



# COM5940: NEW MEDIA BUSINESS MODEL & INNOVATION MOBILE APP DEVELOPMENT WITHIN A MVC CONTEXT

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Center for  
Entrepreneurship

# **Today's Agenda**

1. Mobile Application in a **MVC Context**
2. Web App vs. Progressive Web App (**PWA**) vs. Hybrid App vs. Native app
3. **ReactNative** vs. **PhoneGap/Cordova**: Pros and Cons.
4. Leverage device dependant features (e.g. camera, accelerometer, compass, contacts) in Cordova/ PhoneGap and PWA for rapid prototyping and **MVP** development.

- 5. Demonstration of 3 Ways of Developing PhoneGap/Cordova Based Mobile Apps.**
- 6. Demonstration of Bootstrap 3 & 4, Framework 7, OnsenUI, and Ionic.**
- 7. Minimum Viable Architecture (MVA) for supporting lean and agile development.**

# **Mobile Apps - Web vs. Native vs. Hybrid**

MobiLoud

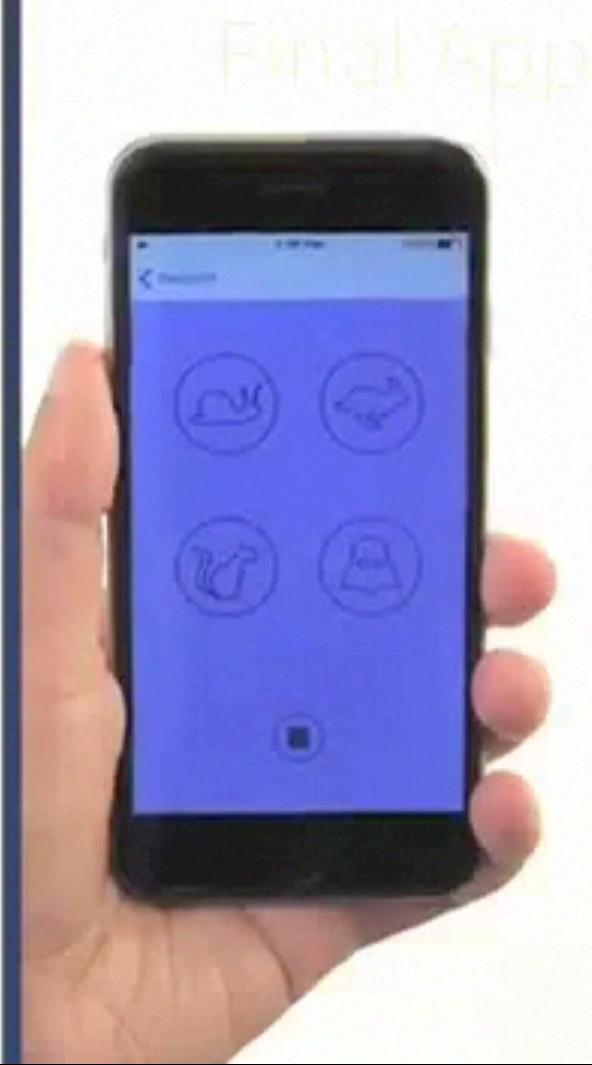
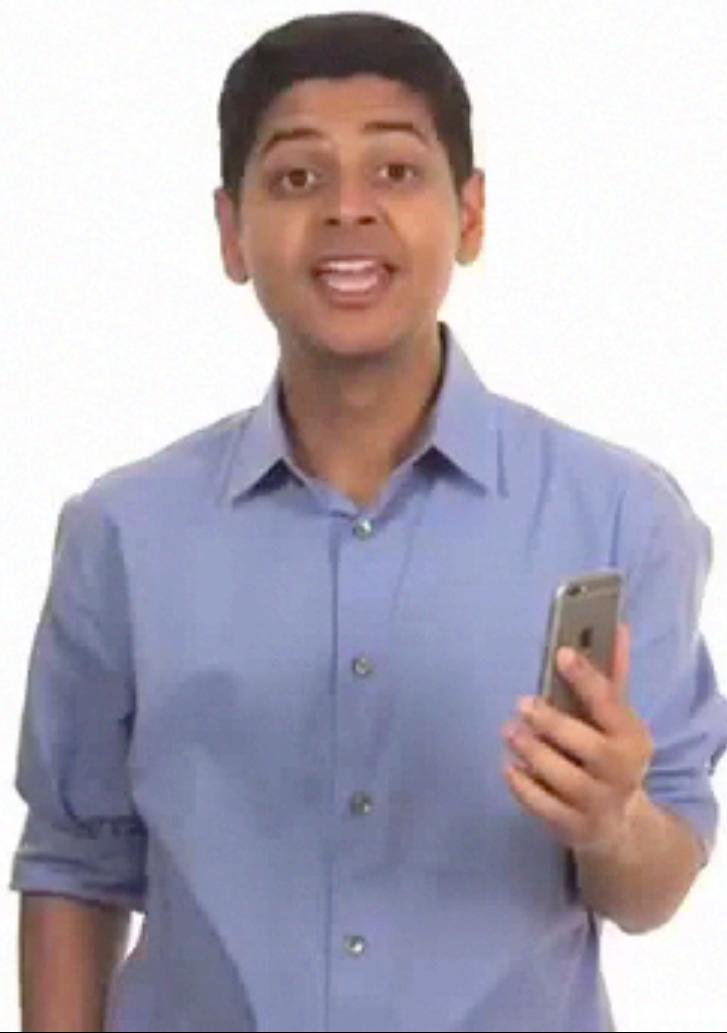


# **Why Cross-Platform Development?**

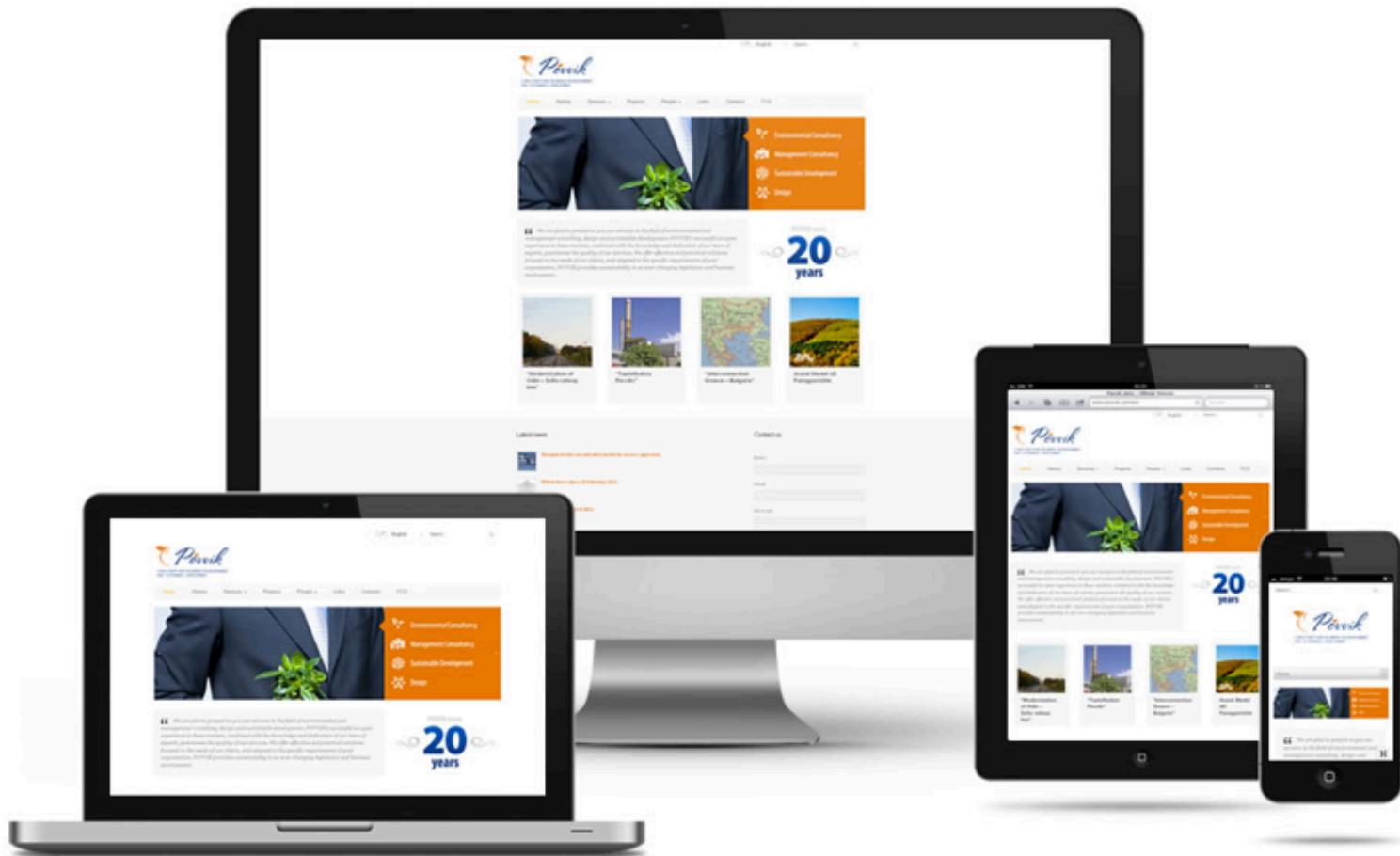
1. Budget Limitation.
2. Cannot afford to have both **Android** and **IOS** developers onboard.
3. Under extreme time pressure to launch the product.
4. Leverage **HTML/CSS/JS** expertise.
5. Going through **MVP pivots** with constant changes and challenges in maintaining two code bases, **IOS** and **Android**.
6. Cross-platform development as a **MVA** strategy.

# **How to develop mobile apps?**

# **MVC Revisited**



# **MVP and MVA Using the Hybrid App Approach**



# **3 Ways to Develop & Test Your Mobile Application with Cordova/PhoneGap**

1

# **Cordova Cross-platform Support for iOS (Xcode) & Android (Android Studio)**

[Documentation](#)[Plugins](#)[Blog](#)[Contribute](#)[Get Started](#)

Search 'g.x' docs...



APACHE

# CORDOVA™

Mobile apps with HTML, CSS & JS

Target multiple platforms with **one code base**

Free and **open source**

[GET STARTED](#)[DOCUMENTATION](#)

Reusable code  
across

Waiting for cordova.apache.org...



Support for  
offline scenarios



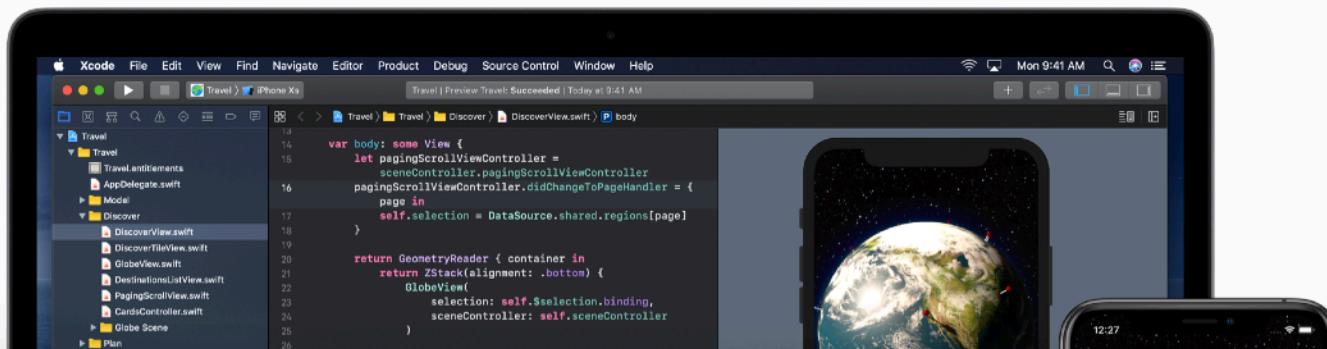
Access native  
device APIs

## Xcode

Xcode 11   SwiftUI   IDE   Features   What's New   Resources

# Xcode 11

Xcode 11 includes everything you need to create amazing apps and to bring your apps to even more devices. Take advantage of SwiftUI, an all-new user interface framework with a declarative Swift syntax. Start bringing your iPad app to Mac with just a click. And with support for Swift packages, Xcode 11 lets you share code among all of your apps or use packages created by the community.



[Platform](#)[Android Studio](#)[Google Play](#)[Jetpack](#)[More ▾](#) Search

LANGUAGE ▾

SIGN IN

## Android Studio

[DOWNLOAD](#)[WHAT'S NEW](#)[USER GUIDE](#)[PREVIEW](#)

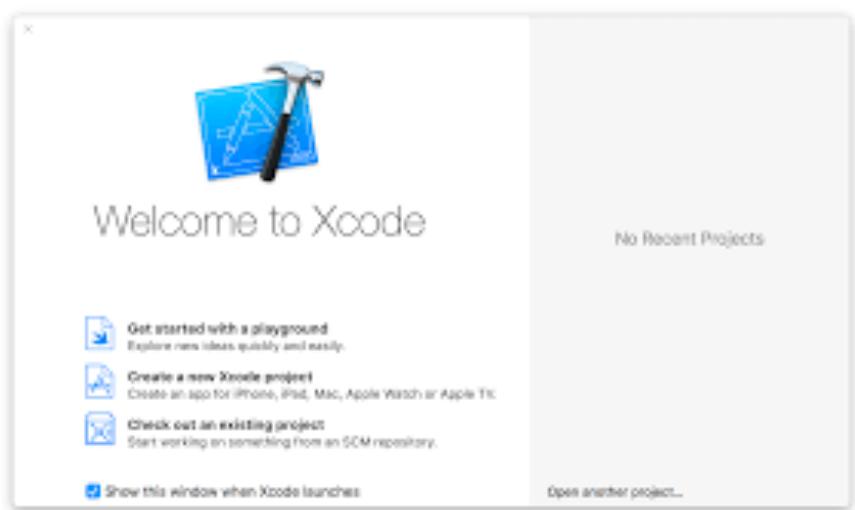
# android studio

Android Studio provides the fastest tools for building apps on every type of Android device.

[DOWNLOAD ANDROID STUDIO](#)

3.5.3 for Mac (733 MB)

[DOWNLOAD OPTIONS](#)[RELEASE NOTES](#)



