

Enhancing User Experience with

# Angular Material Themes







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“ Innovation made Human ”

For more information  
<https://solvative.com/>

## Never left it Alone!

- Blogs
- Open Source Libraries
- Helping other developers



1000+  
GitHub  
Stars



# Agenda



User Experience



Material Design



Angular Material



Theming Angular  
Material

# User Experience

“User  
experience is  
the summary  
of everything”.







User  
experience  
encompasses  
all aspects of  
the end user's  
interaction

# Then what is User Interface?

- Visual touchpoint or asset the user interacts with
- Color, spacing, grids, icons, and buttons
- Shape, decoration, and presentation



## User interface



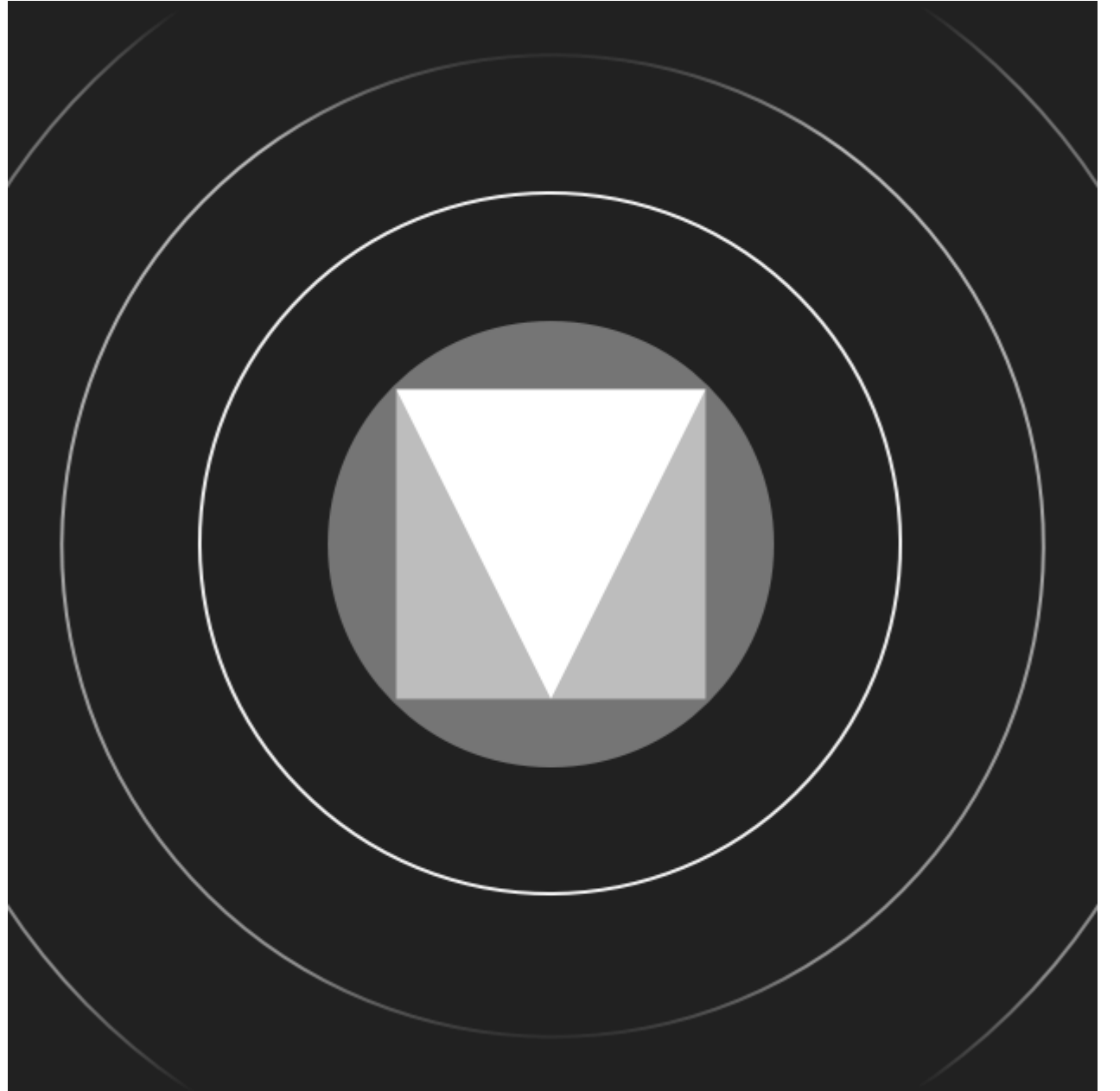


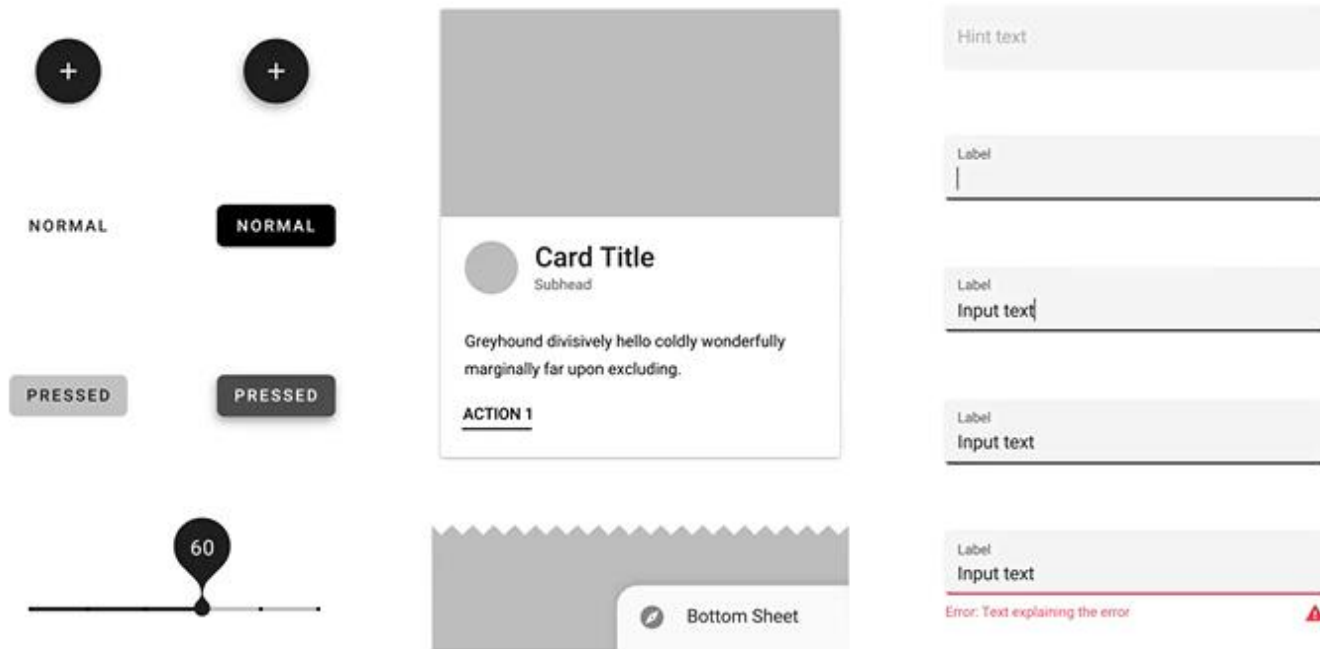
through User Interface  
Enhancing User Experience  with

# Angular Material Themes



# Material Design





# Motion Scale Surfaces

# Angular Material





### Autocomplete

Suggests relevant options as the user types.



### Badge

A small value indicator that can be overlaid on another object.



### Bottom Sheet

A large interactive panel primarily for mobile devices.



### Button

An interactive button with a range of presentation options.



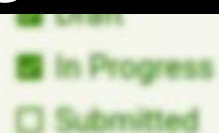
### Button toggle

A groupable on/off toggle for enabling and disabling options.



