Building the User Interface

Agenda

- Introduction

- Bootstrap JumpStart

- Using Angular & Bootstrap

- Material 2 Jump Start

- Using Angular & Material 2

- Using 3rd Party Components

Introduction

Global Styles

- Can be linked to app.component.html

- Can be registered in .angular-cli.json – styles section **prefered**

- style.css is your default global style sheet

```
"styles": [
"./node_modules/bootstrap/dist/css/bootstrap.min.css",
"styles.css"
],
```

External / Inline CSS

- Angular allows inline css as well as external css in Components

```
@Component({
selector: 'app-demos',
templateUrl: './demos.component.html',
styleUrls: ['./demos.component.css']
})
export class DemosComponent implements OnInit {
```

```
@Component({
selector: 'app-inline-style',
templateUrl: './inline-style.component.html',
styles: [`h1 {
text-decoration:underline;
}`]
})
export class InlineStyleComponent implements OnInit {
```

Class / Style Binding

- Class binding ist the process where an (additional) class will be bound if a funtion / pro

  evaluates to true

```
<div class="section">
<h4>Class Binding</h4>
<button class="myButton" [class.extraClass]="addClass">Call to Action</button>
</div>
```

```
<div class="section">
<h4>Style Binding</h4>
<button class="my-btn" [style.border]="addStyle ? '5px solid yellow' :
'none'">Call to Action 2</button>
</div>
```

View Encapsulation

Shadow DOM

- Allows style encapsulation by providing scoped styles to elements

- @moment only supported by
  - Chrome 53+
  - Safari 10+

- Emulation is default


```
@Component({
  selector: 'app-nested',
  templateUrl: './nested.component.html',
  styleUrls: ['./nested.component.css'],
  encapsulation: ViewEncapsulation.
})
export class NestedComponent implem
```

```
🔧 Emulated
🔧 Native
🔧 None
Marks a class as a
```



```html
····<html lang="en"> == $0
  ▶ <head>…</head>
  ▼ <body cz-shortcut-listen="true">
    ▼ <vouchers-app ng-version="4.3.4">
      ▼ #shadow-root (open)
          <style></style>
        ▶ <div style="padding: 10px">…</div>
          <style></style>
        ▶ <style>…</style>
          <style>a[_ngcontent-c3]{
              cursor: pointer;
          }</style>
          <style>a[_ngcontent-c4]{
              cursor: pointer;
          }</style>
      </vouchers-app>
      <script type="text/javascript" src="inline.bundle.js"></script>
      <script type="text/javascript" src="polyfills.bundle.js"></script>
      <script type="text/javascript" src="styles.bundle.js"></script>
      <script type="text/javascript" src="vendor.bundle.js"></script>
      <script type="text/javascript" src="main.bundle.js"></script>
  </body>
</html>
```

Using Sass

Syntactically Awesome Style Sheets

- Compiled CSS with superpowers

- CSS compatible

- Support Variables & Nesting

```
$primary-color: #32333;
$margin: 0;
$padding: 8px;

body {
  color: $primary-color;
}
```

```
nav {
  ul {
    margin: $margin;
    padding: $margin;
    list-style: none;
  }

  a {
    display: block;
    padding: $padding;
    text-decoration: none;
  }
}
```

Compilation

- Compilation can be done / automated using Gulp

- Required packages can be installed using npm

  - "gulp-sass„

  - "gulp-sourcemaps"

```
var sass = require('gulp-sass');
var sourcemaps = require('gulp-sourcemaps');

var paths = {
    webroot: "./wwwroot/",
    scss: "./wwwroot/sass/**/*.scss",
    scssDest: "./wwwroot/css/"
}
```

```
gulp.task('compile:sass', function () {
    gulp.src(paths.scss)
        .pipe(sourcemaps.init())
        .pipe(sass())
        .pipe(sourcemaps.write('./maps'))
        .pipe(gulp.dest(paths.scssDest));
});

gulp.task('watch:sass', function () {
    gulp.watch(paths.scss, ['compile:sass']);
});
```