**Revisit COM5961**

**Responsive & Mobile 1st Design Using**

**Bootstrap & jQuery with the aid of Pingendo**

# Pingendo



B I U S ⌂ ⌂ ⌂ ⌂



PAGE

SELECTION

SECTIONS

COMPONENTS

index.html \*

album.html \*

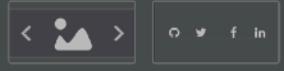
Untitled.html\* \*

HEADERS



Cover

CONTENTS



FOOTERS



FORMS

BODY

ATTRIBUTES

ID

CLASS

BOOTSTRAP

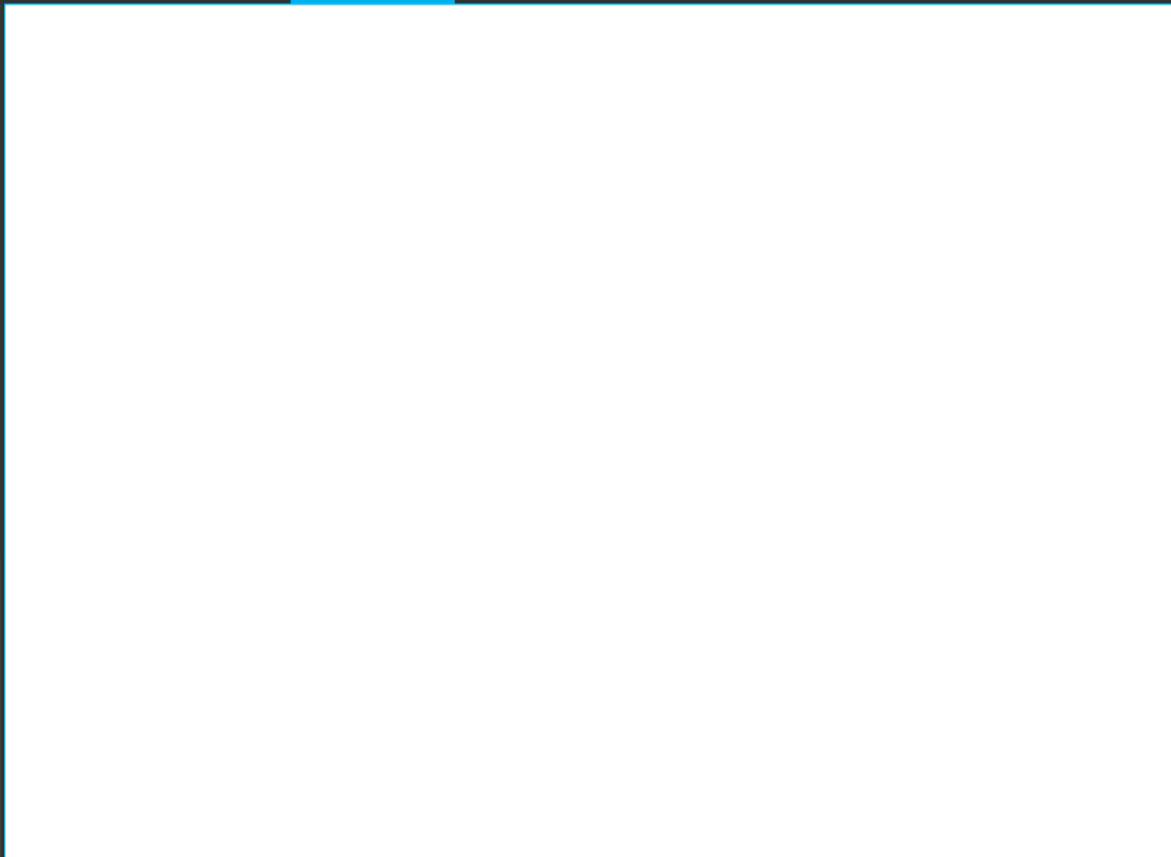
SCROLL

HIDE

STYLE

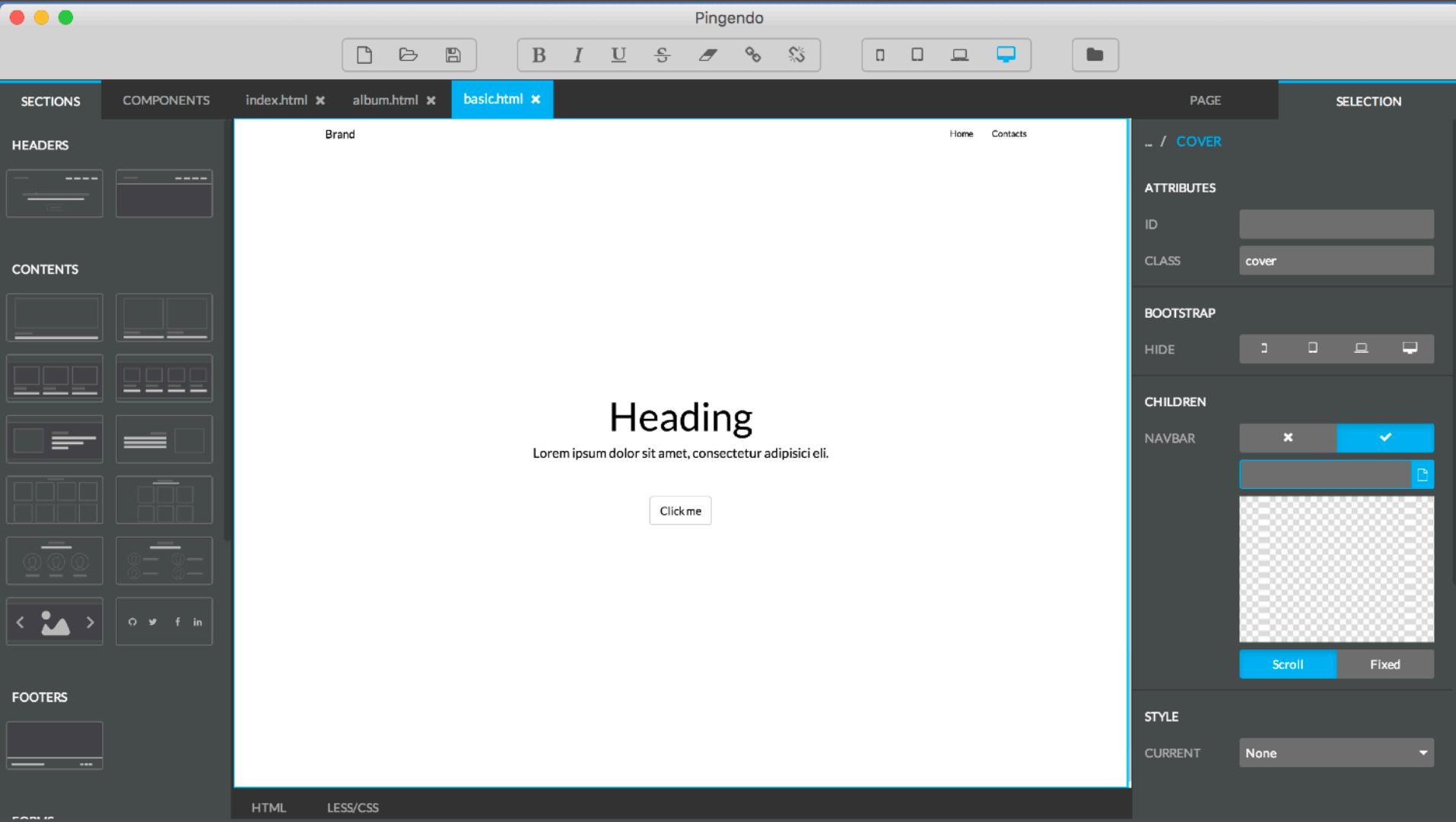
CURRENT

None



HTML

LESS/CSS



Pingendo

index.htm

SECTIONS

COMPONENTS

HEADERS

CONTENTS

FOOTERS

HTML LESS/CSS

img

pexels-photo-3585089.jpeg

Favorites

- Recents
- iCloud Drive
- Applications
- Documents
- Pictures
- Movies
- git\_home
- pyprojects
- Downloads
- Desktop
- dt\_class
- htdocs
- yssuen

Cancel Open

COVER

ATTRIBUTES

CLASS cover

OTSTRAP

DE

CHILDREN

VBAR

SCROLL Fixed

STYLE

CURRENT None

The screenshot shows the Pingendo web editor interface. A file dialog is open, displaying the file 'pexels-photo-3585089.jpeg' from the 'img' folder. The file is a JPEG image of a person holding a smartphone in front of a bokeh light background. The file details are shown: Created 20/2/2020, Modified 20/2/2020, Last opened --, Dimensions 1000 x 1500, and an 'Add Tags...' button. The 'Open' button is highlighted in blue. On the left, the 'CONTENTS' panel is visible, showing various layout components like cards, grids, and social sharing icons. On the right, the 'PAGE' tab is selected, showing the 'COVER' section with the class 'cover'. The 'VBAR' panel at the bottom right contains scroll and fixed options. The bottom navigation bar includes 'HTML' and 'LESS/CSS' tabs.

## Pingendo

**B** *I* U ~~S~~ 

PAGE

SELECTION

SECTIONS

COMPONENTS

Index.html

album.html

basic.html\*

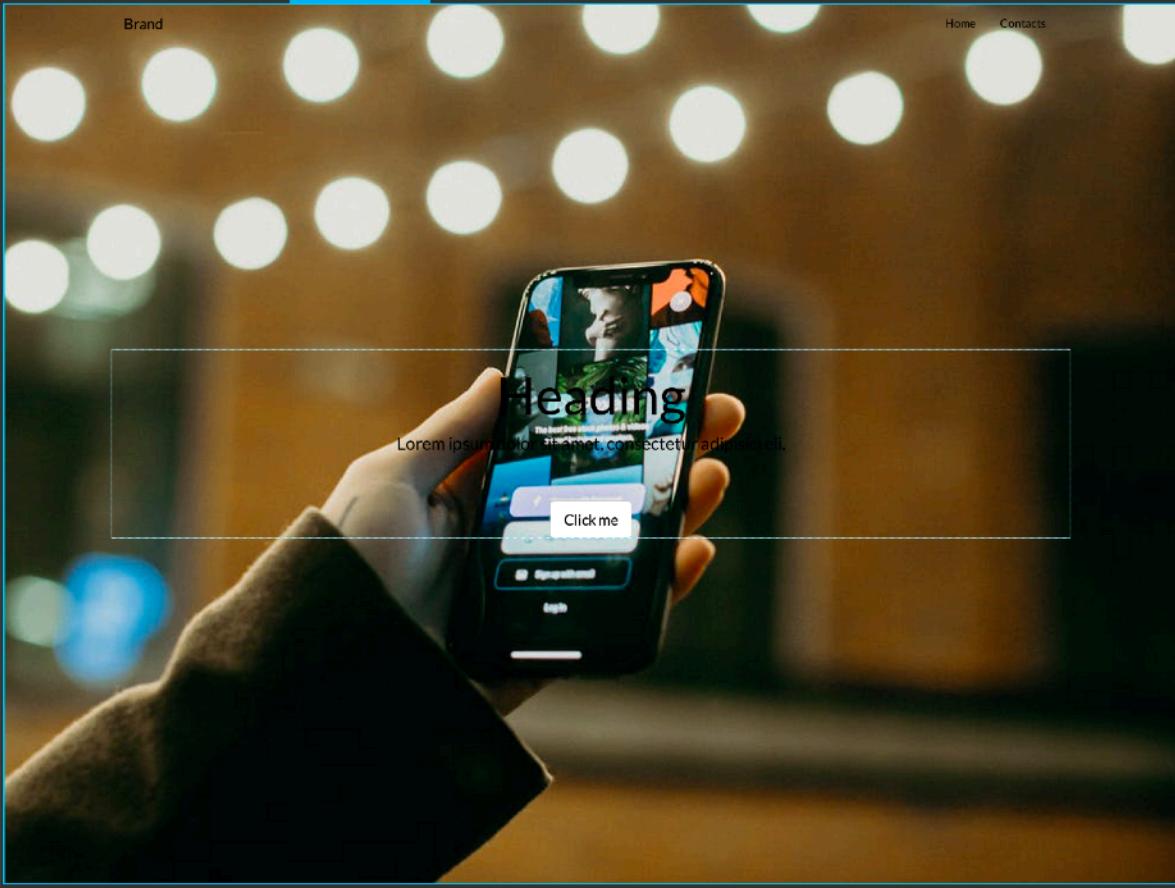
## HEADERS



## CONTENTS



## FOOTERS



HTML

LESS/CSS

... / COVER

## ATTRIBUTES

ID

cover

CLASS

cover

## BOOTSTRAP

HIDE



## CHILDREN

NAVBAR



img/pexels-photo-3585089.j



Scroll

Fixed

## STYLE

CURRENT

None

Pingendo

index.html ✘ album.html ✘ basic.html\* PAGE

COMPONENTS

HEADERS

CONTENTS

FOOTERS

EDITION

B I U S E F \$

Home Contacts

... / COVER / NAVIGATION BAR

ATTRIBUTES

ID

CLASS navbar navbar-default

BRAND Text Image

INVERSE

HIDE

CHILDREN

CHILDREN Nav +

STYLE

CURRENT None

HTML LESS/CSS

Pingendo

basic.html\*

SECTIONS

COMPONENTS

HEADERS

CONTENTS

FOOTERS

FORMS

HTML

LESS/CSS

B I U S E F N

PHONE TABLET LAPTOP MONITOR FOLDER

PAGE

SELECTION

... / COVER

ATTRIBUTES

ID:

CLASS: cover

BOOTSTRAP

HIDE:

CHILDREN

NAVBAR

x ✓

img/pixels-photo-3585089.jfif

Scroll Fixed

STYLE

CURRENT: None

The image shows a hand holding a smartphone displaying a mobile application. The app has a heading 'Heading' and a button labeled 'Click me'. The background of the app is a blurred image of lights. The tool's sidebar contains sections for Headers, Contents, Footers, and Forms, each with various component icons. The right panel displays the 'basic.html\*' page settings, including attributes like ID and CLASS, bootstrap options, and a children section showing a preview of the image and scroll/fixed options. The bottom navigation bar includes HTML, LESS/CSS, and style-related buttons.

# Pingendo



B I U S E F



PAGE

SELECTION

SECTIONS

COMPONENTS

index.html

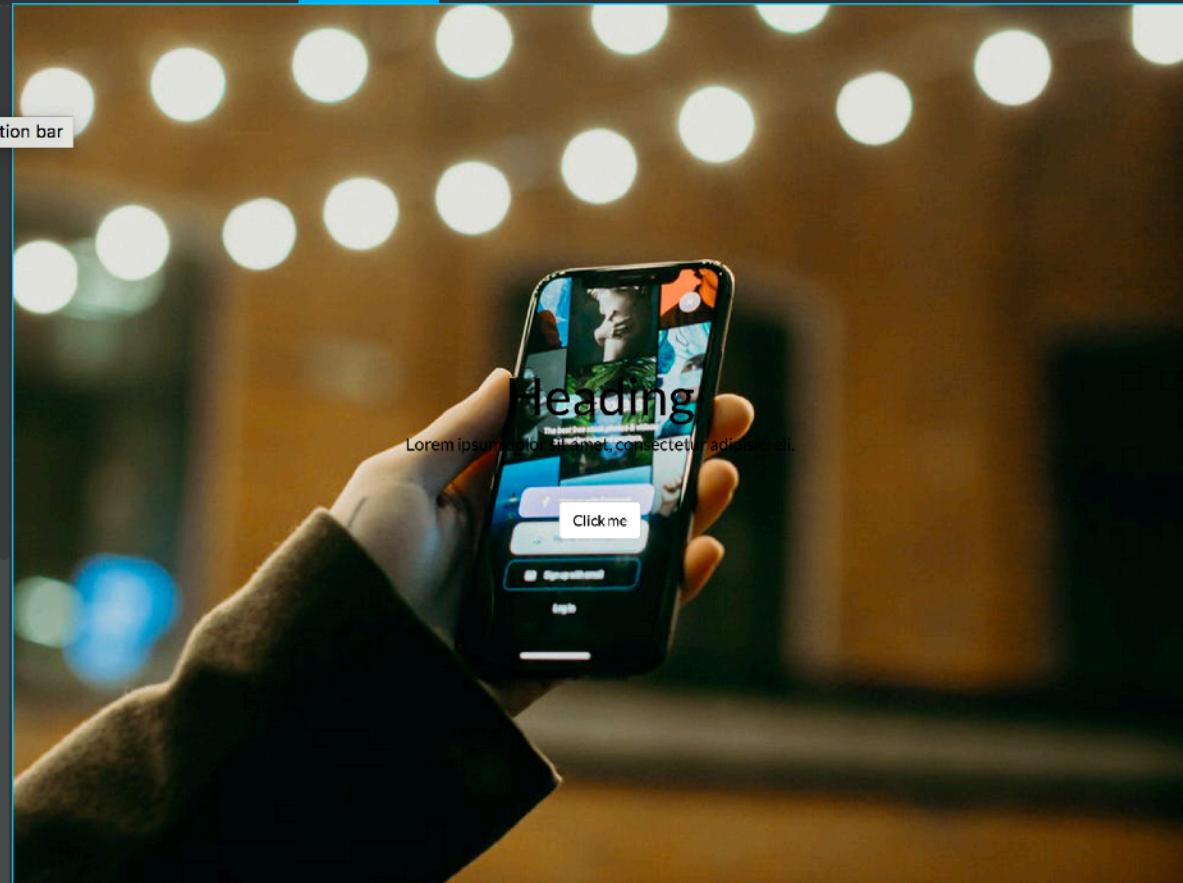
album.html

basichtml\*

HEADERS

Navigation bar

CONTENTS



.. / COVER

ATTRIBUTES

ID

cover

CLASS

cover

BOOTSTRAP

HIDE



CHILDREN

NAVBAR



img/pixels-photo-3585089.j



Scroll

Fixed

STYLE

CURRENT

None

FOOTERS



HTML

LESS/CSS

FORMS

Pingendo

sections components index.html x album.html x basic.html\* x page selection

HEADERS

CONTENTS

FOOTERS

FORMS

Basic

Home Album

Navigation Bar / Nav / Link

ATTRIBUTES

ID

CLASS

HREF #

BOOTSTRAP

HIDE

STYLE

CURRENT None

Heading

Click me

HTML LESS/CSS

Search item



## Data Driven Product and Services Design

Back to Course



Making Approach  
to Dashboard  
Design

01 hour



Lesson 8 –  
Responsive Web  
Design

01 hour



Lesson 9 –  
JavaScript Based  
Data Visualization  
Libraries

01 hour



Lesson 10 –  
Qualitative and  
Quantitative User  
Research

01 hour



Lesson 11 – From  
Journey Map to  
MVC Framework  
Revisited

01 hour

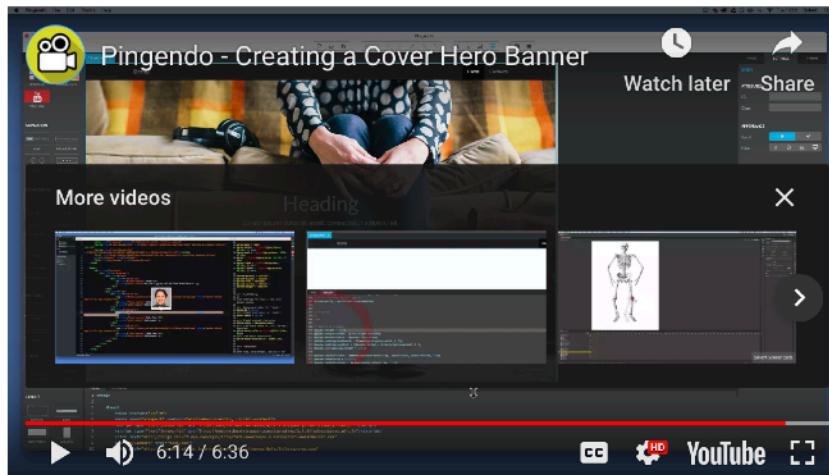


Lesson 12 – Final  
Presentation

01 hour



- 7) Pingendo Bootstrap Visual Editor 5: Creating a Cover Hero Banner (6 min 36 sec)



Creating a Cover Hero Banner in Pingendo which is a FREE Bootstrap "drag & drop" visual editor available from <http://macdownload.informer.com/pingendo/download/#downloading> for Mac and <http://pingendo.software.informer.com/2.0/> for PC.