### Card

A styled container for pieces of itemized content.



### Checkbox

Captures boolean input with an optional indeterminate mode.

### Amenities



### Chips

Presents a list of items as a set of small, tactile entities.



Discard draft?

Contact 1

Contact 2

<https://material.angular.io/>



# Theming Angular Material

Primary	Primary Variant	Secondary	Secondary Variant
1 #6200EE	2 #3700B3	3 #03DAC6	4 #018786

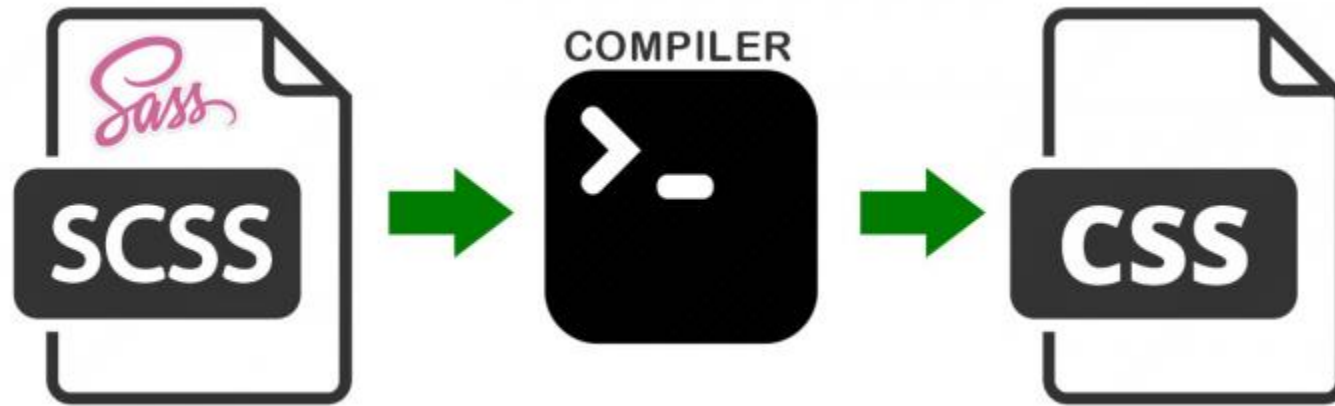
Background	Surface	Error
5 #FFFFFF	6 #FFFFFF	7 #B00020

On Primary	On Secondary	
8 #FFFFFF	9 #000000	
On Background	On Surface	On Error
10 #000000	11 #000000	12 #FFFFFF



# SASS = CSS with Super Powers

- Pre-processing





# SASS = CSS with Super Powers

- Variables, maps, nesting, mixins and modules



# SASS = CSS with Super Powers

- **Variables**, maps, nesting, mixins and modules

SCSS    Sass

```
$font-stack: Helvetica, sans-serif;
$primary-color: #333;

body {
  font: 100% $font-stack;
  color: $primary-color;
}
```

CSS

```
body {
  font: 100% Helvetica, sans-serif;
  color: #333;
}
```





# SASS = CSS with Super Powers

- Variables, **maps**, nesting, mixins and modules

SCSS    Sass

```
@use "sass:map";  
$font-weights: ("regular": 400, "medium": 500, "bold": 700);  
  
@debug map.get($font-weights, "medium"); // 500  
@debug map.get($font-weights, "extra-bold"); // null
```



# SASS = CSS with Super Powers

- Variables, maps, **nesting**, mixins and modules

SCSS

Sass

```
nav {  
  ul {  
    margin: 0;  
    padding: 0;  
    list-style: none;  
  }  
  
  li { display: inline-block; }  
  
  a {  
    display: block;  
    padding: 6px 12px;  
    text-decoration: none;  
  }  
}
```

CSS

```
nav ul {  
  margin: 0;  
  padding: 0;  
  list-style: none;  
}  
nav li {  
  display: inline-block;  
}  
nav a {  
  display: block;  
  padding: 6px 12px;  
  text-decoration: none;  
}
```