Source Maps

- Sourcs maps allow debugging *.sass Files instead of *.css

- Enable CSS Source Maps in Chrome

- https://www.sitepoint.com/using-source-maps-debug-sass-chrome/
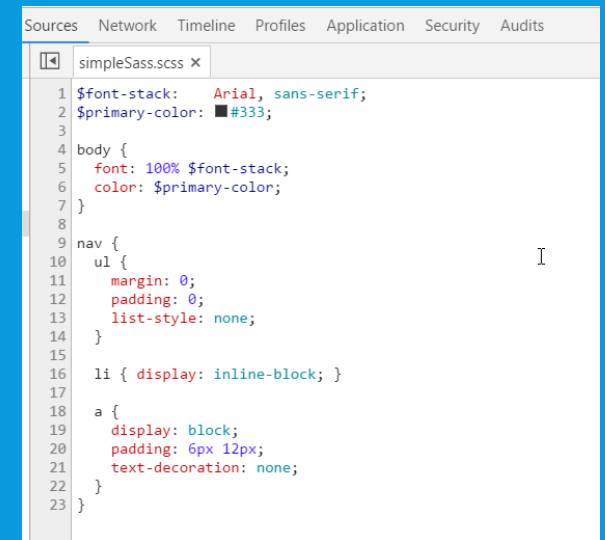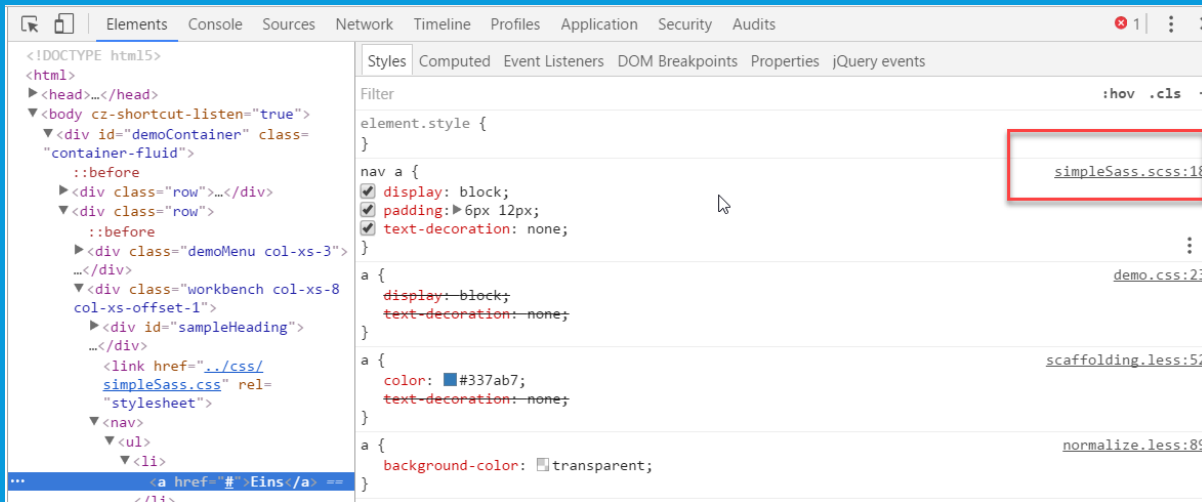
Using Sass in Angular Projects

- For new projects

  - ng new project-name --style scss | sass |

- For existing projects

  - npm install node-sass --save-dev

  - ng set defaults.styleExt scss

Use Global SaSS Variables in Components

- [Create folder for SaSS ...]

- Create folder for global SaSS

- Add „stylePreprocessorOptions" to angular-cli.json

- Add @import statement to *.scss where you want to use

```
"styles": [
  "scss/styles.scss"
],
"stylePreprocessorOptions": {
  "includePaths": [
    "scss"
  ]
},
```

```
⊿ scss                          ●
  ℰ  style-vars.scss           U
  ℰ  styles.scss               U
```

```
@import 'style-vars';
```

Bootstrap Jump Start

What is Bootstrap?

- UI framework (set of JavaScript, CSS, and images)

- Open Source project

- Supports HTML5 and CSS3

- Supported by all major browsers

Bootstrap Features

- Grid System

- Controls / Components

- JavaScript API

- Ready to use CSS

- Prototyping / Speed

- Very Easy to Use

- Cross Browser Compatibility
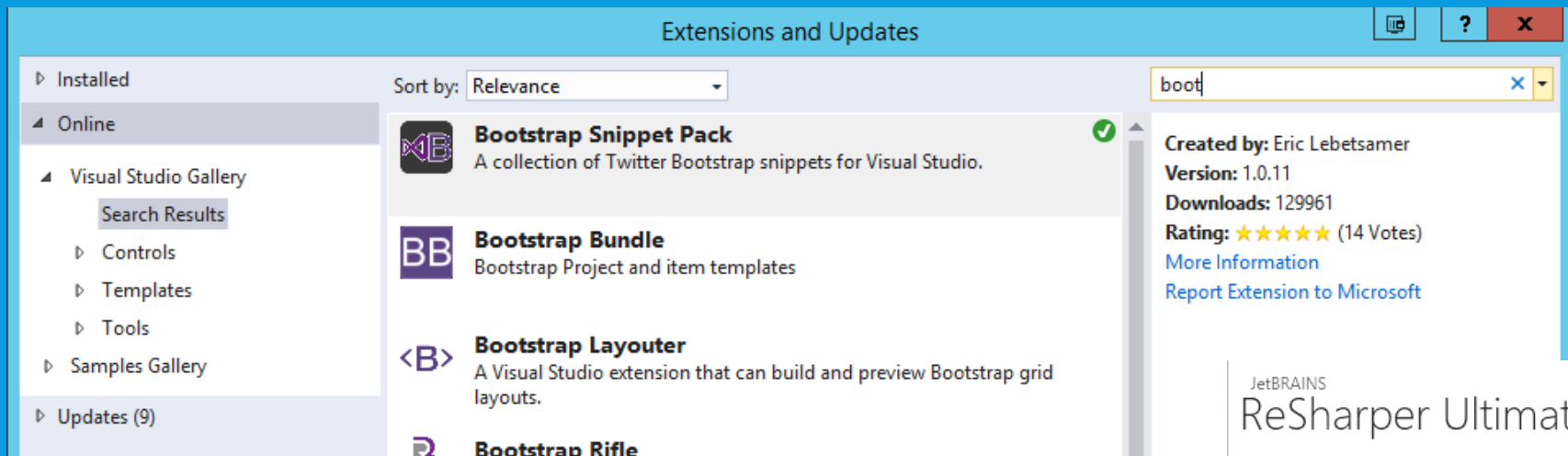
Bootstrap Requirements