- 8) Pingendo Bootstrap Visual Editor 6: Team Members Component (3 min 05 sec)

<https://courses.cuhkcfe.io/courses/introduction-to-web-development/com5961-data-driven-product-and-services-design/lessons/lesson-8-responsive-web-design/>

FontAwesome / Font-Awesome

Used by 57.5k

Watch 1.4k

Star 62.1k

Fork 10.5k

Code

Issues 5,000+

Pull requests 16

Actions

Projects 0

Wiki

Security

Insights

Releases

Tags

v4.7.0

a8386aa

Compare ▾

## v4.7.0

davegandy tagged this on 24 Oct 2016 · 64 commits to master since this tag

release 4.7.0

### Assets 2

Source code (zip)

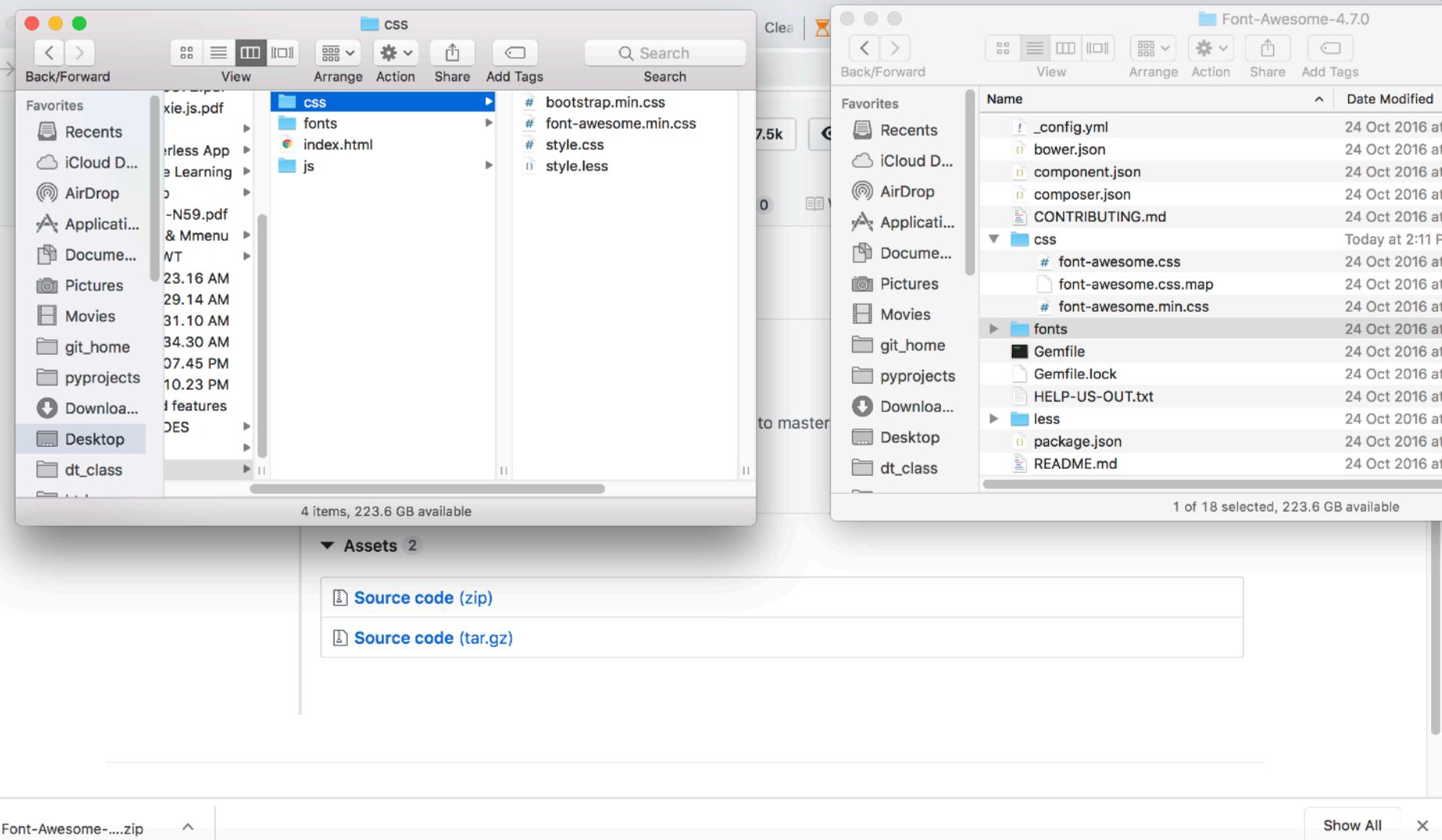
Source code (tar.gz)



Font-Awesome-....zip

Show All

<https://github.com/FontAwesome/Font-Awesome/releases/tag/v4.7.0>



# **Change the Colour of the Bootstrap Navbar**



# TWBSColor

Generate your own Bootstrap navbar

<https://work.smarchal.com/twbscolor/>

# Select your colors

Default background



Active background



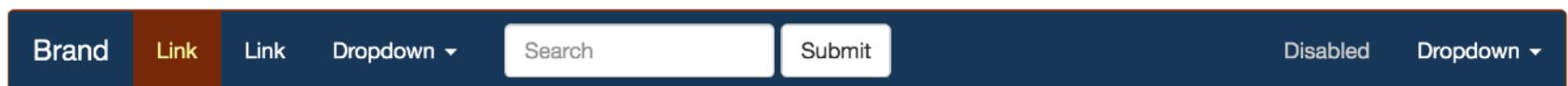
Default color



Active color



Colorize dropdown



A horizontal navigation bar with the following components from left to right:

- Brand (dark blue button)
- Link (orange button)
- Link (light blue button)
- Dropdown (disabled)
- Search input field
- Submit button
- Disabled (light blue button)
- Dropdown (disabled)

```
.navbar-default {  
    background-color: #0b7d7e;  
    border-color: #05a1b0;  
}  
.navbar-default .navbar-brand {  
    color: #fbfeff;  
}  
.navbar-default .navbar-brand:hover,  
.navbar-default .navbar-brand:focus {  
    color: #f1f9ae;  
}  
.navbar-default .navbar-text {  
    color: #fbfeff;  
}  
.navbar-default .navbar-nav > li > a {  
    color: #fbfeff;  
}  
.navbar-default .navbar-nav > li > a:hover,  
.navbar-default .navbar-nav > li > a:focus {  
    color: #f1f9ae;  
}  
.navbar-default .navbar-nav > li > .dropdown-menu {  
    background-color: #0b7d7e;  
}  
.navbar-default .navbar-nav > li > .dropdown-menu > li > a {  
    color: #fbfeff;  
}  
.navbar-default .navbar-nav > li > .dropdown-menu > li > a:hover,  
.navbar-default .navbar-nav > li > .dropdown-menu > li > a:focus {  
    color: #f1f9ae;  
    background-color: #05a1b0;  
}  
.navbar-default .navbar-nav > li > .dropdown-menu > li.divider {  
    background-color: #05a1b0;  
}  
.navbar-default .navbar-nav .open .dropdown-menu > .active > a,  
.navbar-default .navbar-nav .open .dropdown-menu > .active > a:hover,
```

pingendo\_demo > # style.css > ...

```
56 .navbar-default {  
57     background-color: #0b7d7e;  
58     border-color: #05a1b0;  
59 }  
60 .navbar-default .navbar-brand {  
61     color: #fbfeff;  
62 }  
63 .navbar-default .navbar-brand:hover,  
64 .navbar-default .navbar-brand:focus {  
65     color: #f1f9ae;  
66 }  
67 .navbar-default .navbar-text {  
68     color: #fbfeff;  
69 }  
70 .navbar-default .navbar-nav > li > a {  
71     color: #fbfeff;  
72 }  
73 .navbar-default .navbar-nav > li > a:hover,  
74 .navbar-default .navbar-nav > li > a:focus {  
75     color: #f1f9ae;
```

# Heading

Lorem ipsum dolor sit amet, consectetur adipisicing eli.



[Back to top](#)

# **Screen Navigation within a Single Page App**

```
49 <div class="section">
50     <div class="container">
51         <div class="row">
52             <div class="col-md-12">
53                 <div class="jumbotron">
54                     <h1>Want to meet our team?</h1>
55                     <a href="#album" class="btn btn-primary btn-large">Click here</a>
56                 </div>
57             </div>
58         </div>
59     </div>
60 </div>
```

HTML

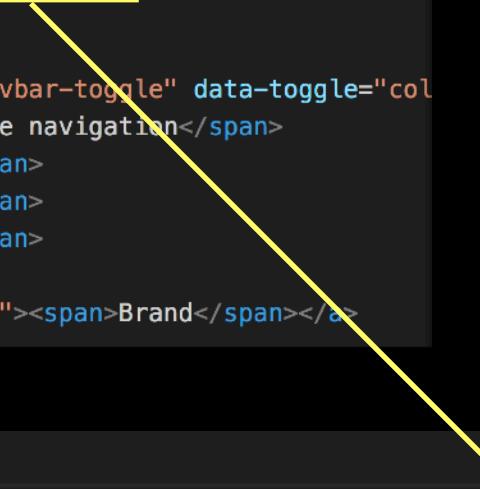
```
67 <div class="section" id="#album">
68     <div class="container">
69         <div class="row">
70             <div class="col-md-12">
71                 <h1 class="text-center">Team</h1>
72                 <p class="text-center">We are a group of skilled individuals.</p>
73             </div>
74         </div>
75         <div class="row">
76             <div class="col-md-4">
77                 
79                 <h3 class="text-center">John Doe</h3>
80                 <p class="text-center">Developer</p>
81             </div>
```

CSS

```
pingendo_demo > # style.css > ...
1 html {
2     scroll-behavior: smooth;
3 }
```

HTML

```
<body>
  <div class="navbar navbar-default navbar-static-top">
    <div class="container">
      <div class="navbar-header">
        <button type="button" class="navbar-toggle" data-toggle="col
          <span class="sr-only">Toggle navigation</span>
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
        </button>
        <a class="navbar-brand" href="#"><span>Brand</span></a>
      </div>
    </div>
  </div>
```



```
<body>
  <div class="navbar navbar-default navbar-fixed-top">
    <div class="container">
      <div class="navbar-header">
        <button type="button" class="navbar-toggle" data-toggle="col
          <span class="sr-only">Toggle navigation</span>
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
        </button>
        <a class="navbar-brand" href="#"><span>Brand</span></a>
      </div>
    </div>
  </div>
```

**However this method doesn't work on Mac.**



HTML

CSS

JAVASCRIPT

SQL

PYTHON

PHP

BOOTSTRAP

MORE ▾

EXERCISES ▾

Circles

Style HR

Coupon

List Group

Responsive Text

Cutout Text

Glowing Text

Fixed Footer

Sticky Element

Equal Height

Clearfix

Responsive Floats

Snackbar

Fullscreen Window

Scroll Drawing

Smooth Scroll

Gradient Bg Scroll

Sticky Header

Shrink Header on Scroll

Pricing Table

Parallax

Aspect Ratio

Toggle Like/Dislike



# How TO - Smooth Scroll

[◀ Previous](#)[Next ▶](#)

Learn how to create a smooth scroll

## But this method works.

[https://www.w3schools.com/howto/howto\\_css\\_smooth\\_scroll.asp#section1](https://www.w3schools.com/howto/howto_css_smooth_scroll.asp#section1)

## Smooth Scrolling

**Note:** This example does not work in Internet Explorer, Edge or Safari (for a "cross-browser" solution, see example below).

Section 1

# Create a Fixed Header & Footer

```
14 #footer {  
15     position: fixed;  
16     left: 0;  
17     bottom: 0;  
18     width: 100%;  
19     background-color: ##007acc;  
20     color: white;  
21     text-align: center;  
22 }
```

## CSS

```
<div id="footer" class="container">  
    <div class="row">  
        <div class="col-xs-3">  
            <i class="fa fa-3x fa-fw fa-home"></i>  
        </div>  
        <div class="col-xs-3">  
            <i class="fa fa-3x fa-bar-chart fa-fw"></i>  
        </div>  
        <div class="col-xs-3">  
            <i class="fa fa-3x fa-calendar fa-fw"></i>  
        </div>  
        <div class="col-xs-3">  
            <i class="fa fa-3x fa-fw fa-map-marker"></i>  
        </div>  
    </div>  
</div>
```

## HTML

The screenshot shows a web page from w3schools.com. At the top, there's a navigation bar with links for Home, HTML, CSS, JAVASCRIPT, SQL, PYTHON, PHP, BOOTSTRAP, HOW TO (which is highlighted in green), and MORE. On the left, a sidebar lists various CSS topics like Star Rating, User Rating, Overlay Effect, etc., with 'Fixed Footer' also highlighted in green. The main content area has a title 'How TO - Fixed Footer'. Below it is a 'Previous' button. A text block says 'Learn how to create a fixed/sticky footer with CSS.' A section titled 'Fixed/Sticky Footer Example' contains text about the footer being at the bottom and a red 'Footer' box. A 'Try it Yourself' button is at the bottom of this section. To the right, there's a sidebar with 'Most Visited' and 'Getting Started' sections, followed by a 'Dashboard' section with 'Users', 'Gifts', and 'Messages' items, and a 'Reminder' section with a lorem ipsum text. At the very bottom, there's a blue footer bar with icons for Home, Charts, Calendar, and Location.

# How TO - Fixed Footer

◀ Previous

Learn how to create a fixed/sticky footer with CSS.

## Fixed/Sticky Footer Example

The footer is placed at the bottom of the page.

Footer

Try it Yourself »

Slide me left.

[https://www.w3schools.com/howto/howto\\_css\\_fixed\\_footer.asp](https://www.w3schools.com/howto/howto_css_fixed_footer.asp)

# Heading

Lorem ipsum dolor sit amet, consectetur adipisicing eli.



[Back to top](#)

# **Changing Button Colors**

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Click me

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Click me

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Click me



Elements

Console

Sources

Network

Performance

Memory

Application

Security

Audits

⋮

×

```
bootstrap/assets/placeholder.png class="img-responsive">
  <div class="caption">
    <h3>Thumbnail label</h3>
    ><p>...</p>
    <a class="btn btn-lg btn-primary" data-toggle="modal">Click me</a> == $0
  </div>
</div>
</div>
<div class="col-md-4">...</div>
<div class="col-md-4">...</div>
```

Styles

Computed

Event Listeners

»

Filter

```
:hov .cls +
line-height: 1.3333333;
border-radius: ▶ 5px;
}
```

```
.btn-primary {
  color: □#ffffff;
  background-color: ■#001f3f;
  border-color: ▶ ■#001226;
}
```

style.css:3086

.btn {

style.css:2988

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Click me

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Click me

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Click me



Elements

Console

Sources

Network

Performance

Memory

Application

Security

Audits

⋮

X

```
bootstrap/assets/placeholders.png
responsive">
  <div class="caption">
    <h3>Thumbnail label</h3>
    ><p>...</p>
    <a class="btn btn-lg btn-primary" data-toggle="modal">Click me</a> == $0
  </div>
</div>
</div>
<div class="col-md-4">...</div>
<div class="col-md-4">...</div>
```

Styles

Computed

Event Listeners

»

Filter

:hov .cls +

```
line-height: 1.3333333;
border-radius: ▶ 5px;
}
```

```
.btn-primary {
  color: ■#001226;
  background-color: □#fff;
  border-color: ▶ ■#001226;
}
```

style.css:3086

# **Creating Model Pop-up Window**

SECTIONS

COMPONENTS

index.html x album.html x

PAGE

SELECTION

HORIZONTAL RULE

MEDIA

CLICKABLE IMAGE

IMAGE

CLICKABLE ICON

ICON

THUMBNAIL

CAROUSEL

MEDIA LIST

GOOGLE MAPS

YOUTUBE

NAVIGATION

NAV

BREADCRUMB

HTML

LESS/CSS

... / MODAL / LINK

ATTRIBUTES

ID

CLASS

HREF

BOOTSTRAP

COLOR

STATE

SIZE

FULL-WIDTH

BEHAVIOUR

HIDE

CHILDREN

BADGE

ICON

STYLE

CURRENT

None

Branding

Home

Album

Thumbnail label

Thumbnail label

Thumbnail label

Graz Justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Graz Justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Graz Justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

View

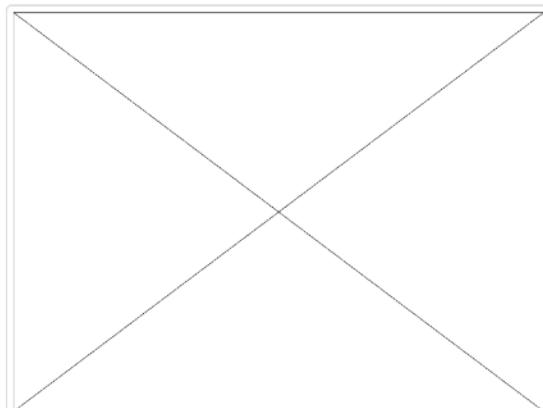
View

View

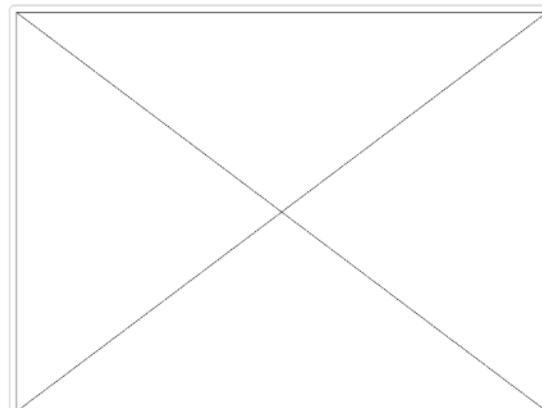
Modal title

One fine body...

