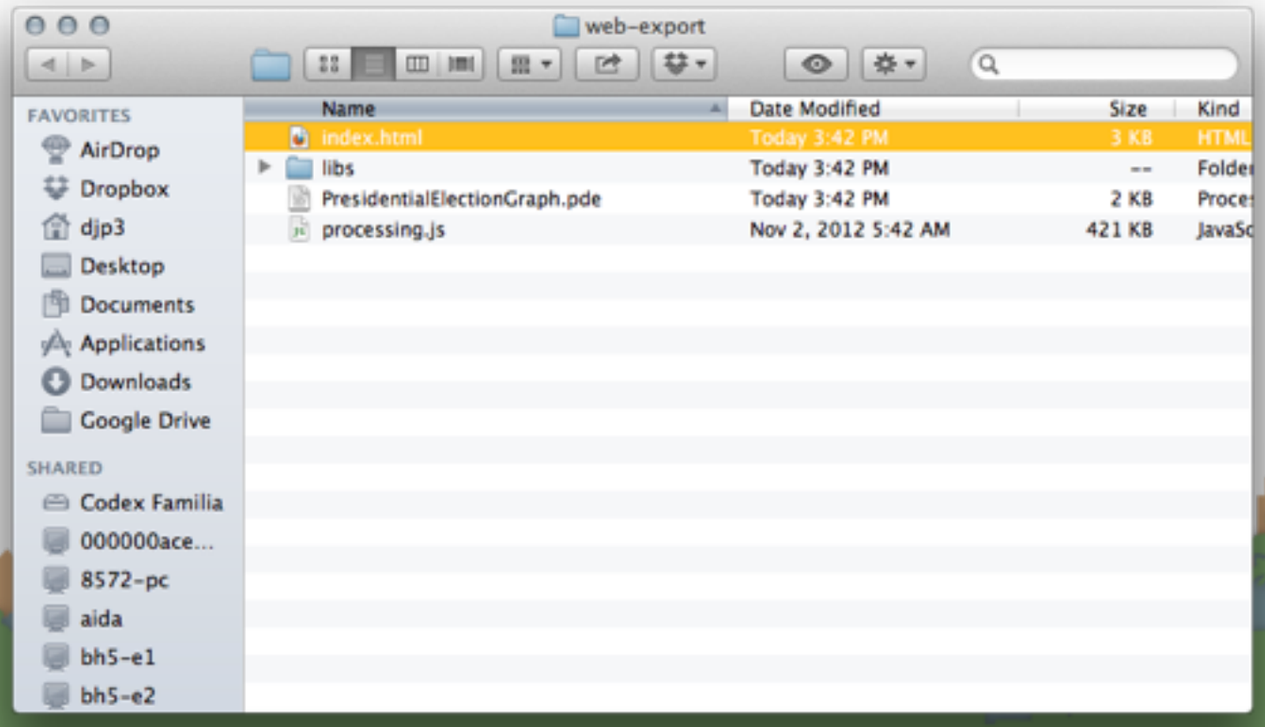


Run on a web site

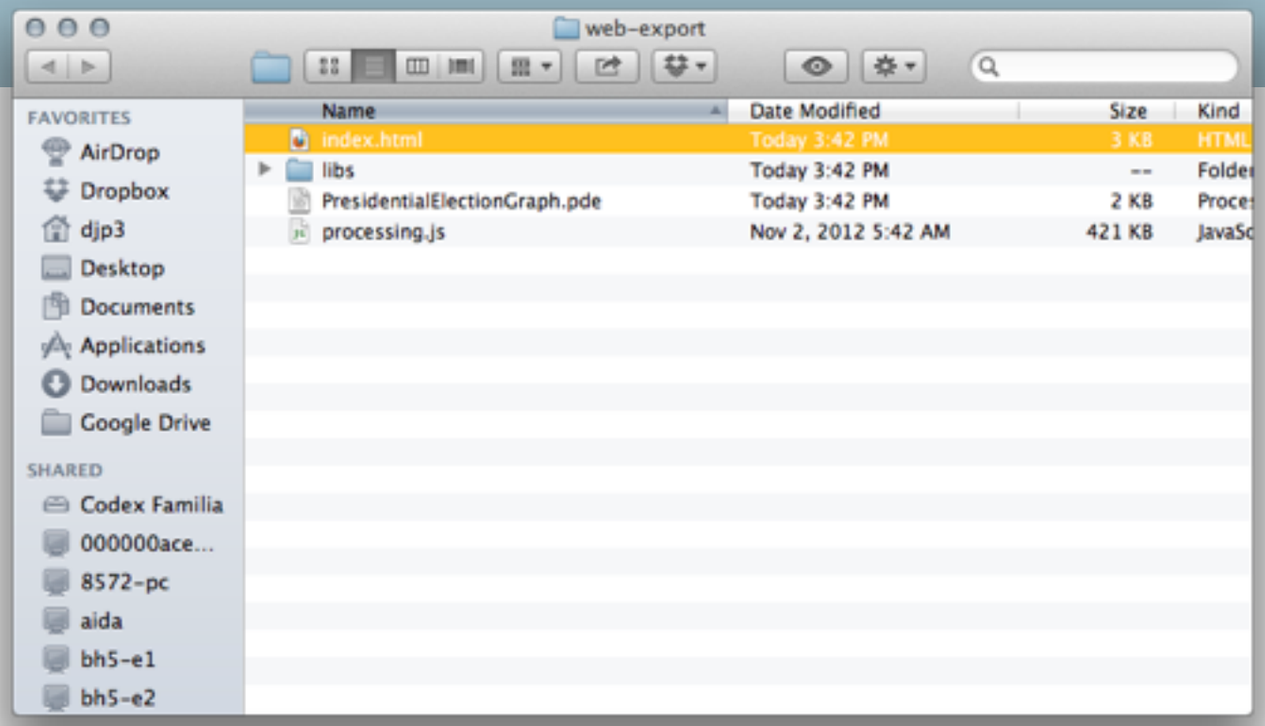


- "Export for Web"

- A file dialog will open showing you where the website is

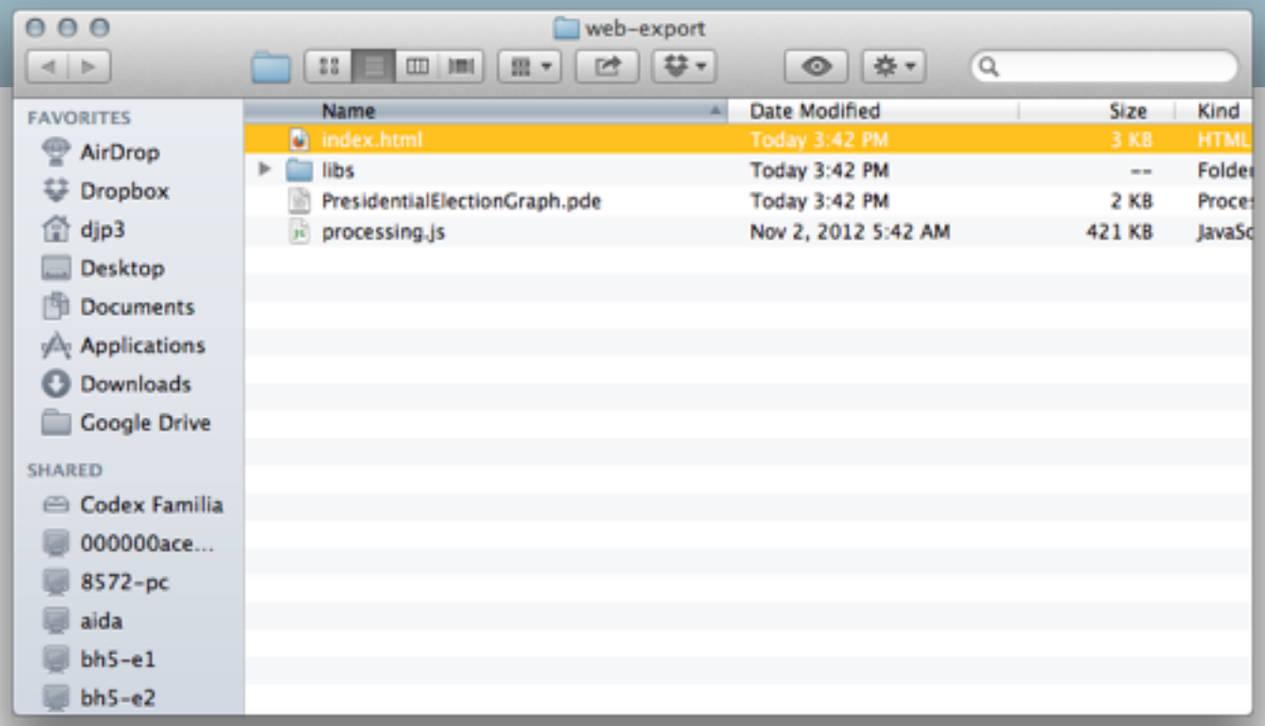


Run on a web site



- You can open “index.html” in your browser from your hard drive.
- You might need to find the right browser because it uses Java (Chrome doesn’t work for me, but Firefox does)