- Base functionality consists of

  - CSS file reference

  - Js file reference

- Docu at http://bootstrapdocs.com/v3.0.3/docs/

- Lots of addons - http://startbootstrap.com/bootstrap-resources/

```
<link rel ="stylesheet"  href="http://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css">
<script src ="http://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/js/bootstrap.min.js"></script>
```

Bootstrap Extensions

- https://github.com/olsh/resharper-bootstrap-templates

Bootstrap Themes

- Many free themes availables

  - http://startbootstrap.com/template-overviews/

  - Bootswatch – http://bootswatch.com
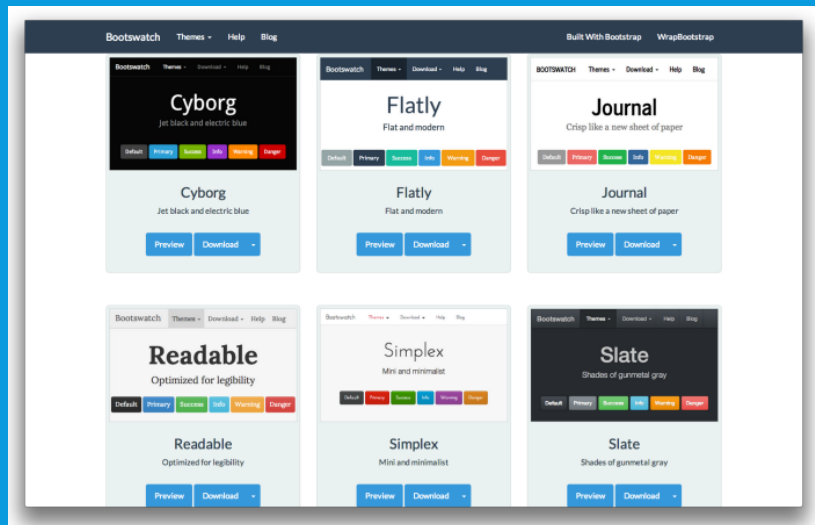
Bootstrap Components

- Bootstrap offers a variety of reday to use

  - Components

  - CSS

  - Javascript-Components

Grid System

- Bootstrap's grid system is used for layouting pages & allows up to 12 columns

- The Bootstrap grid system has four classes:
  - xs (for phones)
  - sm (for tablets)
  - md (for desktops)
  - lg (for larger desktops)

```html
<!-- every row must have 12 columns -->
<div class="row">
        <div class="col-md-4">
        <!-- content -->
        </div>
<!-- need to complete 8 more columns -->
</div>
```