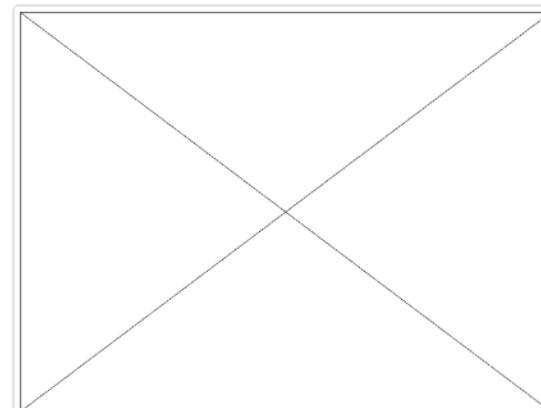
Close

***Thumbnail label***

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

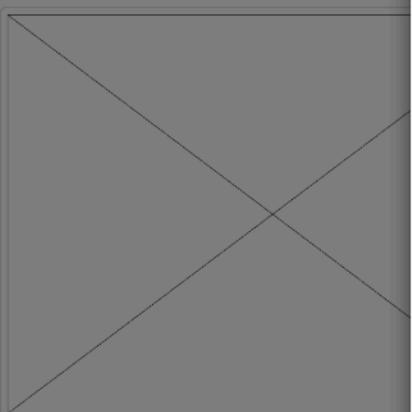
[View](#)***Thumbnail label***

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

[View](#)***Thumbnail label***

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

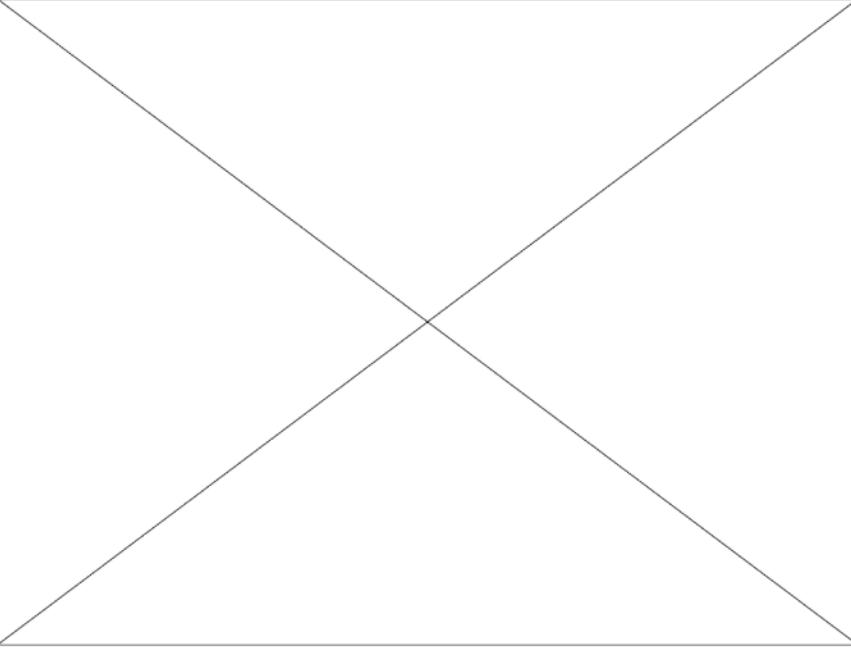
[View](#)

**Thumbnail label**

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

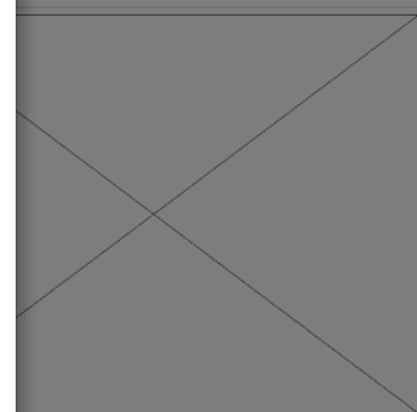
[View](#)

**Modal title**

A large white rectangular placeholder with a large white 'X' drawn through it, representing a missing or unavailable image.

One fine body...

**Close**

**Thumbnail label**

dio, dapibus ac facilisis in, egestas eget  
c id elit non mi porta gravida at eget  
am id dolor id nibh ultricies vehicula ut  
id elit.



Search item

## 🔍 Data Driven Product and Services Design

Back to Course



Making Approach  
to Dashboard  
Design

01 hour



Lesson 8 –  
Responsive Web  
Design

01 hour



Lesson 9 –  
JavaScript Based  
Data Visualization  
Libraries

01 hour



Lesson 10 –  
Qualitative and  
Quantitative User  
Research

01 hour



Lesson 11 – From  
Journey Map to  
MVC Framework  
Revisited

01 hour

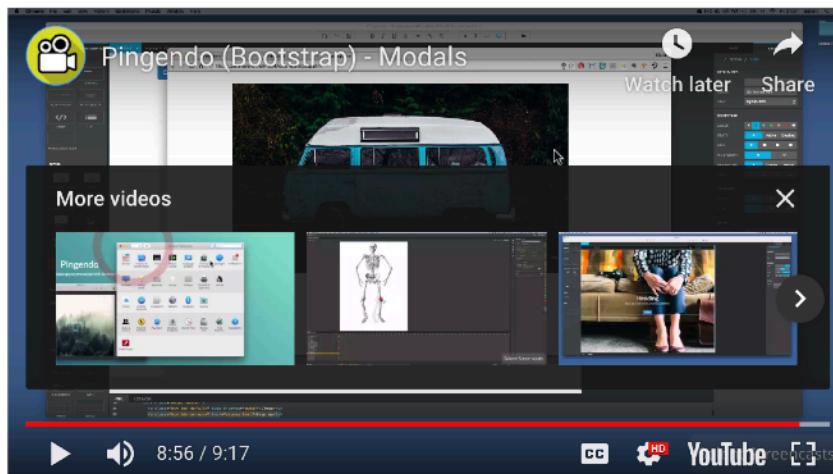


Lesson 12 – Final  
Presentation

01 hour



- + 8) Pingendo Bootstrap Visual Editor 6: Team Members Component (3 min 05 sec)
- + 9) Pingendo Bootstrap Visual Editor 7: Change NavBar Colour (6 min 11 sec)
- 10) Pingendo Bootstrap Visual Editor 8: Modals (9 min 17 sec)



Implementing a modal popup window in Pingendo

<https://courses.cuhkcfe.io/courses/introduction-to-web-development/com5961-data-driven-product-and-services-design/lessons/lesson-8-responsive-web-design/>

# **The Customized CSS Styles**

```
.footer {  
    position: fixed;  
    left: 0;  
    bottom: 0;  
    width: 100%;  
    background-color: #1a3959;  
    color: white;  
    text-align: center;  
    padding-top: 5px;  
    padding-bottom: 5px;  
}  
  
.fa-1x {  
    font-size: 3em;  
    color: white;  
}  
  
.cover h1 {  
    color: white;  
}  
  
.cover p {  
    color:white;  
}  
  
.btn-lg, .btn-group-lg > .btn {  
    background: white;  
    color: #1a3959;  
}
```

2

**Install PhoneGap Desktop App (For PhoneGap project creation and server hosting) and PhoneGap Developer App (For mobile testing)**

<https://phonegap.com>

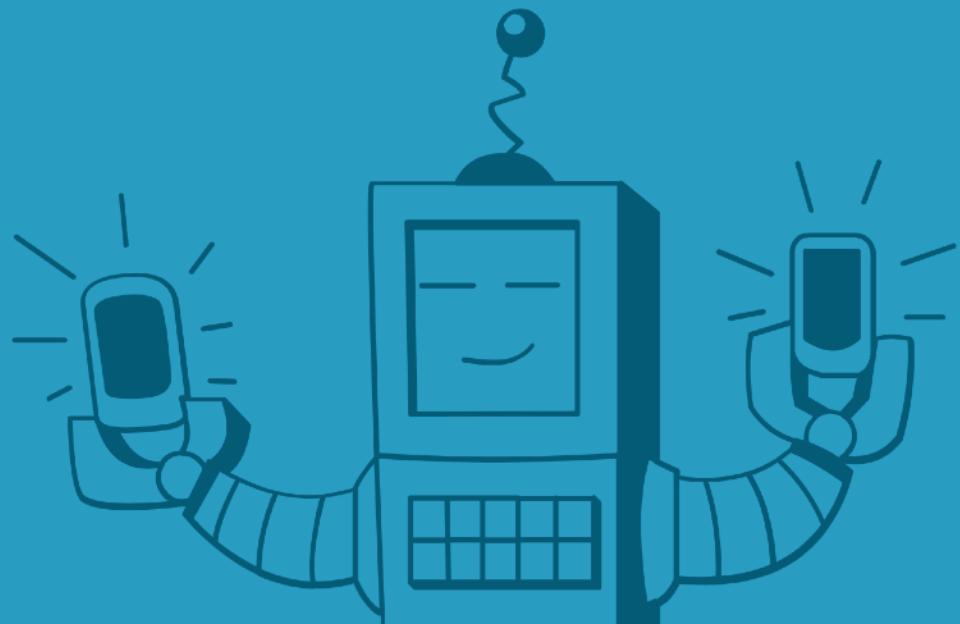


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## Create your app with PhoneGap

Reuse existing web development skills to quickly make hybrid applications built with HTML, CSS and JavaScript. Create experiences for multiple platforms with a single codebase so you can reach your audience no matter

## Package your app in the cloud

PhoneGap Build takes the pain out of compiling PhoneGap apps. Get app-store ready apps without the headache of maintaining native SDKs. Our



## Get Started

Follow these steps to install PhoneGap and get an app running on your mobile device in minutes.

1

### Install our desktop app

Download and install our new PhoneGap Desktop app, which is currently in beta. If you want more detailed instructions on how to install and use the app, follow the [full guide in our documentation](#).

VERSION 0.4.5 (BETA)

Download for:

Mac

MACOS 10.9 OR LATER

Windows

WINDOWS 8.1



VERSION 0.4.5 (BETA)

Download for:

Mac

MACOS 10.9 OR LATER

Windows

WINDOWS 8.1



OR



YOU CAN ALSO USE NPM TO INSTALL THE PHONEGAP CLI

`npm install -g phonegap`

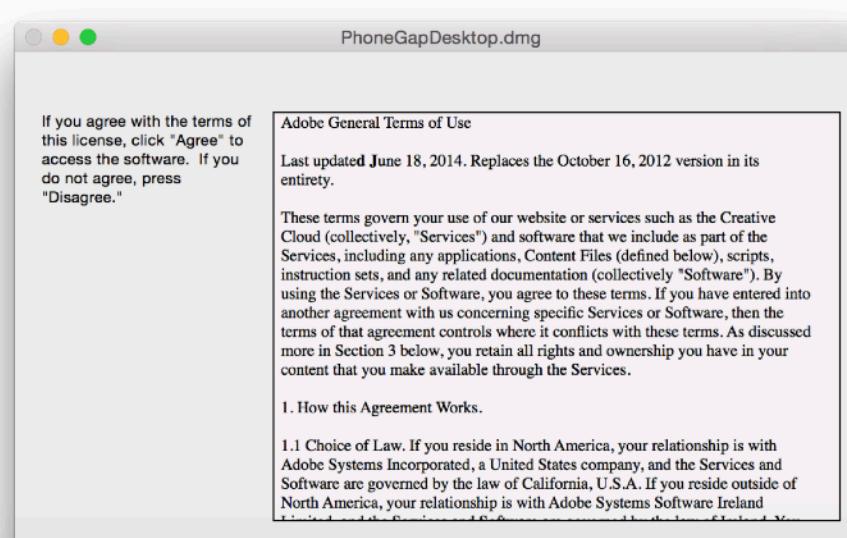


- Mac OS X
- Windows

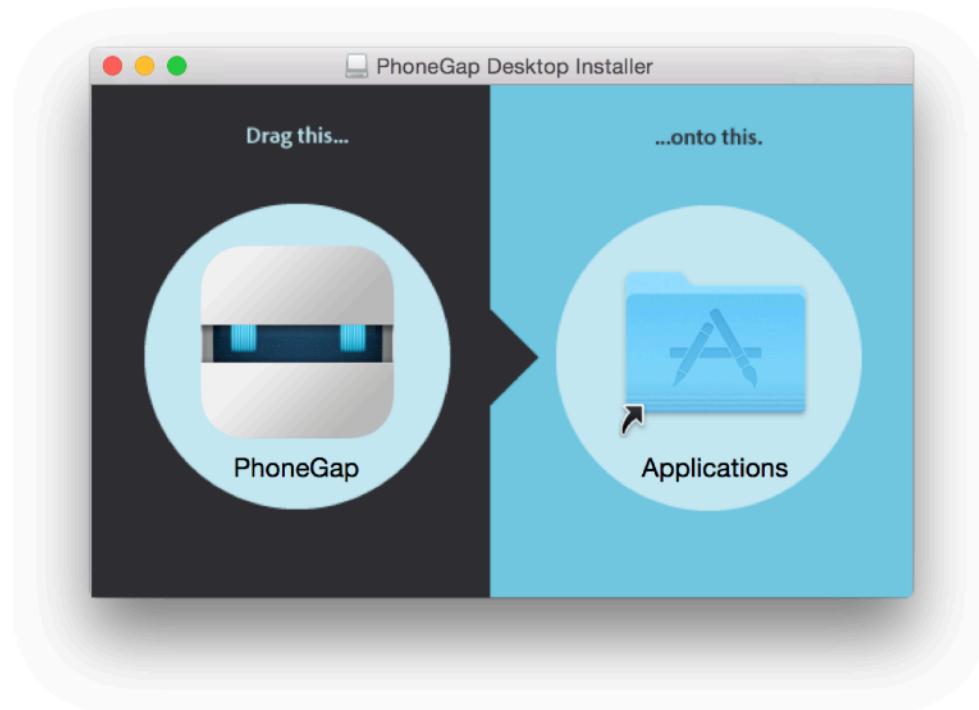
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## Mac OS X Installation

1. Download the latest [Mac OS X Installer](#).
2. Double-click the downloaded file to run the installer. You will initially be prompted with a license agreement to accept:



3. Drag and drop the application into the **Applications** folder on your Mac as prompted:



4. Next simply open the application and proceed to [Step 2](#) where you will install the **PhoneGap**

## Windows Installation

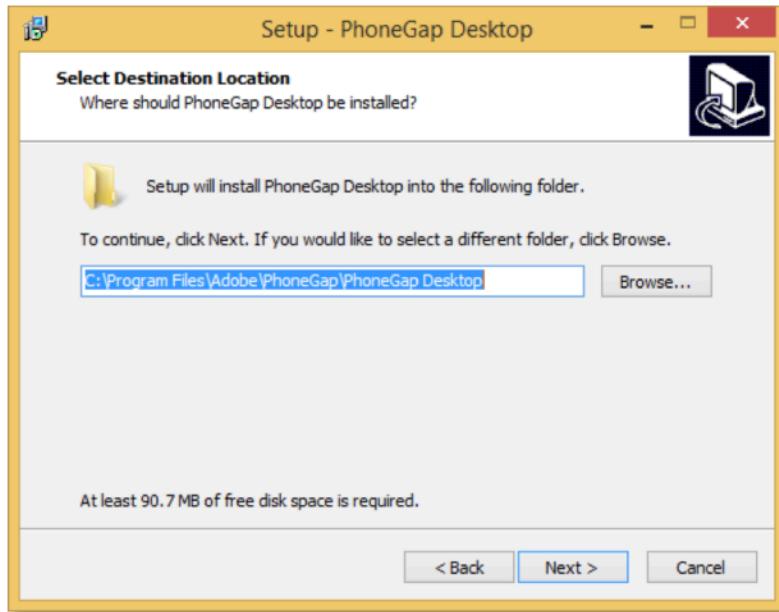
1. Download the latest [Windows Installer](#).

**\*\*NOTE:\*\*** If you're unable to run the Windows Installer for some reason, there's also a zip file available that can be used to install PhoneGap Desktop manually. Download the [zip file for the latest release](<https://github.com/phonegap/phonegap-app-desktop/releases>) and follow the instructions in the README and INSTALL files within the downloaded zip.

1. Double click the downloaded file to run the installer. You will be prompted with the PhoneGap Desktop Setup Wizard:



3. Select the desired destination for the application and click *Next*:



4. Select the desired location for the shortcut and click *Next*:





7. Next simply open the application and proceed to next step below where you will install the PhoneGap Developer App to your mobile device for previewing the apps you build.