# SASS = CSS with Super Powers

- Variables, maps, nesting, **mixins** and modules

SCSS    Sass

```
@mixin theme($theme: DarkGray) {  
  background: $theme;  
  box-shadow: 0 0 1px rgba($theme, .25);  
  color: #fff;  
}  
  
.info {  
  @include theme;  
}  
  
.alert {  
  @include theme($theme: DarkRed);  
}  
  
.success {  
  @include theme($theme: DarkGreen);  
}
```

CSS

```
.info {  
  background: DarkGray;  
  box-shadow: 0 0 1px rgba(169, 169, 169, 0.25);  
  color: #fff;  
}  
  
.alert {  
  background: DarkRed;  
  box-shadow: 0 0 1px rgba(139, 0, 0, 0.25);  
  color: #fff;  
}  
  
.success {  
  background: DarkGreen;  
  box-shadow: 0 0 1px rgba(0, 100, 0, 0.25);  
  color: #fff;  
}
```



# SASS = CSS with Super Powers

- Variables, maps, nesting, mixins and **modules**

SCSS    Sass

```
// _base.scss
$font-stack: Helvetica, sans-serif;
$primary-color: #333;

body {
  font: 100% $font-stack;
  color: $primary-color;
}
```

```
// styles.scss
@use 'base';

.inverse {
  background-color: base.$primary-color;
  color: white;
}
```

CSS

```
body {
  font: 100% Helvetica, sans-serif;
  color: #333;
}

.inverse {
  background-color: #333;
  color: white;
}
```

Live Demo

# Time to code

- Use Angular Material
  - Create components
  - Optimize initial bundle size
    - Lazy load address form using @defer
- Angular Material Theme
  - Pre-built vs Custom themes
  - Light and dark themes
  - Optimize final bundle size
    - Lazy load dark theme
  - Modify color, typography and density





# Create Project for Pre-Built theme



```
ng new ng-mat-address-pre-built --skip-tests --style css --defaults
```

# Add @angular/material with pre-built theme



```
$ ng add @angular/material
? Choose a prebuilt theme name, or "custom" for a custom theme: Indigo/Pink
? Set up global Angular Material typography styles? Yes
? Include the Angular animations module? Include and enable animations
```

# Create components



```
$ ng generate @angular/material:navigation layouts/main  
$ ng generate @angular/material:dashboard features/dashboard  
$ ng generate @angular/material:address-form forms/address-form
```

# Time to code

- Use Angular Material
  - ~~Create components~~
  - Optimize initial bundle size
    - Lazy load address form using @defer
- Angular Material Theme
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# Address Form

- Initial bundle size

```
> ng-mat-address@0.0.0 build
> ng build

Building...
▲ [WARNING] bundle initial exceeded maximum budget. Budget 500.00 kB was not met by 173.45 kB with a total of 673.45 kB.
```

Initial Chunk Files	Names	Raw Size	Estimated Transfer Size
main-6VZE6S2E.js	main	584.18 kB	127.27 kB
styles-VUCPL6ZI.css	styles	56.58 kB	4.19 kB
polyfills-LZBJRJJE.js	polyfills	32.69 kB	10.59 kB
	Initial Total	673.45 kB	142.05 kB

# Time to code

- Use Angular Material
  - ~~Create components~~
  - ~~Optimize initial bundle size~~
    - ~~Lazy load address form using @defer~~
- Angular Material Theme
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# Angular Material Theming

- Pre-built themes

Theme	Light or dark?	Palettes (primary, accent, warn)
deeppurple-amber.css	Light	deep-purple, amber, red
indigo-pink.css	Light	indigo, pink, red
pink-bluegray.css	Dark	pink, bluegray, red
purple-green.css	Dark	purple, green, red