12 column row
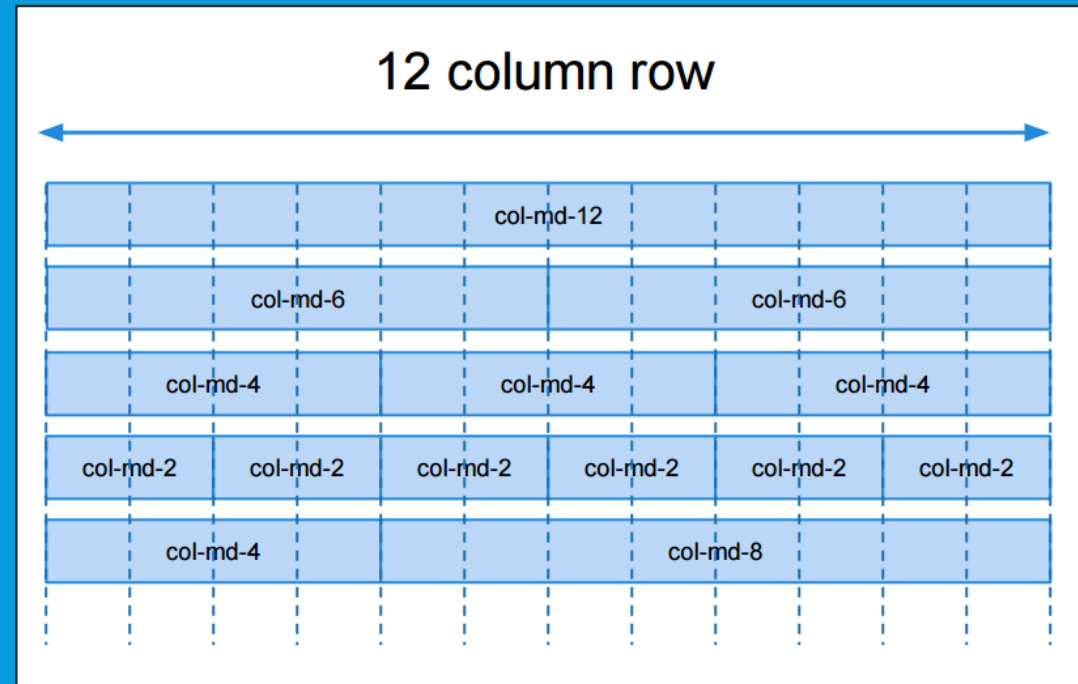
Grid options

	Extra small <544px	Small ≥544px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints			
Container width	None (auto)	576px	720px	940px	1140px
Class prefix	.col-xs-	.col-sm-	.col-md-	.col-lg-	.col-xl-
# of columns	12				
Gutter width	1.875rem / 30px (15px on each side of a column)				
Nestable	Yes				
Offsets	Yes				
Column ordering	Yes				

Bootstrap CSS - Buttons

- Provides ready to use CSS classes to enhance your web applicaiton ie. Buttons
  - Colors
  - Sizes
  - Active / Disabled

Class	Description
.btn	Adds basic styling to any button
.btn-default	Indicates a default/standard button
.btn-primary	Provides extra visual weight and identifies the primary action in a set of buttons
.btn-success	Indicates a successful or positive action
.btn-info	Contextual button for informational alert messages
.btn-warning	Indicates caution should be taken with this action

Buttons

- Buttons can either be button elements, links or input elements.

- They will all look like buttons.

  - For simple links, use the element and add button styling if needed.

  - For forms or dynamic buttons, use the button element.

```
<button class="btn btn-primary">Primary</button>
<a href="btn btn-success">Success</a>
```

Tables

- Bootstrap provides a clean layout for building tables.

- Some of the table elements supported by Bootstrap

- Addons for paging & sorting, … available @ http://www.bootply.com/lxaoFF9yhw

#	Table heading	Table heading	Table heading	Table heading	Table heading	Table heading
1	Table cell	Table cell	Table cell	Table cell	Table cell	Table cell
2	Table cell	Table cell	Table cell	Table cell	Table cell	Table cell
3	Table cell	Table cell	Table cell	Table cell	Table cell	Table cell
4	Table cell	Table cell	Table cell	Table cell	Table cell	Table cell

1 2 3 »

Navigation

- Bootstrap has severals components supporting navigation
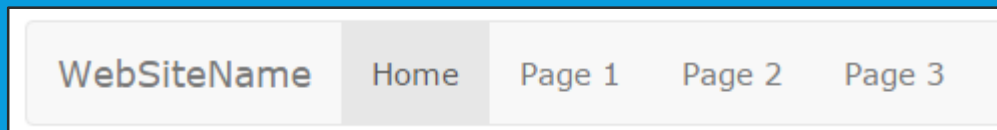 - Pagination

```
<ul></
    <li><a href="#">1</a></li>
    <li class="active"><a href="#">2</a></li>
    <li><a href="#">3</a></li>
    <li><a href="#">4</a></li>
    <li><a href="#">5</a></li>
</ul>
```
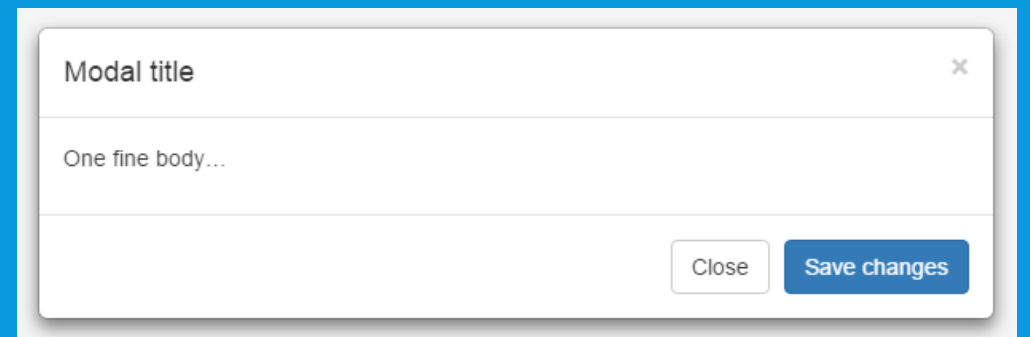

  - Navbar

```
<nav class="navbar navbar-default">
    <div class="container-fluid">
        <div class="navbar-header">
            <a class="navbar-brand"  href="#">WebSiteName</a>
        </div>
        <ul class ="nav navbar-nav">
            <li class ="active"><a href="#">Home</a></li>
            <li><a href="#">Page 1</a></li>
            <li><a href="#">Page 2</a></li>
            <li><a href="#">Page 3</a></li>
        </ul>
    </div>
</nav>
```

Modal

- Modals are streamlined, but flexible, dialog prompts with the minimum required functionality and smart defaults.