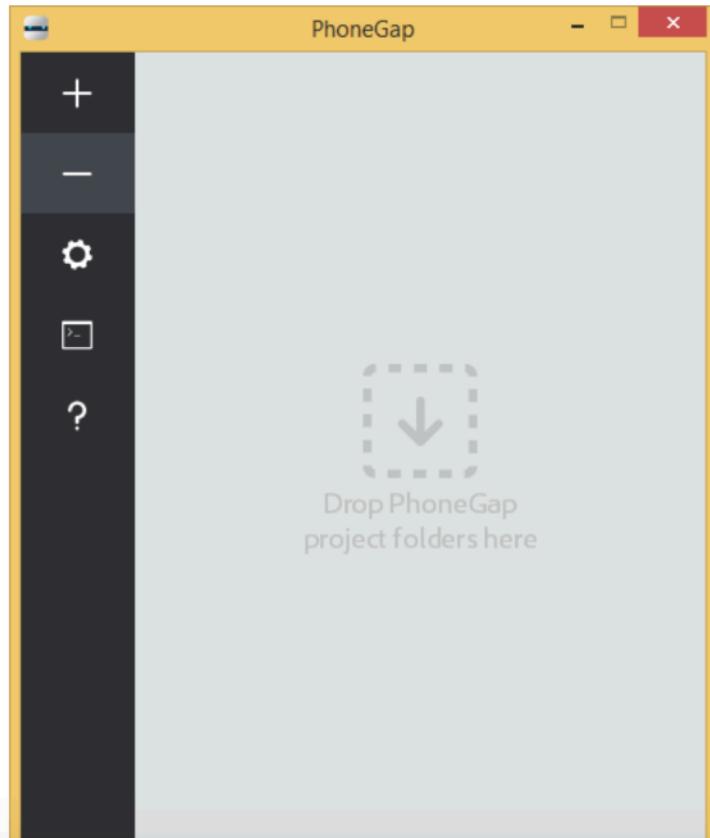
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# **Install Phonegap Mobile App (For testing on real phone)**

[Docs Home](#)[GETTING STARTED](#)[STEP 1: INSTALL PHONEGAP](#)[STEP 2: INSTALL MOBILE APP](#)[STEP 3: CREATE YOUR APP](#)[STEP 4: PREVIEW YOUR APP](#)[STEP 5: GOING FURTHER](#)[TUTORIALS](#)[REFERENCES](#)[PHONEGAP BUILD](#)

English ▾

## Step 2: Install Mobile App

The [PhoneGap Developer App](#) is a mobile app that runs on devices and allows you to preview and test the PhoneGap mobile apps you build across platforms without additional platform SDK setup. It automatically provides access to the PhoneGap core APIs providing instant access to the native device features without having to install any plugins or compile anything locally. It's meant to provide an easy way for developers to get started creating and testing their PhoneGap applications quickly with minimal setup.

### Install PhoneGap Developer

1. Locate the free PhoneGap Developer app from one of the following supported app marketplaces and install it to your mobile device:

- [Google Play](#)
- [Windows Phone Store](#)
- ~iTunes~ Currently not available but you can still build it yourself!

2. Once installed, tap the PhoneGap Developer app icon from your home screen to open it:



2

## Install our mobile app

The PhoneGap Developer app is available for multiple platforms, and will get you running your PhoneGap project on your mobile device without code-signing or compiling.

You will pair this mobile app to the desktop app in step 4 to preview your new app.

**Due to Apple guidelines, the PhoneGap Developer App has been removed from the iOS App Store. New users will be unable to download. No impact to Android or Windows versions.**

 Read our [guide on installing the mobile app](#) for step-by-step instructions.

Download for:

[Android](#)

FROM GOOGLE PLAY

[Windows](#)

FROM THE WINDOWS STORE



# PhoneGap Developer



Adobe Productivity

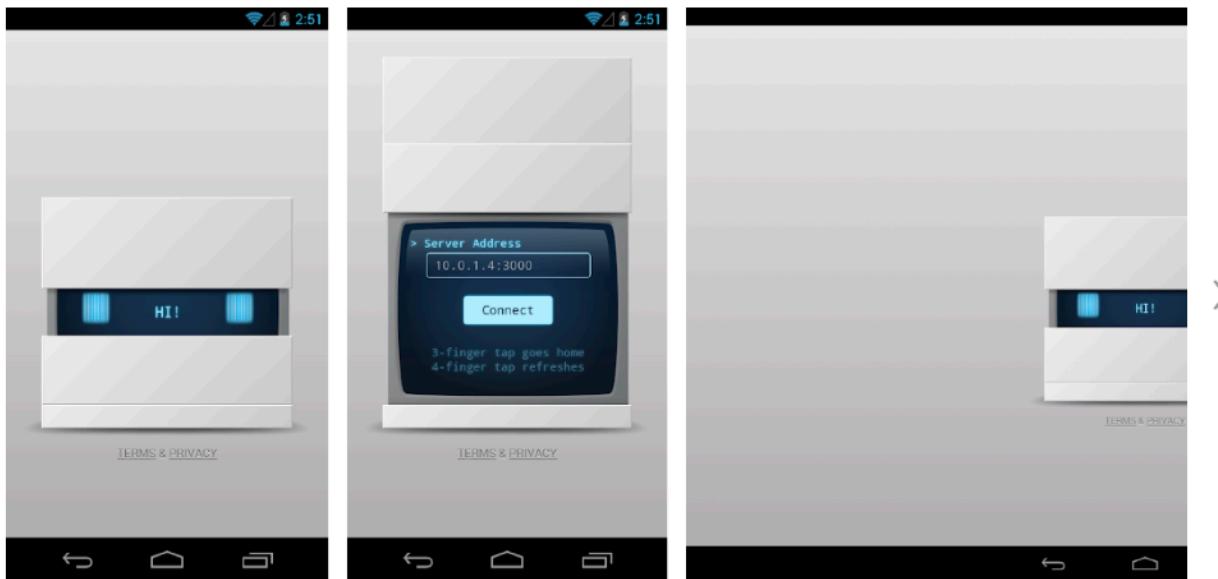
★★★★★ 3,324

3+

⚠ You don't have any devices.

Add to Wishlist

Install



VERSIONS.



on installing the mobile app for step-by-step instructions.

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3

## Create your new PhoneGap app

To begin, open the PhoneGap Desktop app (that you installed in step 1), and create a new project.

For full details on [using our desktop app](#), go to our docs.



## 4 Preview your new app on your device

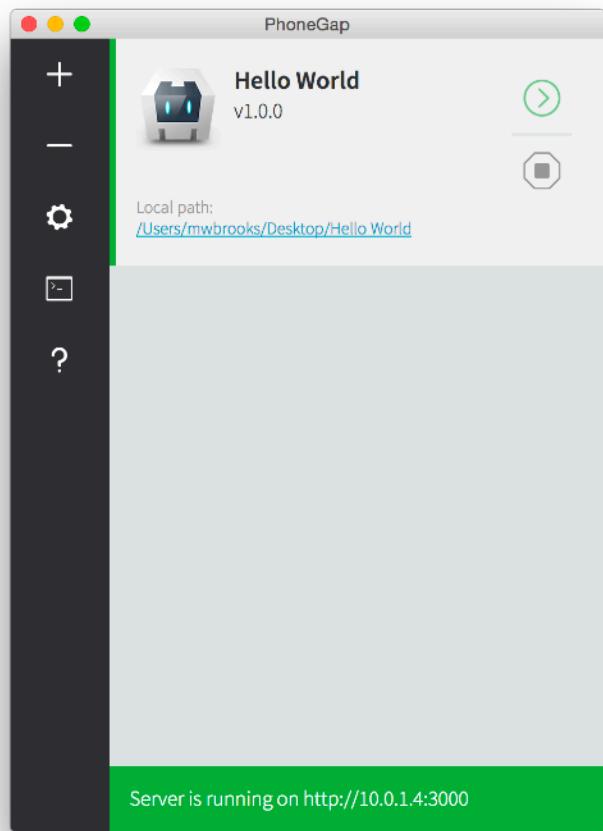
This is where things get real!

You'll need to connect the PhoneGap Developer app you installed in step 2 with the PhoneGap Desktop app you got running in step 3.

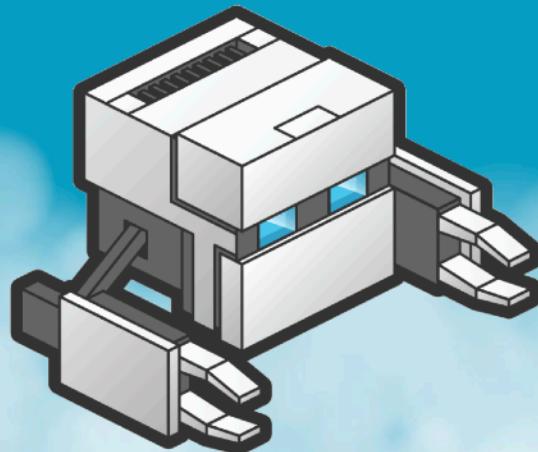
The PhoneGap Desktop app starts a small web server to host your project and once connected to that web server, the PhoneGap Developer app runs your project on your mobile device. Cool, right?

 The [instructions to pair the Desktop and Developer apps](#) are in our docs.





**3** Install PhoneGap via [build.phonegap.com](http://build.phonegap.com)

[Home](#)[Plugins](#)[Docs](#)[Blog](#)[FAQ](#)[Support](#)[Sign in](#)

# Adobe® PhoneGap™ Build

Package mobile apps in the cloud.

Take the pain out of developing mobile apps.

Simply upload your **HTML5**, **CSS**, and **JavaScript** assets to the **Adobe® PhoneGap™ Build** cloud service and we do the work of compiling for you.

# **Key Files for Building Your Cordova/ PhoneGap Hybrid App**

.HTML

.CSS

.JS

config.xml

# **config.xml**

```
album.html config.xml x
phonegap > demo > config.xml
1  <?xml version='1.0' encoding='utf-8'?>
2  <widget id="com.com5940.demo" version="1.0.0" xmlns="http://www.w3.org/ns/widgets" xmlns:gap="http://ph
3    <name>demo</name>
4    <description>
5      Hello World sample application that responds to the deviceready event.
6    </description>
7    <author email="support@phonegap.com" href="http://phonegap.com">
8      PhoneGap Team
9    </author>
10   <content src="index.html" />
11   <preference name="DisallowOverscroll" value="true" />
12   <preference name="android-minSdkVersion" value="14" />
13   <plugin name="cordova-plugin-battery-status" source="npm" spec="~1.1.1" />
14   <plugin name="cordova-plugin-camera" source="npm" spec="~2.1.1" />
15   <plugin name="cordova-plugin-media-capture" source="npm" spec="~1.2.0" />
16   <plugin name="cordova-plugin-console" source="npm" spec="~1.0.2" />
17   <plugin name="cordova-plugin-contacts" source="npm" spec="~2.0.1" />
18   <plugin name="cordova-plugin-device" source="npm" spec="~1.1.1" />
19   <plugin name="cordova-plugin-device-motion" source="npm" spec="~1.2.0" />
20   <plugin name="cordova-plugin-device-orientation" source="npm" spec="~1.0.2" />
21   <plugin name="cordova-plugin-dialogs" source="npm" spec="~1.2.0" />
22   <plugin name="cordova-plugin-file" source="npm" spec="~4.1.1" />
23   <plugin name="cordova-plugin-file-transfer" source="npm" spec="~1.5.0" />
24   <plugin name="cordova-plugin-geolocation" source="npm" spec="~2.1.0" />
25   <plugin name="cordova-plugin-globalization" source="npm" spec="~1.0.3" />
26   <plugin name="cordova-plugin-inappbrowser" source="npm" spec="~1.3.0" />
27   <plugin name="cordova-plugin-media" source="npm" spec="~2.2.0" />
28   <plugin name="cordova-plugin-network-information" source="npm" spec="~1.2.0" />
29   <plugin name="cordova-plugin-splashscreen" source="npm" spec="~3.2.1" />
```

# **PhoneGap Device Plugin APIs**

[Docs Home](#)[GETTING STARTED](#)[TUTORIALS](#)[REFERENCES](#)[PHONEGAP BROWSER SUPPORT](#)[PHONEGAP DESKTOP APP](#)[PHONEGAP DEVELOPER APP](#)[PHONEGAP CLI](#)[PLUGIN APIs](#)[PHONEGAP BUILD](#)

English ▾

## Plugin APIs

### Core Plugins

The most current version of the Cordova Core Plugin APIs are found in their respective GitHub repositories linked to below:

- [Battery Status](#)
- [Camera](#)
- [Contacts](#)
- [Device Info](#)
- [Device Motion \(accelerometer\)](#)
- [Device Orientation \(compass\)](#)
- [Dialogs \(notification\)](#)
- [File](#)

<http://docs.phonegap.com/References/plugin-apis/>

## Add Plugins

You can modify the default generated app to take advantage of standard web technologies, but for the app to access device-level features, you need to add plugins.

A *plugin* exposes a Javascript API for native SDK functionality. Plugins are typically hosted on npm and you can search for them on the [plugin search page](#). Some key APIs are provided by the Apache Cordova open source project and these are referred to as [Core Plugin APIs](#). You can also use the CLI to launch the search page:

```
$ cordova plugin search camera
```

To add and save the camera plugin to [config.xml](#) and [package.json](#), we will specify the npm package name for the camera plugin:

```
$ cordova plugin add cordova-plugin-camera
Fetching plugin "cordova-plugin-camera@~2.1.0" via npm
Installing "cordova-plugin-camera" for android
Installing "cordova-plugin-camera" for ios
```

Plugins can also be added using a directory or a git repo.

**NOTE:** The CLI adds plugin code as appropriate for each platform. If you want to develop with lower-level shell tools or platform SDKs as discussed in the [Overview](#), you need to run the Plugman utility to add plugins separately for each platform. (For more information, see [Using Plugman to Manage Plugins](#).)

Use `plugin ls` (or `plugin list`, or `plugin` by itself) to view currently installed plugins. Each displays

```
(base) YSs-MacBook-Pro:phonegap yssuen$ ls
demo    demo2
(base) YSs-MacBook-Pro:phonegap yssuen$ cd demo
(base) YSs-MacBook-Pro:demo yssuen$ cordova plugin ls
cordova-plugin-battery-status 1.1.2 "Battery"
cordova-plugin-camera 2.1.1 "Camera"
cordova-plugin-console 1.0.7 "Console"
cordova-plugin-contacts 2.0.1 "Contacts"
cordova-plugin-device 1.1.7 "Device"
cordova-plugin-device-motion 1.2.5 "Device Motion"
cordova-plugin-device-orientation 1.0.7 "Device Orientation"
cordova-plugin-dialogs 1.2.1 "Notification"
cordova-plugin-file 6.0.2 "File"
cordova-plugin-file-transfer 1.5.1 "File Transfer"
cordova-plugin-geolocation 2.1.0 "Geolocation"
cordova-plugin-globalization 1.0.9 "Globalization"
cordova-plugin-inappbrowser 1.3.0 "InAppBrowser"
cordova-plugin-media 2.2.0 "Media"
cordova-plugin-media-capture 1.2.0 "Capture"
cordova-plugin-network-information 1.2.1 "Network Information"
cordova-plugin-splashscreen 3.2.2 "Splashscreen"
cordova-plugin-statusbar 2.1.3 "StatusBar"
cordova-plugin-vibration 2.1.6 "Vibration"
cordova-plugin-whitelist 1.2.2 "Whitelist"
(base) YSs-MacBook-Pro:demo yssuen$ █
```

# **Icon and Image Generator**

# Icons and Splash Screens

This section shows how to configure an app's icon and optional splash screen for various platforms, both when working in the Cordova CLI (described in [The Command-Line Interface](#)) or using platform-specific SDK tools (detailed in the [Platform Guides](#)).

## Configuring Icons in the CLI

When working in the CLI, icon source files are located within various platform-specific subdirectories within the project's `www/res/icons` directory. Newly created projects come with a default set of Cordova icons for you to replace for the platforms you wish to target.

Android specifies icons for low, medium, high, and extra-high resolutions:

```
android/icon-36-ldpi.png  
android/icon-48-mdpi.png  
android/icon-72-hdpi.png  
android/icon-96-xhdpi.png
```

The iOS platform specifies 72-pixel-square icons for iPads, and 57-pixel icons for iPhones and iPods, with high-resolution 2x variants for retina displays:

```
ios/icon-57-2x.png  
ios/icon-57.png  
ios/icon-72-2x.png  
ios/icon-72.png
```

Android specifies both portrait- and landscape-oriented splash screen and extra-high resolutions:

```
android/screen-hdpi-landscape.png  
android/screen-hdpi-portrait.png  
android/screen-ldpi-landscape.png  
android/screen-ldpi-portrait.png  
android/screen-mdpi-landscape.png  
android/screen-mdpi-portrait.png  
android/screen-xhdpi-landscape.png  
android/screen-xhdpi-portrait.png
```

The iOS platform specifies variants for iPhone/iPod and iPad, with various different orientations. The `568h` file applies to the iPhone 5's taller screen.

```
ios/screen-ipad-landscape-2x.png  
ios/screen-ipad-landscape.png  
ios/screen-ipad-portrait-2x.png  
ios/screen-ipad-portrait.png  
ios/screen-iphone-landscape-2x.png  
ios/screen-iphone-landscape.png  
ios/screen-iphone-portrait-2x.png  
ios/screen-iphone-portrait.png  
ios/screen-iphone-portrait-568h-2x.png
```

Choose an icon to upload:

No file chosen

Choose an optional splash screen background to upload:

No file chosen

...or choose a background color:  (as per CSS: #rrggbbaa/#rgb, rgba()/hsb()/hsl(), color name)

Fit type:  Fit  Stretch  Fill (how to fit the splash screen; Fit and Fill retain aspect ratio)

App icon overlay:  (the app icon will overlay the splash screen)

App icon ratio:  % (sets the coverage ratio, retaining aspect ratio)

<https://pgicons.abiro.com/>

Meet npm Pro: unlimited public & private packages + package-based permissions. [Learn more »](#)

## splashicon-generator

0.2.12 • Public • Published 3 years ago

[Readme](#)[Explore BETA](#)[6 Dependencies](#)[2 Dependents](#)[19 Versions](#)[Donate](#) [PayPal](#)

# splashicon-generator

Automatic icon and splash screen resizing for any **Cordova** based applications including **PhoneGap**. It uses an `icon.png` and a `splash.png` to automatically resize and copy it for all the platforms your project supports (currently works with **iOS**, **Android** and **Windows Phone 8**).