Run on a web site



- To run it from a web site you need:
  - A server to put the files on
  - Move the files there
  - Then point your browser to the server
  - Demo

To embed

- To put the sketch on your own website, just pull out the pieces you need from the exported version
  - "View source" -> HTML (don't forget the external files)
  -

```
        </style>
        <!--[if lt IE 9]>
            <script type="text/javascript">alert("Your browser does not support the canvas tag.");</script>
        <![endif]-->
        <script src="processing.js" type="text/javascript"></script>
        <script type="text/javascript">
// convenience function to get the id attribute of generated sketch html element
function getProcessingSketchId () { return 'thanksgiving'; }
</script>

    </head>
    <body>
        <div id="content">
            <div>
                <canvas id="thanksgiving" data-processing-sources="thanksgiving.pde"
                        width="750" height="500">
                    <p>Your browser does not support the canvas tag.</p>
                    <!-- Note: you can put any alternative content here. -->
                </canvas>
                <noscript>
                    <p>JavaScript is required to view the contents of this page.</p>
                </noscript>
            </div>
            <h1>thanksgiving</h1>
            <p id="description"></p>
            <p id="sources">Source code: <a href="thanksgiving.pde">thanksgiving</a> </p>
            <p>
            Built with <a href="http://processing.org" title="Processing">Processing</a>
            and <a href="http://processingjs.org" title="Processing.js">Processing.js</a>
            </p>
        </div>
    </body>
</html>
```

To embed (alternate)

- Link the libraries and put the code in your HTML file

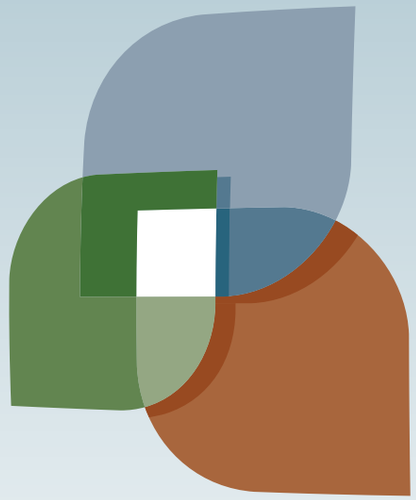
```
<script src="http://processing.org/javascript/MM_functions.js" type="text/javascript"></script>
<script src="http://processing.org/javascript/processing.js" type="text/javascript"></script>
<script src="http://processing.org/javascript/jquery-1.2.6.hardware.js" type="text/javascript"></script>
<script src="http://processing.org/javascript/slideshow.js" type="text/javascript"></script>
```

```
<div class="example"><script type="application/processing">
// The message to be displayed
String message = "How to Lie with Infographics";

PFont f;
// The radius of a circle
float r = 100;

void setup() {
  size(320, 320);
  f = createFont("Georgia",40,true);
  textFont(f);
  // The text must be centered!
  textAlign(CENTER);
  smooth();
}

void draw() {
  background(255);

  // Start in the center and draw the circle
  translate(width / 2, height / 2);
  noFill();
  stroke(0);

  // We must keep track of our position along the curve
  float arclength = 2*mouseX;

  // For every box
  for (int i = 0; i < message.length(); i++)
  {
```

To em

- Link

```
  // The text must be centered!
  textAlign(CENTER);
  smooth();
}

void draw() {
  background(255);

  // Start in the center and draw the circle
  translate(width / 2, height / 2);
  noFill();
  stroke(0);

  // We must keep track of our position along the curve
  float arclength = 2*mouseX;

  // For every box
  for (int i = 0; i < message.length(); i++)
  {
    // Instead of a constant width, we check the width of each character.
    char currentChar = message.charAt(i);
    float w = textWidth(currentChar);

    // Each box is centered so we move half the width
    arclength += w/2;
    // Angle in radians is the arclength divided by the radius
    // Starting on the left side of the circle by adding PI
    float theta = PI + arclength / r;

    pushMatrix();
    // Polar to cartesian coordinate conversion
    translate(r*cos(theta), r*sin(theta));
    // Rotate the box
    rotate(theta+PI/2); // rotation is offset by 90 degrees
    // Display the character
    fill(0);
    text(currentChar,0,0);
    popMatrix();
    // Move halfway again
    arclength += w/2;
  }
}


</script>

!important; "></canvas>

<canvas width="640" height="360" tabindex="0" id="__processing

<p><strong>Inspiration for Exercise 2</strong></p>

</div>
```



LUCI

Wednesday, December 5, 12