# Angular Material Pre Built Theme

- Styles bundle size

Initial Chunk Files	Names	Raw Size	Estimated Transfer Size
chunk-6SWJPZLE.js	-	305.74 kB	78.69 kB
styles-Y4IFJ72L.css	styles	81.81 kB	7.98 kB
main-37GQNKJ6.js	main	74.46 kB	18.97 kB
polyfills-LZBJRJJE.js	polyfills	32.69 kB	10.59 kB
Initial Total		494.69 kB	116.24 kB
Lazy Chunk Files	Names	Raw Size	Estimated Transfer Size
chunk-K4WXIGEG.js	address-form-component	214.57 kB	37.35 kB

# Create Project for Custom theme



```
$ ng new ng-mat-address-custom --skip-tests --style scss --defaults
```

# Add @angular/material with custom theme



```
$ ng add @angular/material
```

```
? Choose a prebuilt theme name, or "custom" for a custom theme: Custom
```

```
? Set up global Angular Material typography styles? Yes
```

```
? Include the Angular animations module? Include and enable animations
```

# Again, create components



```
$ ng generate @angular/material:navigation layouts/main  
$ ng generate @angular/material:dashboard features/dashboard  
$ ng generate @angular/material:address-form forms/address-form
```

# Time to code

- Use Angular Material
  - ~~Create components~~
  - ~~Optimize initial bundle size~~
    - ~~Lazy load address form using @defer~~
- Angular Material Theme
  - ~~Pre-built vs Custom themes~~
  - ~~Light and dark themes~~
  - ~~Optimize final bundle size~~
    - ~~Lazy load dark theme~~
  - Modify color, typography and density





# Angular Material Custom Theme

- Reduced bundle size

```
> ng-mat-address@0.0.0 build
> ng build
```

Initial Chunk Files	Names	Raw Size	Estimated Transfer Size
chunk-6SWJPZLE.js	-	305.74 kB	78.69 kB
main-XX3YTTOM.js	main	74.71 kB	18.97 kB
styles-VUCPL6ZI.css	styles	56.58 kB	4.19 kB
polyfills-LZBJRJJE.js	polyfills	32.69 kB	10.59 kB
Initial Total		469.72 kB	112.44 kB

Lazy Chunk Files	Names	Raw Size	Estimated Transfer Size
chunk-A05FGFWH.js	address-form-component	212.56 kB	36.91 kB
dark-theme.css	global:dark-theme	44.02 kB	2.36 kB

```
Application bundle generation complete. [8.856 seconds]
```

# Time to code

- Use Angular Material
  - ~~Create components~~
  - ~~Optimize initial bundle size~~
    - ~~Lazy load address form using @defer~~
- ~~Angular Material Theme~~
  - ~~Pre-built vs Custom themes~~
  - ~~Light and dark themes~~
  - ~~Optimize final bundle size~~
    - ~~Lazy load dark theme~~
  - Modify color, typography and density



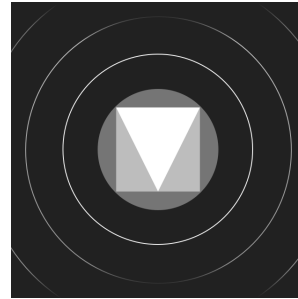
# Time to code

- Use Angular Material
  - ~~Create components~~
  - ~~Optimize initial bundle size~~
    - ~~Lazy load address form using @defer~~
- Angular Material Theme
  - ~~Pre-built vs Custom themes~~
  - ~~Light and dark themes~~
  - ~~Optimize final bundle size~~
    - ~~Lazy load dark theme~~
  - ~~Modify color, typography and density~~



# Quick recap

1. UX vs UI
2. Material Design
3. Angular Material
4. SASS
5. Angular Material Theme
  - Pre-built vs Custom themes
  - Light and dark themes
  - Optimize bundle size
    - Lazy load component using @defer
    - Lazy load dark theme
  - Modify color, typography and density



**<https://angular-material.dev>**



One place for everything related to Material Design in Angular



# Q&A



# Thank you!

I am available online

<https://twitter.com/shhdharmen>

<https://www.linkedin.com/in/shhdharmen>

<https://github.com/shhdharmen>



Code and deck is available at

<https://github.com/shhdharmen/gdgdevfest-2023-surat>