### Install

```
> npm i splashicon-generator
```

### Weekly Downloads

91



Version

License

<https://www.npmjs.com/package/splashicon-generator>

## Installation

```
$ npm install splashicon-generator -g
```

---

## Usage

Create an `icon.png` and a `splash.png` file in a 'model' folder under the root folder of your cordova project and run:

```
$ splashicon-generator
```

You can change the default folder for the base images using the argument `imagespath`.

Consider the following example:

```
$ splashicon-generator --imagespath="project/assets"
```

This will look for an `icon.png` and a `splash.png` in the **project/assets** folder under the root folder of your cordova project.

## Model

Use the Photoshop templates provided in the model folder to generate the PNG files.

Bd Apps Plugins Docs Blog FAQ Support

PG Build App

no description

Install

Update code Rebuild all Debug

Builds Plugins Collaborators Settings

App ID 1768966	Version n_a	Owned by formgetdev@gmail.com	PhoneGap (iOS / Android / Windows) cli-5.2.0 (39.1 / 41.1 / 38.1)	Source zip package	Last built (6) 1 minute
-------------------	----------------	----------------------------------	--	-----------------------	----------------------------

iOS No key selected Rebuild Log Error No key selected Rebuild Log apk

Windows No publisher ID s... Rebuild Log xap

FormGet Online Form Builder

# **Front-end UI Frameworks That Support Cordova/PhoneGap**

# Bootstrap

Build responsive, mobile-first projects on the web with the world's most popular front-end component library.

Bootstrap is an open source toolkit for developing with HTML, CSS, and JS. Quickly prototype your ideas or build your entire app with our Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful plugins built on jQuery.



<https://getbootstrap.com/>

# Components

Over a dozen reusable components built to provide iconography, dropdowns, input groups, navigation, alerts, and much more.



Bring your team together with Slack, the collaboration hub for work.  
ads via Carbon

## Glyphicon

### Available glyphs

Includes over 250 glyphs in font format from the Glyphicon Halflings set. [Glyphicons](#) Halflings are normally not available for free, but their creator has made them available for Bootstrap free of cost. As a thank you, we only ask that you include a link back to [Glyphicons](#) whenever possible.

glyphicon glyphicon-asterisk	glyphicon glyphicon-plus	glyphicon glyphicon-euro	glyphicon glyphicon-eur	glyphicon glyphicon-minus	glyphicon glyphicon-cloud	glyphicon glyphicon-envelope	glyphicon glyphicon-pencil

glyphicon glyphicon-list	glyphicon glyphicon-music	glyphicon glyphicon-search	glyphicon glyphicon-heart	glyphicon glyphicon-star	glyphicon glyphicon-star-empty	glyphicon glyphicon-user	glyphicon glyphicon-film

Search...

Glyphicon  
Dropdowns  
Button groups  
Button dropdowns  
Input groups  
Navs  
Navbar  
Breadcrumbs  
Pagination  
Labels  
Badges  
Jumbotron

<https://getbootstrap.com/docs/3.4/components/>

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# Material Design for Bootstrap 4

Bootstrap Material Design UI KIT



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500+ material UI elements, 600+ material icons, 77+ CSS animations, 9+ useful plugins, SASS files, templates, tutorials and many more.

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Trusted by 1,500,000+ developers & designers

# Bootstrap Components

A visual guide to components for the latest Bootstrap 4 and Material Design

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START TUTORIAL 

## Buttons

Basic buttons

PRIMARY

DEFAULT

SECONDARY

SUCCESS

INFO

WARNING

DANGER

- Buttons
- Social buttons
- Cards
- E-commerce
- Inputs
- Blog components
- Navbars
- Forms
- Progress bars
- Tabs and pills
- Miscellaneous
- More content



<https://mdbootstrap.com/docs/jquery/components/demo/>



<https://mmenujs.com/>

# mmenu

Empower your website with a mobile menu that has the true native app menu experience with sliding submenus.

[Download](#)

mmenu.js

[Learn mmenu](#)

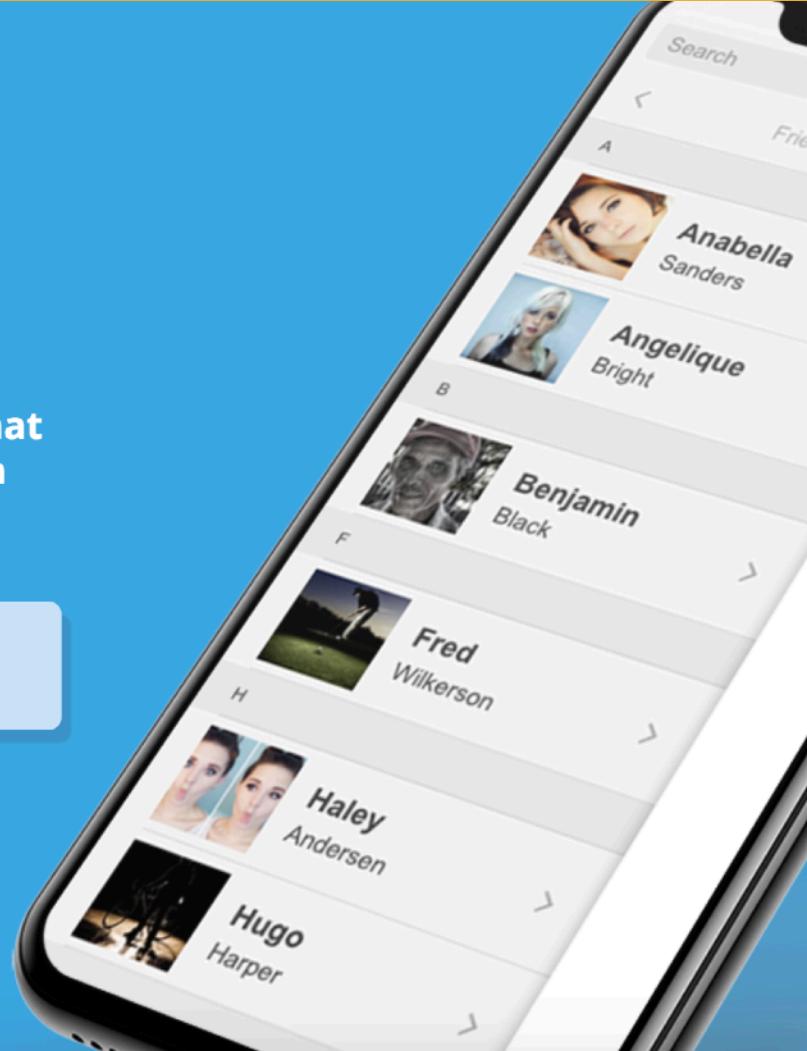
Read the docs

[WordPress plugin](#)

[mmenu light](#)

[Sticky headers](#)

[Hamburgers](#)





# mmenu light

## Small and lightweight

Mmenu light is the extremely small and lightweight alternative to the mmenu.js plugin. It creates a beautiful, intuitive off-canvas menu for mobile websites and web-apps, with the exact look and feel of the mmenu.js plugin.

### No concessions

If you're in need of a simple and small mobile menu, but don't want to make any concessions to the mmenu look and feel, give the mmenu light plugin a try.

### Really, really small

With a 6kb (minified) .js file and a 6kb (minified) .css file, you could not ask for a smaller disk footprint.

<https://github.com/FrDH/mmenu-light>



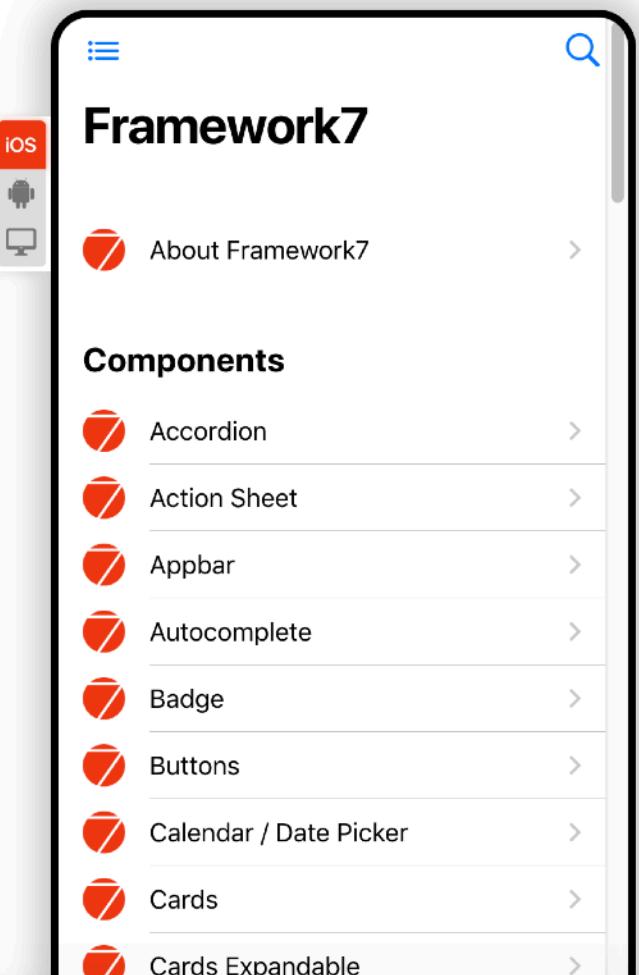
**Build full featured iOS,  
Android & Desktop apps**

 **Get Started**

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<https://framework7.io/>

MIT Licensed, v5.3.2 released on January 18, 2020



The screenshot shows a mobile application interface for Framework7. At the top, there's a navigation bar with a menu icon (three horizontal lines) and a search icon (magnifying glass). Below the navigation bar is a header with the text "Framework7". On the left side of the main content area, there's a vertical sidebar with icons for "ios" (red), "Android" (gray), and "Desktop" (light blue). The main content area has a section titled "Components" with a list of items:

- About Framework7
- Accordion
- Action Sheet
- Appbar
- Autocomplete
- Badge
- Buttons
- Calendar / Date Picker
- Cards
- Cards Expandable

**Sponsors**

# Kitchen Sink

[Source Code](#)[Running Locally](#)

Framework7 Kitchen Sink is a great place to get started, it has a lot of examples for all Framework7 components and covers most of aspects.

It is recommended to use Kitchen Sink as a reference during development.

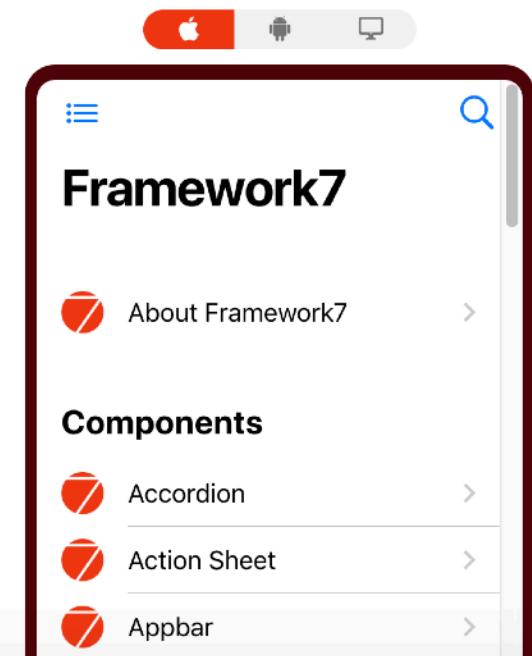
## Source Code

Core Kitchen Sink source code is located at [GitHub repository](#)

## Running Locally

To run Core Kitchen Sink locally we need:

1. Download and unzip [Framework7 GitHub repository](#) to a local folder
2. Install [Node.js](#) (if not installed)



<https://framework7.io/docs/kitchen-sink.html>

# The most beautiful and efficient way to develop HTML5 hybrid and mobile web apps.



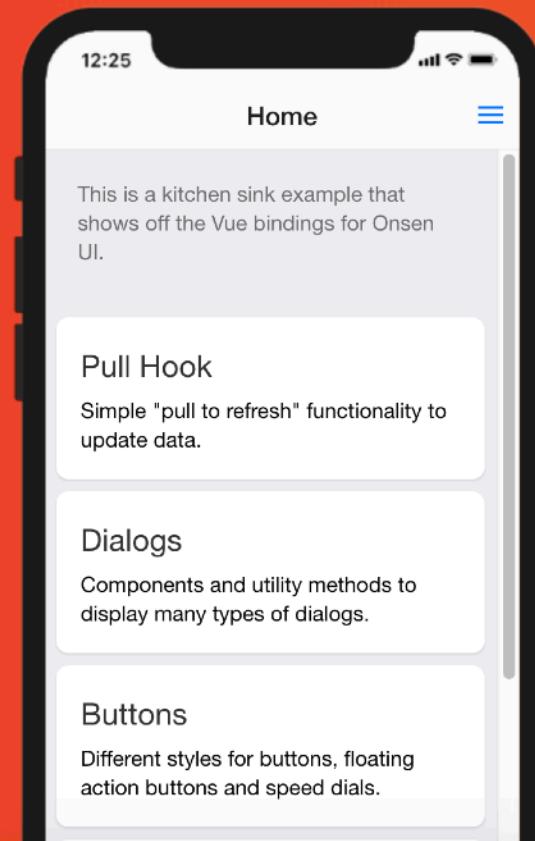
Change View

[GET STARTED](#)[DOWNLOAD](#)

2.10.10

Star 7,808

Libraries for framework users

<https://onsen.io/>

## Carousel

## carousel

Tutorial

#### See Also

### Attributes

## Properties

## Methods

## Events

### Conditional

if

## Control

### pull-hook

### segment

SEARCHING FOR DISEASES

111

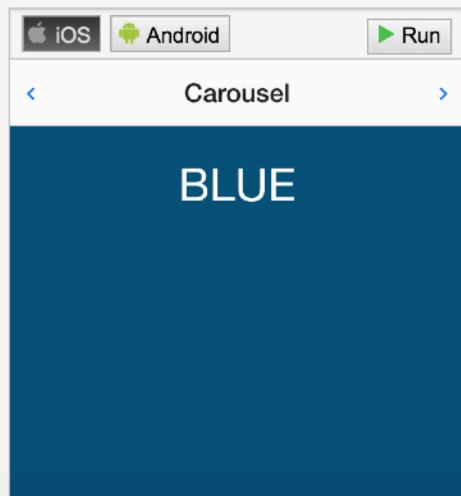
## Dialog

## ons-carousel

js JavaScript Core

Carousel component. A carousel can be used to display several items in the same space. The component supports displaying content both horizontally and vertically. The user can scroll through the items by dragging and it can also be controlled programmatically.

## Tutorial



```
1 <ons-page>
2   <ons-toolbar>
3     <div class="left">
4       <ons-toolbar-button onclick="prev()">
5         <ons-icon icon="md-chevron-left"></ons-icon>
6       </ons-toolbar-button>
7     </div>
8     <div class="center">Carousel</div>
9     <div class="right">
10      <ons-toolbar-button onclick="next()">
11        <ons-icon icon="md-chevron-right"></ons-icon>
12      </ons-toolbar-button>
13    </div>
14  </ons-toolbar>
```

HTML

```
1 - var prev = Function() {  
2     var carousel = document.getElementById('carousel');  
3     carousel.prev();
```

<https://onsen.io/v2/api/js/ons-carousel.html>

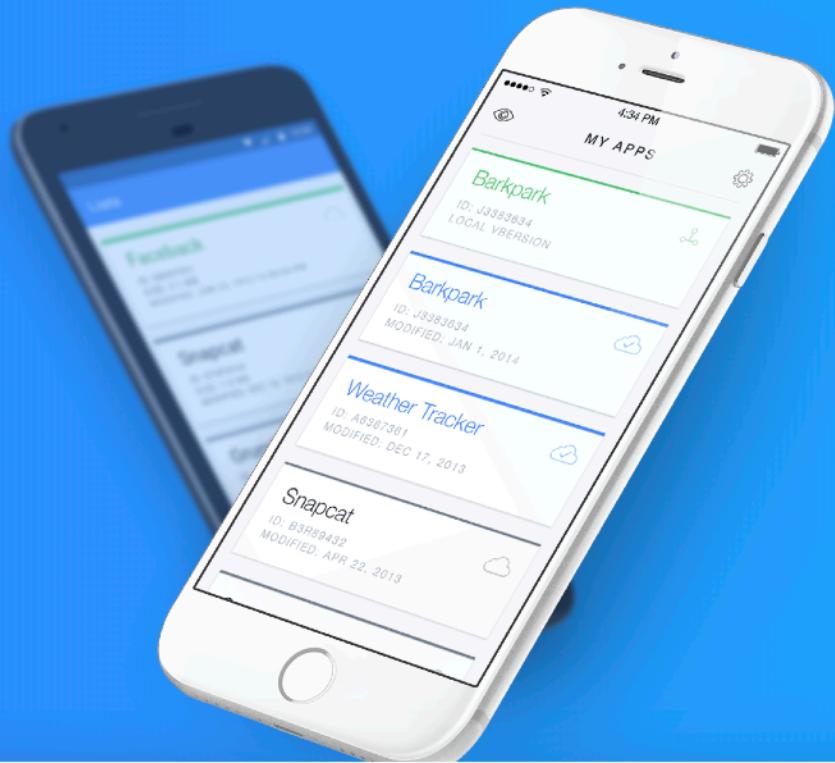
[Platform](#) ▾[Developers](#) ▾[Enterprise](#) ▾[Pricing](#)[Blog](#)[Log in](#)[Get Started](#)

# The top open source framework for building amazing mobile apps.

Ionic is the beautiful, free and open source mobile SDK for developing native and progressive web apps with ease.