- Multiple open modals not supported

```
$('#myModal').on('shown.bs.modal', function () {
    $('#myInput').focus()
})
```
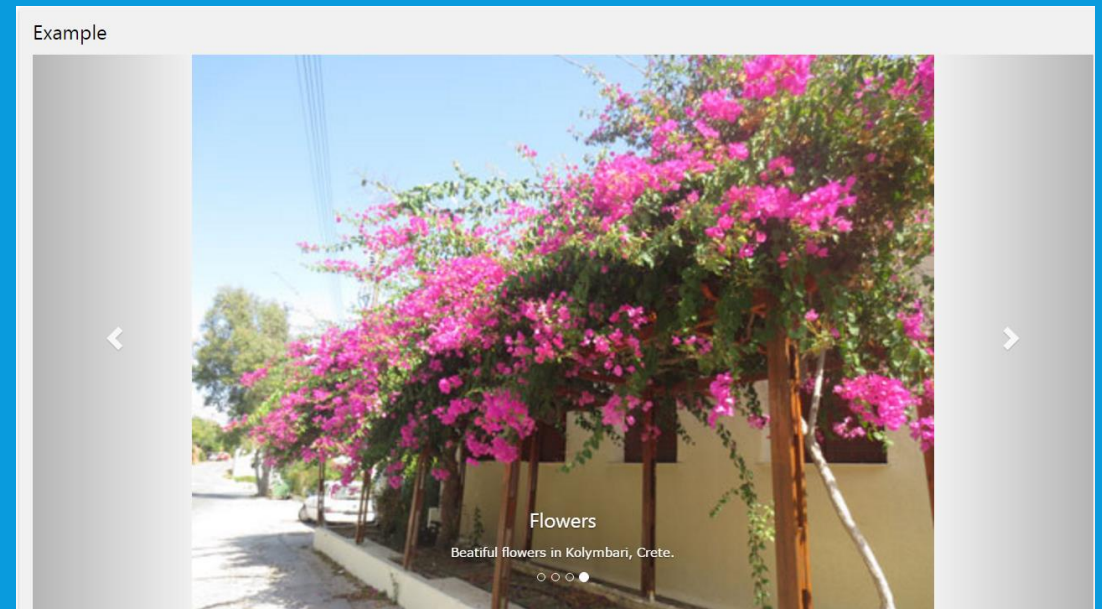
Forms

- Bootstrap provides three types of form layouts:

  - Vertical form (this is default)

  - Horizontal form

  - Inline form

```
<form class="form-horizontal" role="form">
<div class="form-group">
    <label class="control-label col-sm-2" for="email">Email:</label>
    <div class="col-sm-10"><input type="email" class="form-control" id="email" placeholder="Enter email">
    </div>
</div>
```

Bootstrap JS Carousel

- The Carousel plugin is a component for cycling through elements, like a carousel (slideshow)

- Can be built / controlled using HTML / JS

- Supports Methods and Events

Bootstrap JS Carousel

Class	Description
.carousel	Creates a carousel
.slide	Adds a CSS transition and animation effect when sliding from one item to the next. Remove this class if you do not want this effect
.carousel-indicators	Adds indicators for the carousel. These are the little dots at the bottom of each slide
.carousel-inner	Adds slides to the carousel
.item	Specifies the content of each slide
.left carousel-control	Adds a left button to the carousel, which allows the user to go back between the slides
.right carousel-control	Adds a right button to the carousel, which allows the user to go forward between the slides
.carousel-caption	Specifies a caption for the carousel

JS Affix

- The Affix plugin allows an element to become affixed (locked) to an area on the page

- Can be used for "sticky" navigation items

```
<nav class ="navbar navbar-inverse"  data-spy="affix"  data-offset-top="197">
```
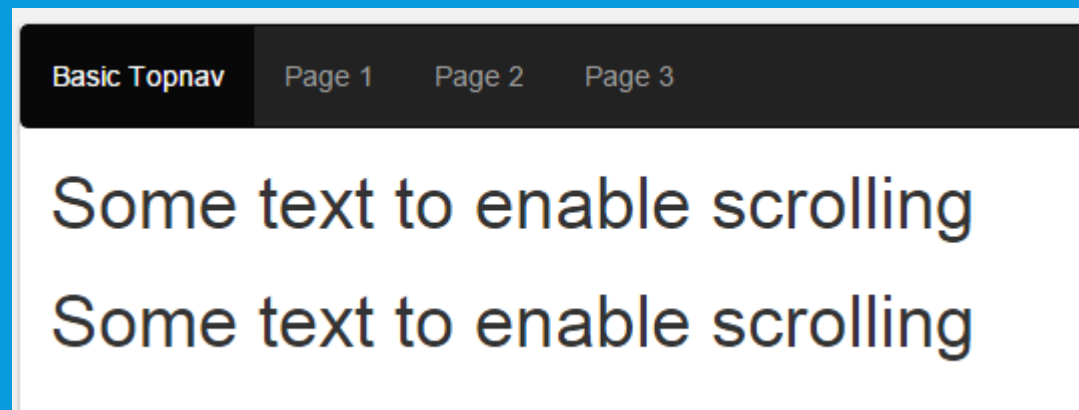
JS Tabs