[Get started](#)[Explore the docs](#)

v4.10.0 / 2019-09-27 / MIT Licensed / [Release Notes](#)



<https://ionicframework.com/framework>

JS JavaScript

## ACTION SHEET

ion-action-sheet

ion-action-sheet-controller

## ALERT

ion-alert

ion-alert-controller

## BADGE

ion-badge

## BUTTON

ion-button

ion-ripple-effect

## CARD

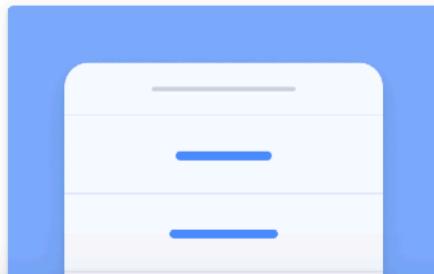
ion-card

ion-card-content

ion-card-header

# UI Components

Ionic apps are made of high-level building blocks called Components, which allow you to quickly construct the UI for your app. Ionic comes stock with a number of components, including cards, lists, and tabs. Once you're familiar with the basics, refer to the [API Index](#) for a complete list of each component and sub-component.



**Alert**

Alerts are a great way to offer the user the ability to choose a specific action or list of actions.

**Badge**

Badges are a small component that typically communicate a numerical value to the user.

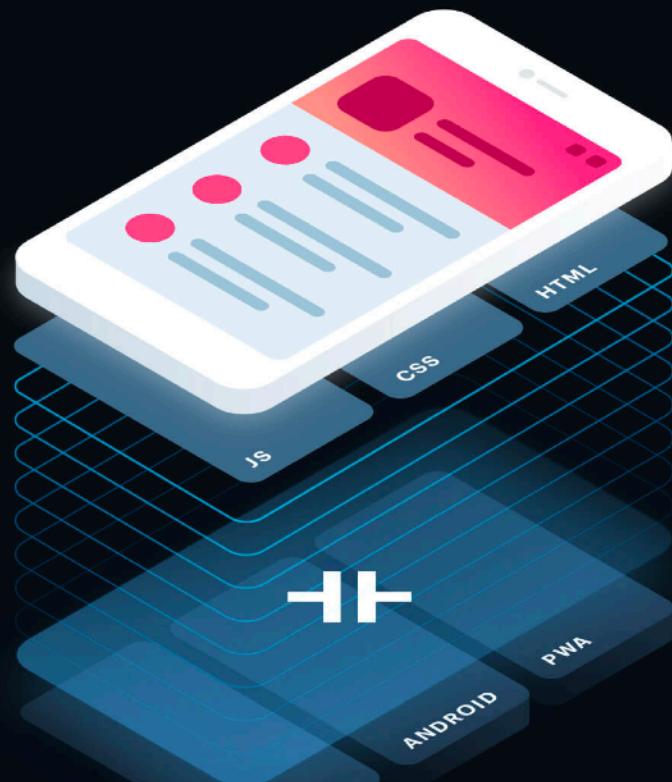
<https://framework7.io/docs/kitchen-sink.html>

# The Native Bridge for Cross-Platform Web Apps

Invoke Native SDKs on iOS, Android, Electron, and the Web with one code base. Optimized for Ionic Framework apps, or use with any web app framework.

[Get Started](#)

## SUPPORTS



<https://capacitor.ionicframework.com/>

# **Applications Developed in PhoneGap/Cordova**

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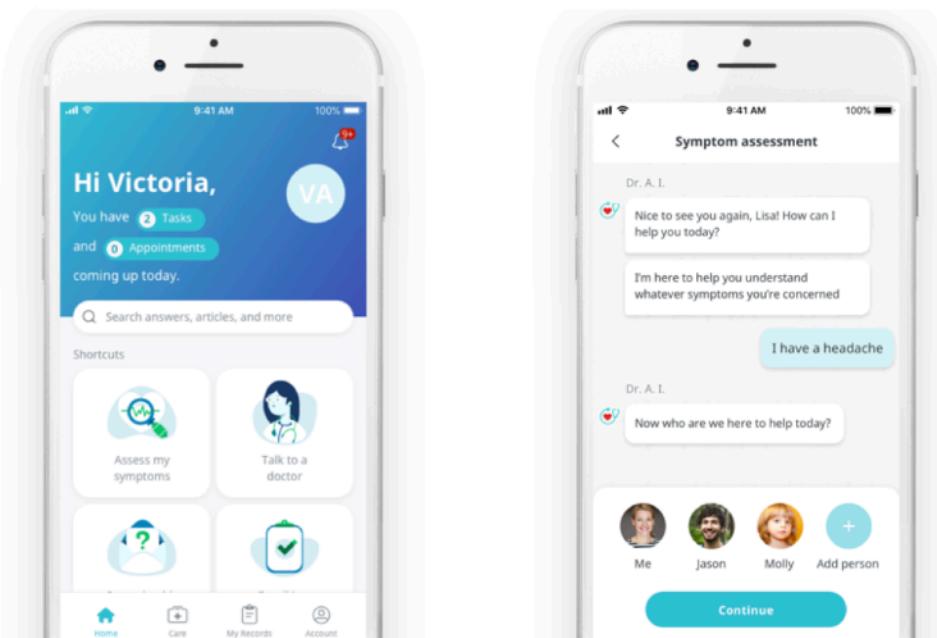
App Showcase

Blog



## HealthTap - find doctors and free answers

by HealthTap | Added 4 Aug 2012

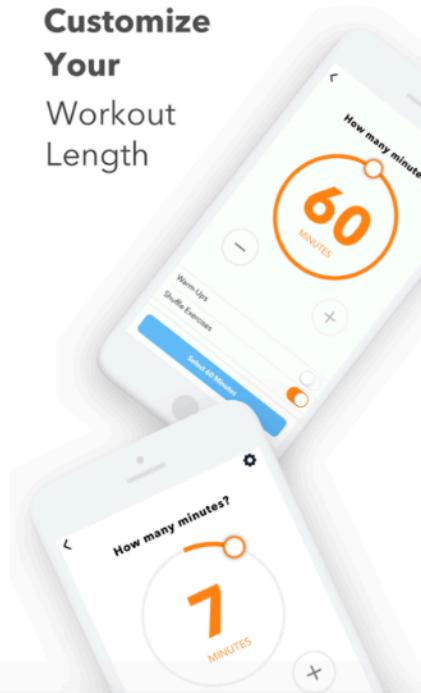




## Sworkit

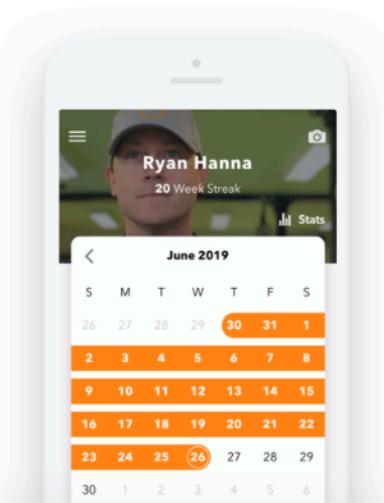
by [Nexcercise Inc](#) | Added 10 Jun 2015

**Customize  
Your  
Workout  
Length**



## Track Your Performance

Help yourself stay accountable with calendar streaks



# **Platform Dependent Native Application Development Tools**



# **High Performance Cross-Platform Native App Development Tools**



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Using Visual Studio & Azure? Take a quick, 5 minute survey to help us make Visual Studio and its Azure-related experiences better.

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# Xamarin

Free. Cross-platform. Open source.

An app platform for building Android and iOS apps with .NET  
and C#.

Get Started

<https://dotnet.microsoft.com/apps/xamarin>

Feedback

# Loved by developers, trusted by enterprise

Businesses worldwide, spanning all industries, use Xamarin and .NET to build performant native mobile apps. See mobile apps that other developers have created using Xamarin, .NET, and Visual Studio.

Xamarin Customer Showcase



Thanks for attending Flutter Interact 2019—you can still watch the [session recordings!](#)  
Flutter 1.12 is live! Check out the [latest announcement](#) and see what's new on the site.

One week until the Flutter Clock Challenge closes. [Enter now!](#)



<https://flutter.dev/>

[Docs](#)[Showcase](#)[Community](#)[Get started](#)

Made by

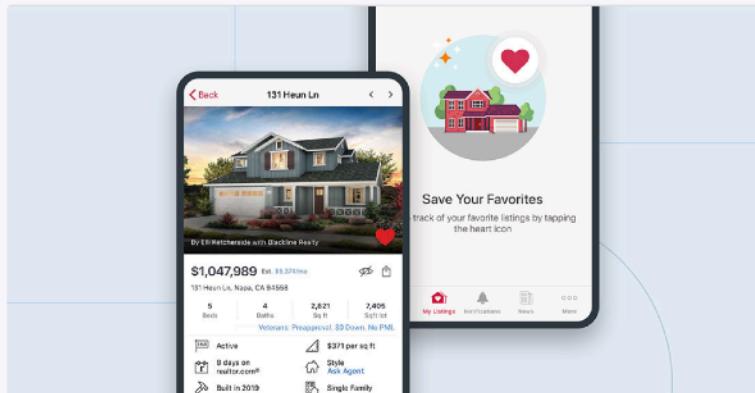
Flutter is Google's UI toolkit for building beautiful, natively compiled applications for [mobile](#), [web](#), and [desktop](#) from a single codebase.

[Get started](#) [Watch video](#)

Coming from another platform? Docs: [iOS](#), [Android](#), [Web](#), [React Native](#),  
[Xamarin](#).

# Apps take flight with Flutter

See how customers are using Flutter to make beautiful apps in record time



realtor.com®

With listings updated in real time, Realtor.com's award-winning app helps users find the home of their dreams.



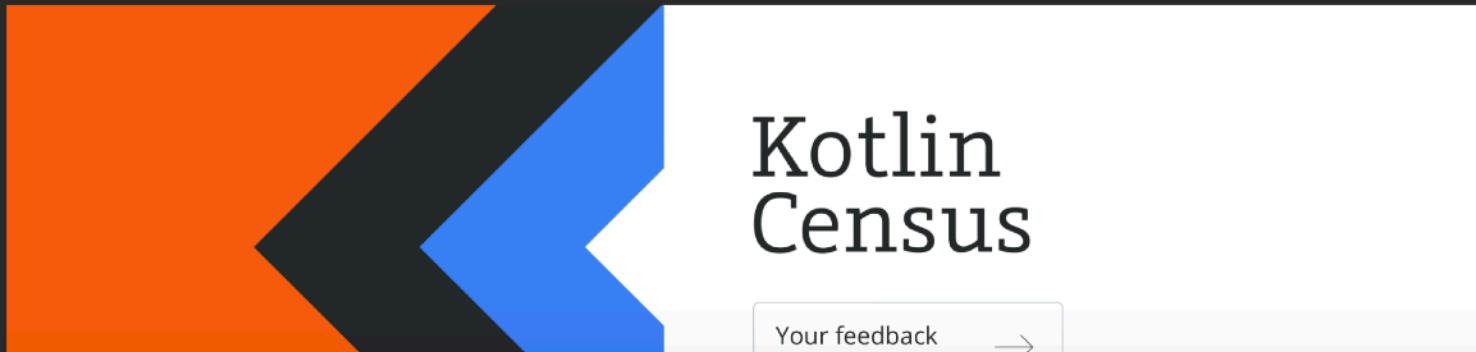
Tencent 腾讯

Tencent uses Flutter throughout the company for several apps including AITeacher, Now Live, K12, Mr. Translator, QiDian, and

# Programming language for mobile cross-platform and web development, server-side, native and data science. Open source forever

[Getting started](#)[Try in the IDE](#)[Latest from Kotlin](#)

On 7 May 2019, Google announced that the Kotlin programming language is now its preferred language for Android app developers.<sup>[5]</sup> Since the release of Android Studio 3.0 in October 2017, Kotlin has been included as an alternative to the standard Java compiler. The Android Kotlin compiler lets the user choose between targeting Java 6 or Java 8 compatible bytecode.



<https://kotlinlang.org/>

[Hide contents](#)

## iOS App with Kotlin/Native: Getting Started

- Getting Started
- Using Kotlin/Native
- Build Phase Script
- Gradle Build Script
- Necessary iOS Classes
- Adding a MKMapView to the Storyboard
- Creating the ViewController
- Using AppCode for Kotlin/Native



**Android & Kotlin Tutorials**



# iOS App with Kotlin/Native: Getting Started



In this tutorial, you'll build an iOS app using Kotlin/Native. You'll also take a look at the AppCode IDE from

# Applications Developed in Kotlin

## 1. Pinterest

The popular photo-sharing app, Pinterest is one of the biggest names that have used Kotlin for Android App Development. The brand officially moved from Java to Kotlin and showcased the benefits of the move at Droidcon NYC 2016.



## 2. Postmates

The on-demand food delivery app also recently shifted to Kotlin for its Android version of the mobile app. The reason for this switch from Java to Kotlin can be attributed to the fact that the language is famous for supporting high scalability and is known to be engineered around a fail-fast mechanism.

## 3. Evernote

The note-taking and task organization app also have integrated Kotlin in their Android client.

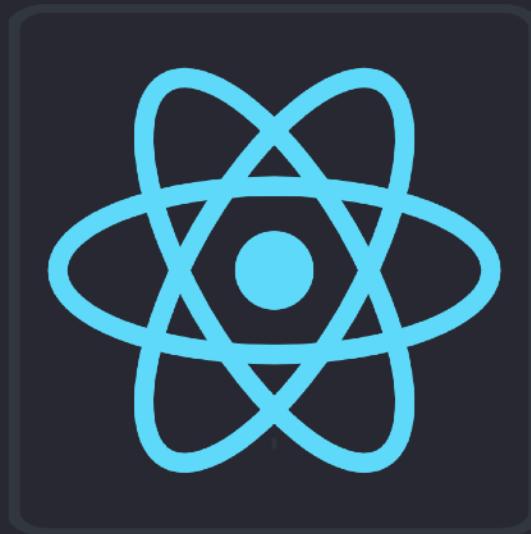


0.61

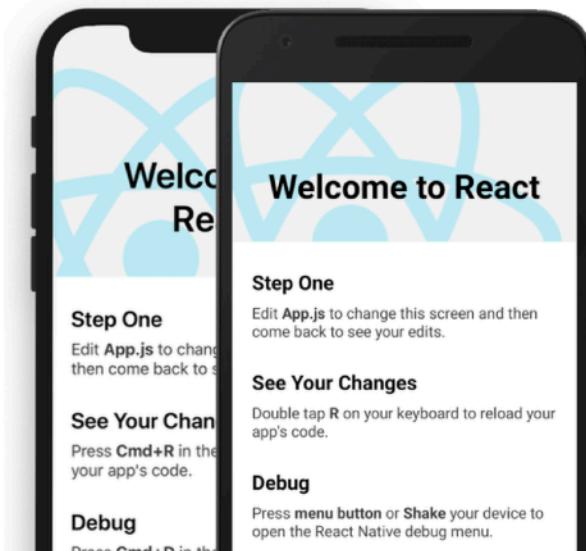
[Docs](#)[API](#)[Community](#)[Blog](#) Search[GitHub](#)[Follow @reactnative](#)[Star](#)

# React Native

Learn once, write anywhere.

[Get started](#)[Learn basics >](#)

<https://facebook.github.io/react-native/>



## Written in JavaScript—rendered with native code

React primitives render to native platform UI, meaning your app uses the same native platform

[API](#) [About](#) [Example](#)

## Create native apps for Android and iOS using React

React Native combines the best parts of native development with React, a best-in-class JavaScript library for building user interfaces.

**Use a little—or a lot.** You can use React Native today in your existing Android and iOS projects or you can create a whole new app from scratch.

```
import React from 'react';
import {Text, View} from 'react-native';
import {Header} from './Header';

const WelcomeScreen = () =>
  <View>
    <Header title="Welcome to React Native"/>
```

## Facebook Supported, Community Driven



Facebook released React Native in 2015 and has been maintaining it ever since.

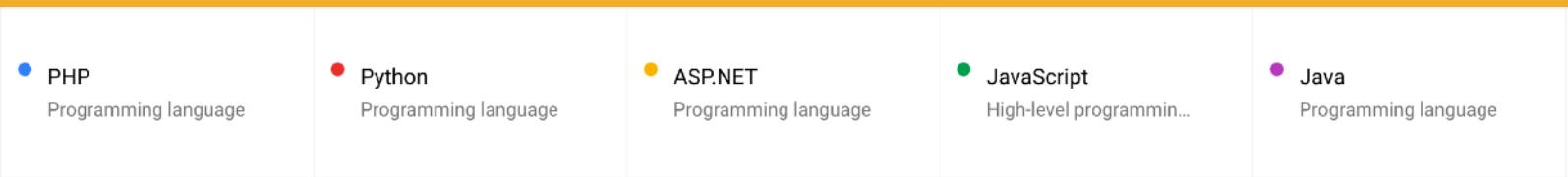
In 2018, React Native had the [2nd highest number](#) of contributors for any repository in GitHub. Today, React Native is supported by contributions from individuals and companies around the world including [Callstack](#), [Expo](#), [Infinite Red](#), [Microsoft](#), and [Software Mansion](#).