- Tabs are used to separate content into different panes where each pane is viewable one at a time

```
<ul class="nav nav-tabs">
            <li class="active"><a data-toggle="tab" href="#home">Home</a></li>
            <li><a data-toggle="tab" href="#menu1">Menu 1</a></li>
</ul>
<div class="tab-content">

    <div id="home" class="tab-pane fade in active">
        <h3>HOME</h3>
        <p>Some content.</p>
    </div>
    <div id="menu1" class="tab-pane fade">

        <h3>Menu 1</h3>
        <p>Some content in menu 1.</p>
    </div>
</div>
```


Dynamic Tabs

Home   Menu 1   Menu 2   Menu 3

HOME

Lorem ipsum dolor sit amet, consectetur adipisicing elit, s

Using Angular & Bootstrap

Installation

- Easy to use – just reference Bootstrap Styles in angular.cli.json

```
"styles": [
"../node_modules/bootstrap/dist/css/bootstrap.min.css",
"styles.css"
],
```

- Bootstrap Components depends on jQuery -> Encapuslate jQuery

- Alternative: use spin offs like ng-bootstrap

- ng-bootstrap covered in 3rd party topic later this module

Adding jQuery & Bootstraps JS

- Some Bootstrap funtionality (Components) rely on bootstrap.min.js

- For a Angular CLI Project add jQuery, Bootstrap to Script & Styles section in angular-cli.json

```
"styles": [
 "../node_modules/bootstrap/dist/css/bootstrap.min.css",
 "styles.css"
],
"scripts": [
 "../node_modules/moment/min/moment.min.js",
 "../node_modules/jquery/dist/jquery.min.js"
 "../node_modules/bootstrap/dist/js/bootstrap.min.js"
],
```

Bootstrap 4

- Currently in Beta @ https://getbootstrap.com/

- Some Differences:

  - Uses SCSS instead of LESS

  - Grid System xs, sm, md, lg, xl instead of xs, sm, md, lg

  - …

- Very nice overview @

  https://www.quackit.com/bootstrap/bootstrap_4/differences_between_bootstrap_3_and_bo

  otstrap_4.cfm

Material 2 Jump Start

What is Angular Material

- UI Framework just like Bootstrap

- Documentation @ https://material.angular.io/

- Why use?
  - Fast
    - Mobile optimized
    - Optimized for Angular

Component Overview
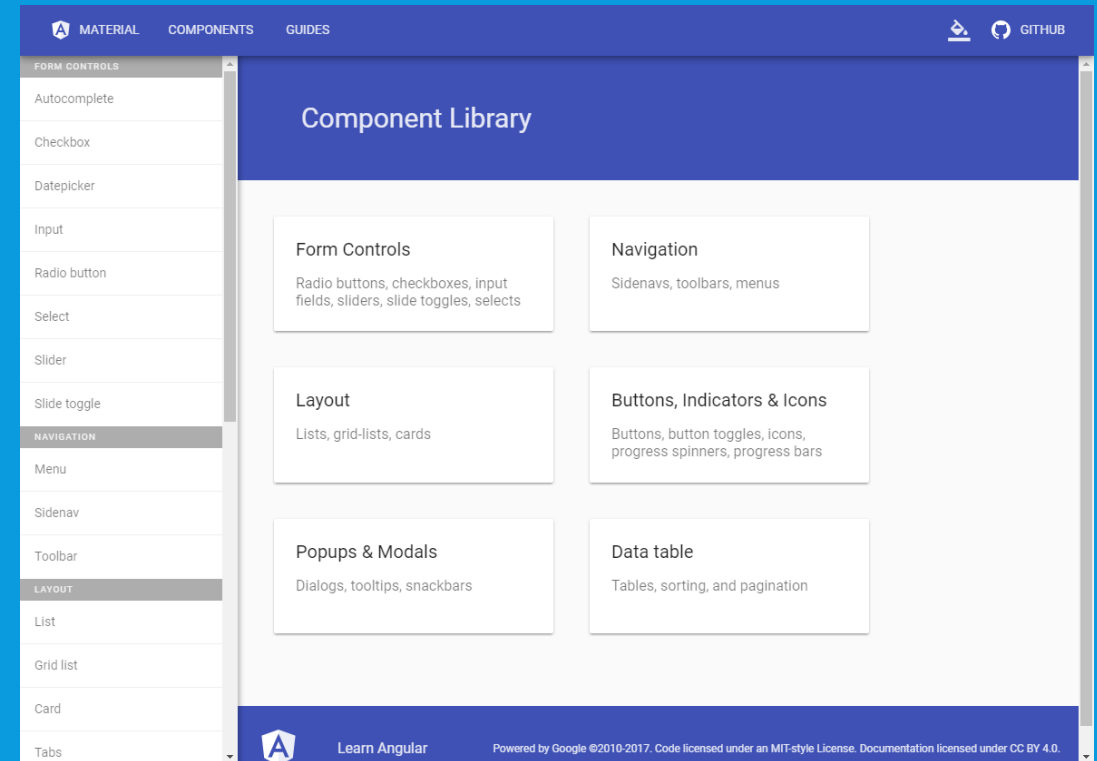
- @ https://material.angular.io/components/menu/overview