Our community is always shipping exciting new projects and exploring platforms beyond Android and iOS with repos like [React Native Windows](#) and [React Native Web](#).

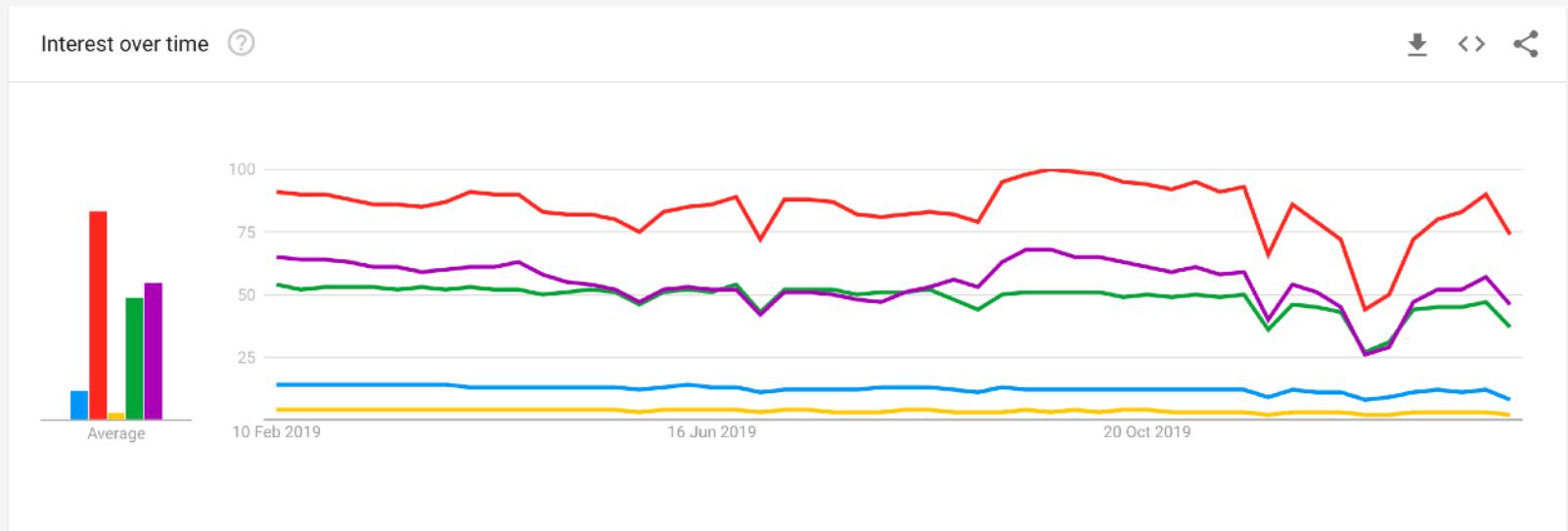
React Native is being used in thousands of apps, but it's likely you've already used it in one of these apps:



and [many more](#).



United States ▾ Past 12 months ▾ All categories ▾ Web Search ▾



# Programming Language Search Trend

Flask  
Web framework

Django  
Web framework

ASP.NET  
Programming language

Express.js  
Software

Spring Framework  
Topic

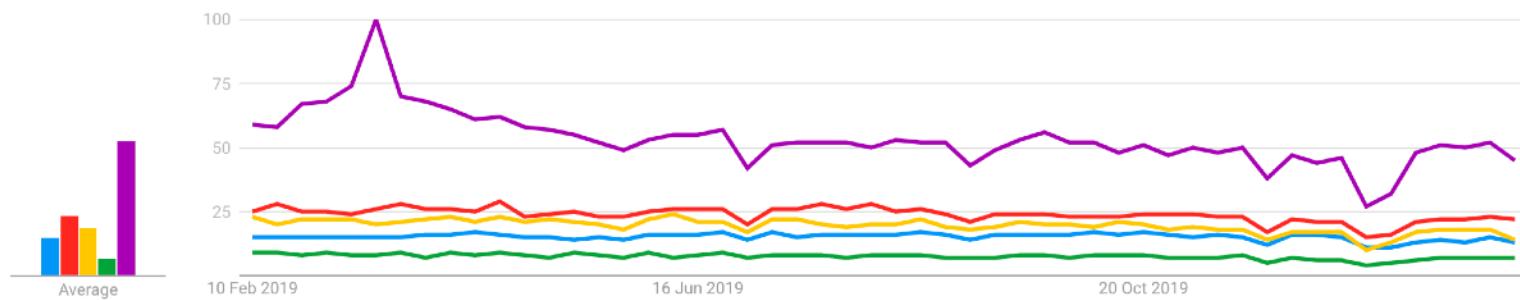
United States ▾

Past 12 months ▾

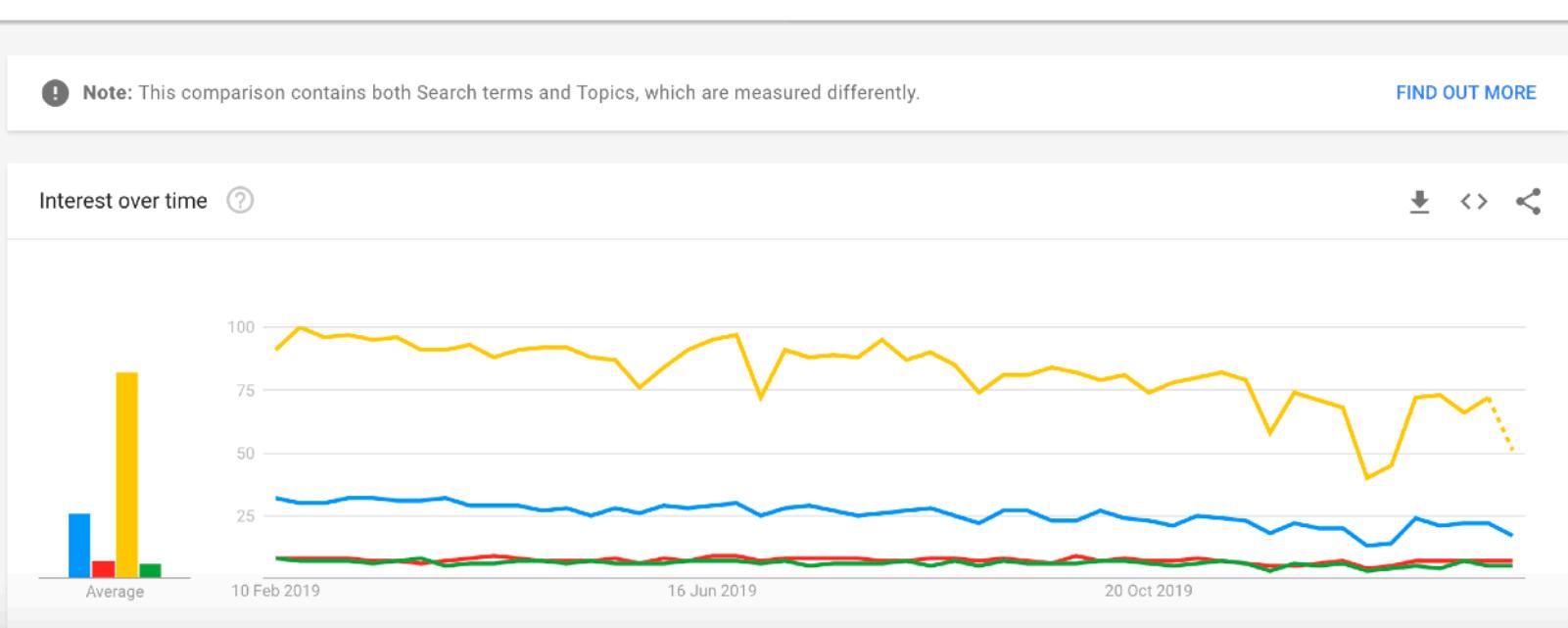
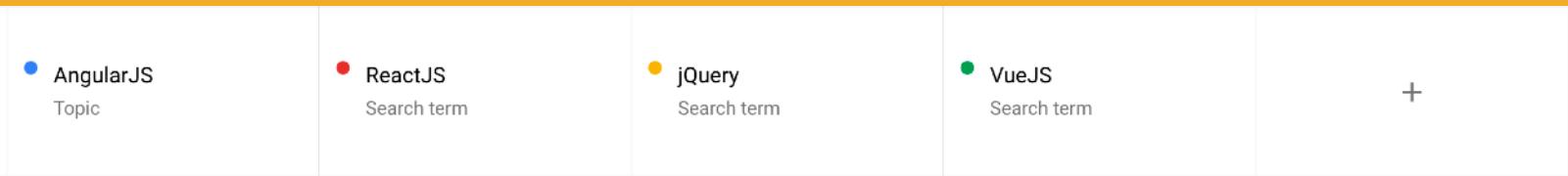
All categories ▾

Web Search ▾

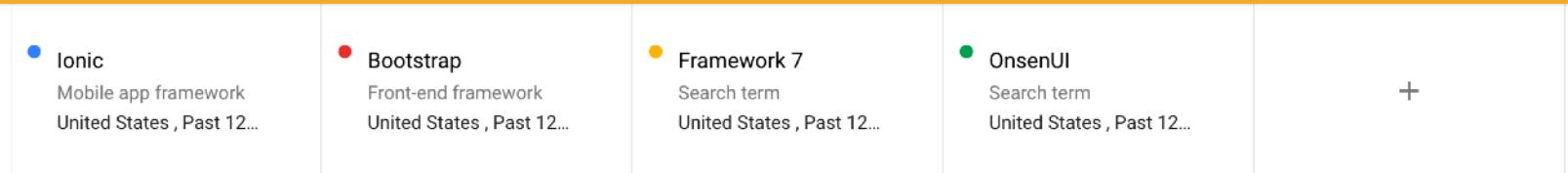
Interest over time ?



# Backend MVC Framework Search Trend



# Frontend JS Framework Search Trend

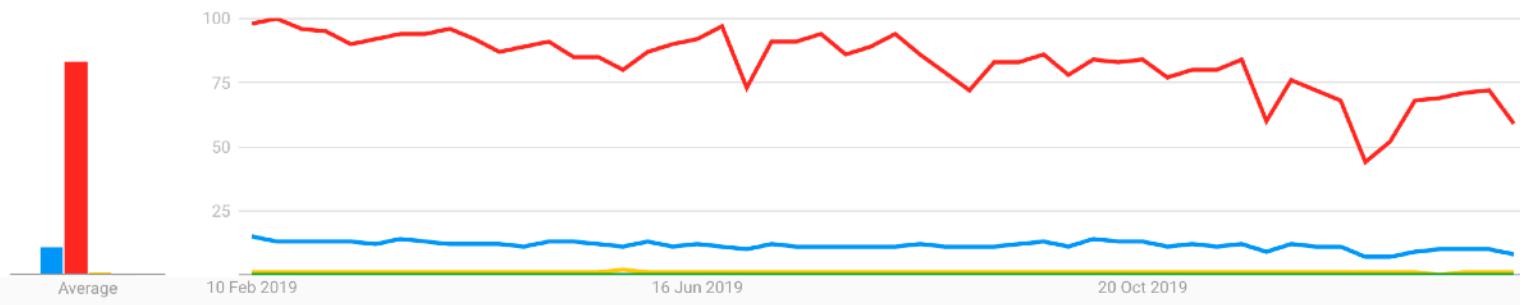


All categories ▾      Web Search ▾

⚠ Note: This comparison contains both Search terms and Topics, which are measured differently.

[FIND OUT MORE](#)

Interest over time ?



# JS UI Components Framework Search Trend

● Kotlin  
Programming language

● Flutter  
Software

● Apache Cordova  
System software

● React Native  
Search term

● Xamarin  
Company

United States ▾

Past 12 months ▾

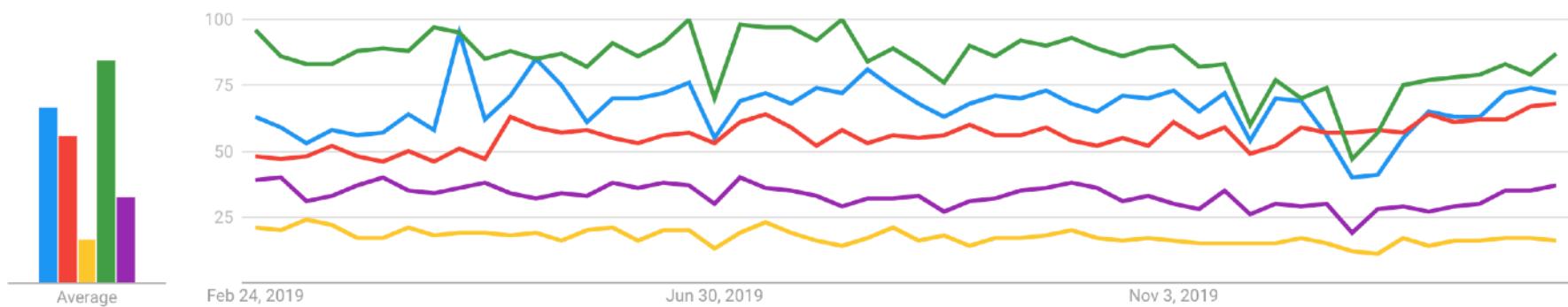
All categories ▾

Web Search ▾

! Note: This comparison contains both Search terms and Topics, which are measured differently.

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# Search Trend

# **Progressive Web App (PWA)**



# What are Progressive Web Apps (PWAs)?



# **Key Files for Building Your Progressive Web App (PWA)**

.HTML

.CSS

.JS  
+  
Service  
Worker JS  
Proxy Server

manifest  
.json

# **Let's See a Demo**



Sections

The Washington Post

*Democracy Dies in Darkness*

Save 50% today

Sign In

WashPost PR Blog

# The Washington Post introduces new Progressive Web App experience



Home



Share

By WashPostPR

May 20, 2016 at 5:40 a.m. GMT+8

At the Google I/O developer conference today, The Washington Post demonstrated a new high-performance web experience that allows stories to load immediately and features rich offline reading capabilities.

With Progressive Web App ([washingtonpost.com/pwa](https://washingtonpost.com/pwa)), The Post is testing a separate mobile web experience built with new technology that functions and performs like a native app. As the user engages with Post content, PWA downloads in the background creating frictionless, uninterrupted

Ad closed by  
Google

<https://www.washingtonpost.com/pwa/>



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# The Washington Post

February 3, 2020

Democracy Dies in Darkness

Edition: [U.S. & World](#) | [Regional](#)[In the News](#)   [Coronavirus](#)   [Turkey](#)   [Iowa caucuses](#)   [Iowa losers](#)   [Montana socialists](#)   [John Bolton](#)   [Land mines](#)   [SNL](#)   [Super Bowl ads](#)   [Halftime show](#)   [Chiefs-49ers](#)

## Application

Manifest

Service Workers

Clear storage

## Storage

Local Storage

Session Storage

## App Manifest

[desktop-notifications-manifest.json](#)

### Installability

Manifest start URL is not valid

Manifest 'display' property must be one of 'standalone', 'fullscreen', or 'm...

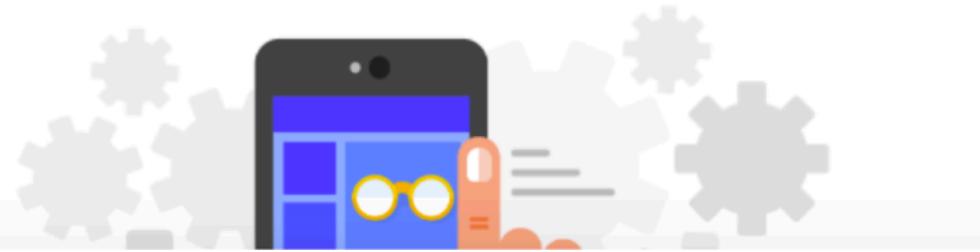
Manifest does not contain a suitable icon - PNG format of at least 144px i...

# 比App更好用的PWA，让小程序相形见绌的新标准

2018年03月21日 08:44 观察君2017



Progressive Web Apps，意为渐进式 Web App，它源自Google 在 2015 年推出的一个项目，旨在让 Web 网页通过 OS 层面的进程支持，具备类似原生 App 的使用体验。



<https://t.cj.sina.com.cn/articles/view/5824404251/15b295b1b001004wlh>



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语音播报



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太好用了

<https://www.ifanr.com/app/1243437>

# **ASSIGNMENT #3**

1. Use **Pingendo** to create the album of your your 2nd assignment and add **modal pop-up** window feature to it.
2. Make sure all the js, css, fonts, and image files are stored in the **local folders** under the **project folder** (You can do this assignment even without PhoneGap/Cordova). **No CDN**.
3. Instead of using Python Flask, use **jQuery** (similar to what you did last semester with your assignments) to **connect to** your **Airtable API** for fetching the JSON data into your **jQuery template variables** (e.g. \${your variable name}) like what you did with the Flask Jinja2 render\_template.
4. Place project files into the assignment 3 folder on github and provide a <username>.github.io demo of the finished site.
5. Submit your zip file to **build.phonegap.com** (optional).

**THANK YOU FOR YOUR TIME!**