- Includes
  - Datepicker
  - Nav
  - Grid List
  - Table
  - ....
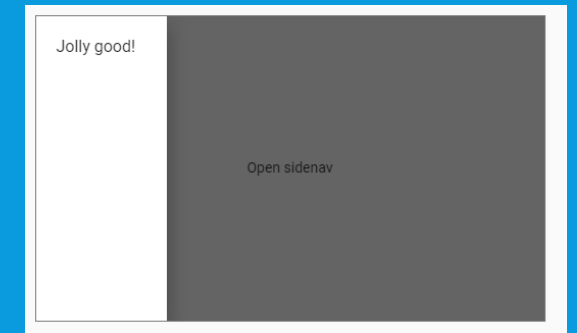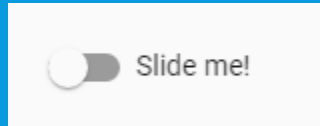
Gesting Support using HammerJS

- An independent framework supporting Gestures that can be combined with Angular

- Installation:

  - npm install --save hammerjs

- Usage:

```
import 'hammerjs';
```
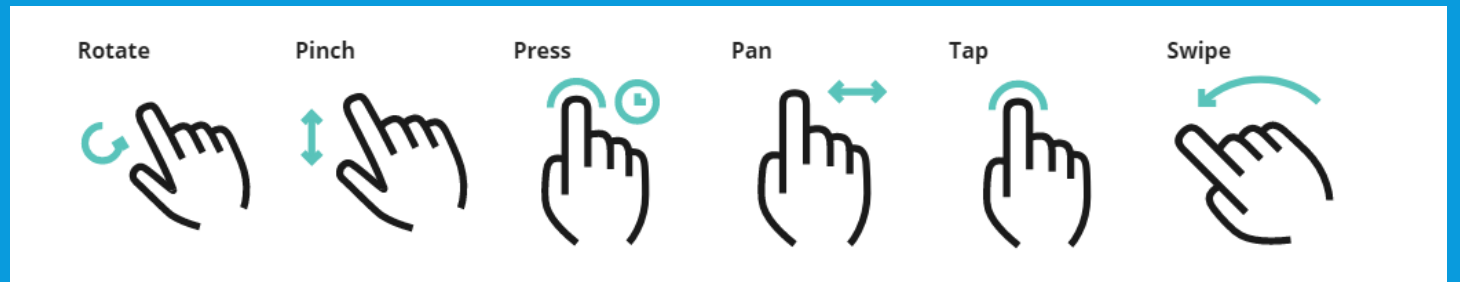
Using Material 2 with Angular

Requirements

- Material Core Libs

  - npm install --save @angular/material @angular/cdk

- Angular Animations

  - npm install --save @angular/animations

- Hammer.js – Needed by some components

  - npm install --save hammerjs

  - npm install --save-dev @types/hammerjs

- Doku @ https://github.com/angular/material2/blob/master/guides/getting-started.md

Animations

- Included in @angular/animations module

- If you dont want Aminations import NoopAnimationsModule

```
import { BrowserAnimationsModule } from '@angular/platform-browser/animations';
....
[BrowserAnimationsModule]
```

Using Material

- Reference Material Icons in index.html

- Add MaterialModule to app.module.ts

- Import MaterialModule to Component


```
<md-card *ngFor="let dog of dogs; let i = index" >
  <img md-card-image src="{{ dog.img }}">
  <md-card-content>
    <p>{{ dog.description }}</p>
  </md-card-content>
  <md-card-actions>
    <button md-button (click)="likeMe(i)">
      <i class="material-icons md-18" [class.red-color]="dog.liked == '1'">favorite</i> LIKE
    </button>
    <button md-button (click)="deleteMe(i)">
      <i class="material-icons md-18">delete</i> DELETE
    </button>
  </md-card-actions>
</md-card>
```
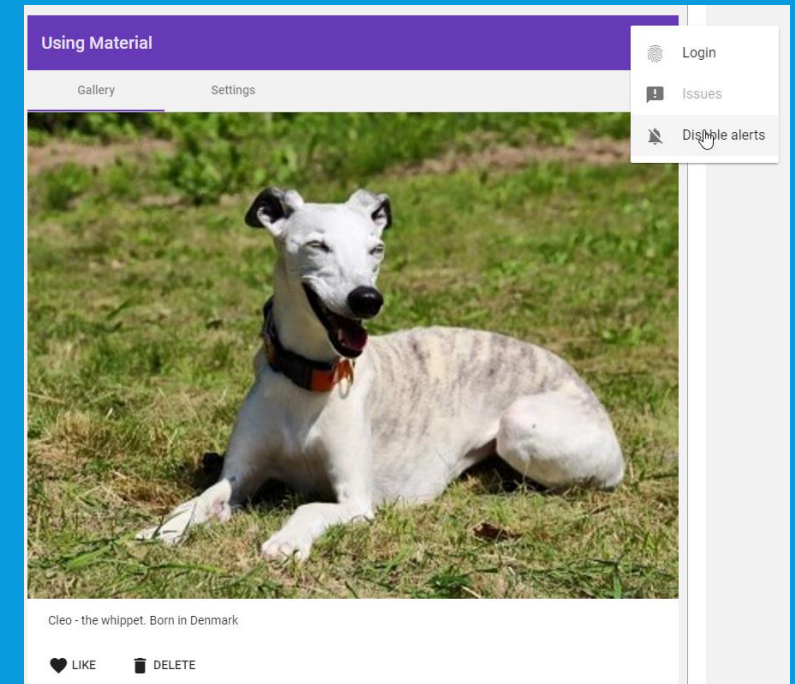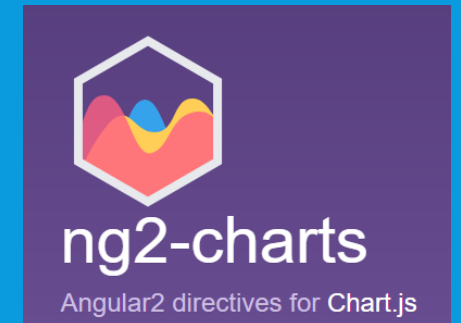
Material Design Light

- If Material Design is to "overloaded" for you – consider using MDL Light

- Published @ https://getmdl.io/started/index.html
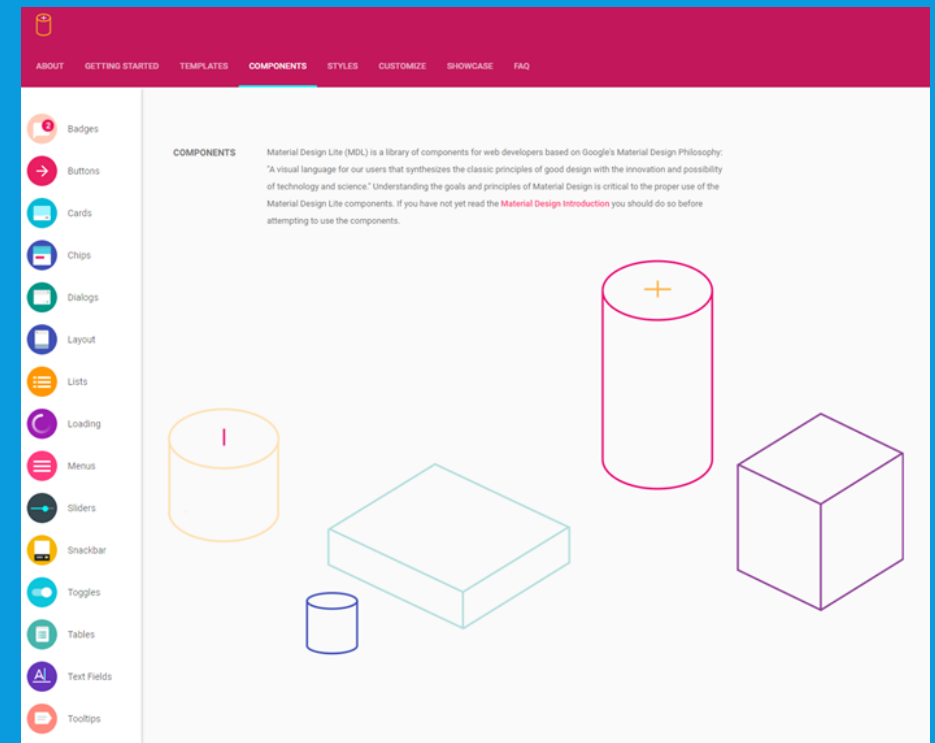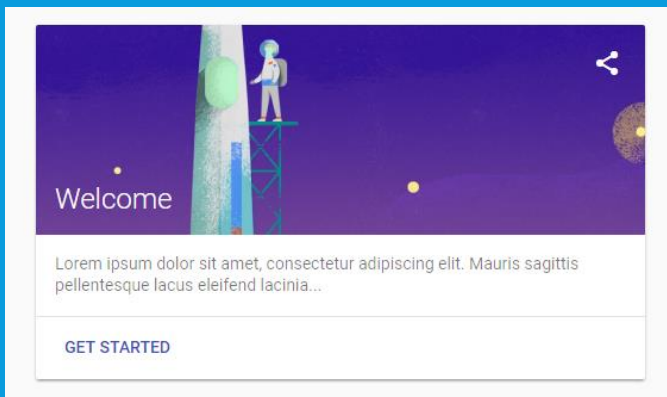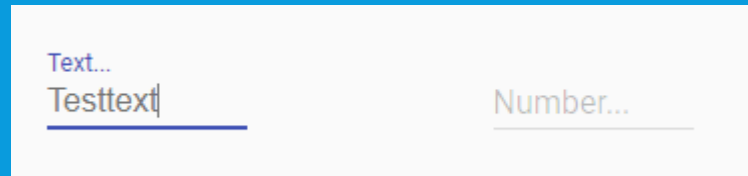
3rd Party Components

Sources for 3rd Party

- npmJS

  - https://www.npmjs.com/search?q=angular2

- Bootstrap for Angular 2

  - https://github.com/valor-software/ngx-bootstrap

- Charting

  - https://github.com/valor-software/ng2-charts

- Handsontable

  - https://github.com/valor-software/ng2-handsontable

  …