

Angular 2

Lesson 4—Introduction to Bootstrap



Learning Objectives



- ✔ Explain Responsive Web Design (RWD)
- ✔ Understand Bootstrap Grid System
- ✔ Learn Bootstrap Components

Introduction to RWD

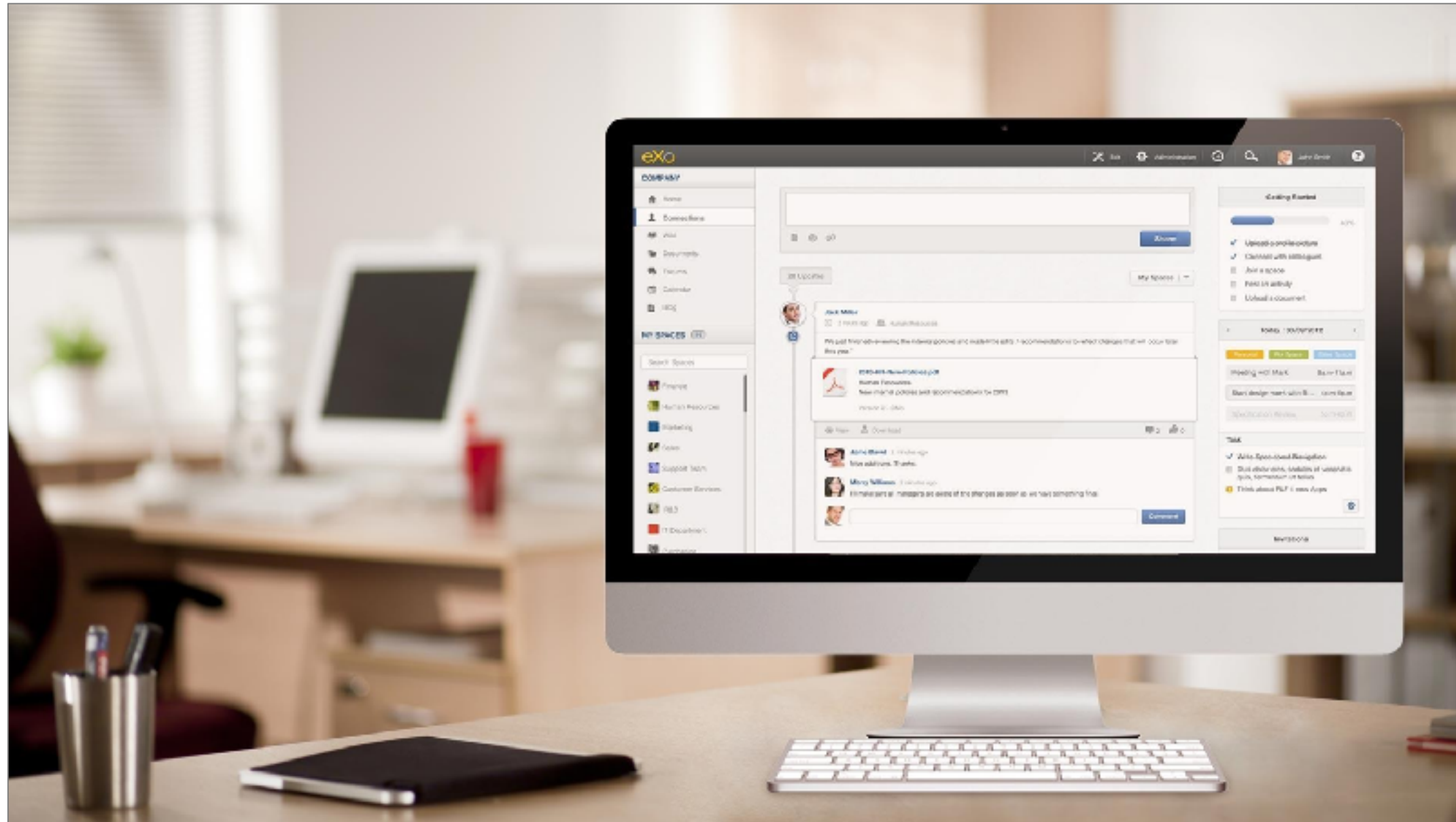
There was a time when User Interface (UI) was not a concern.





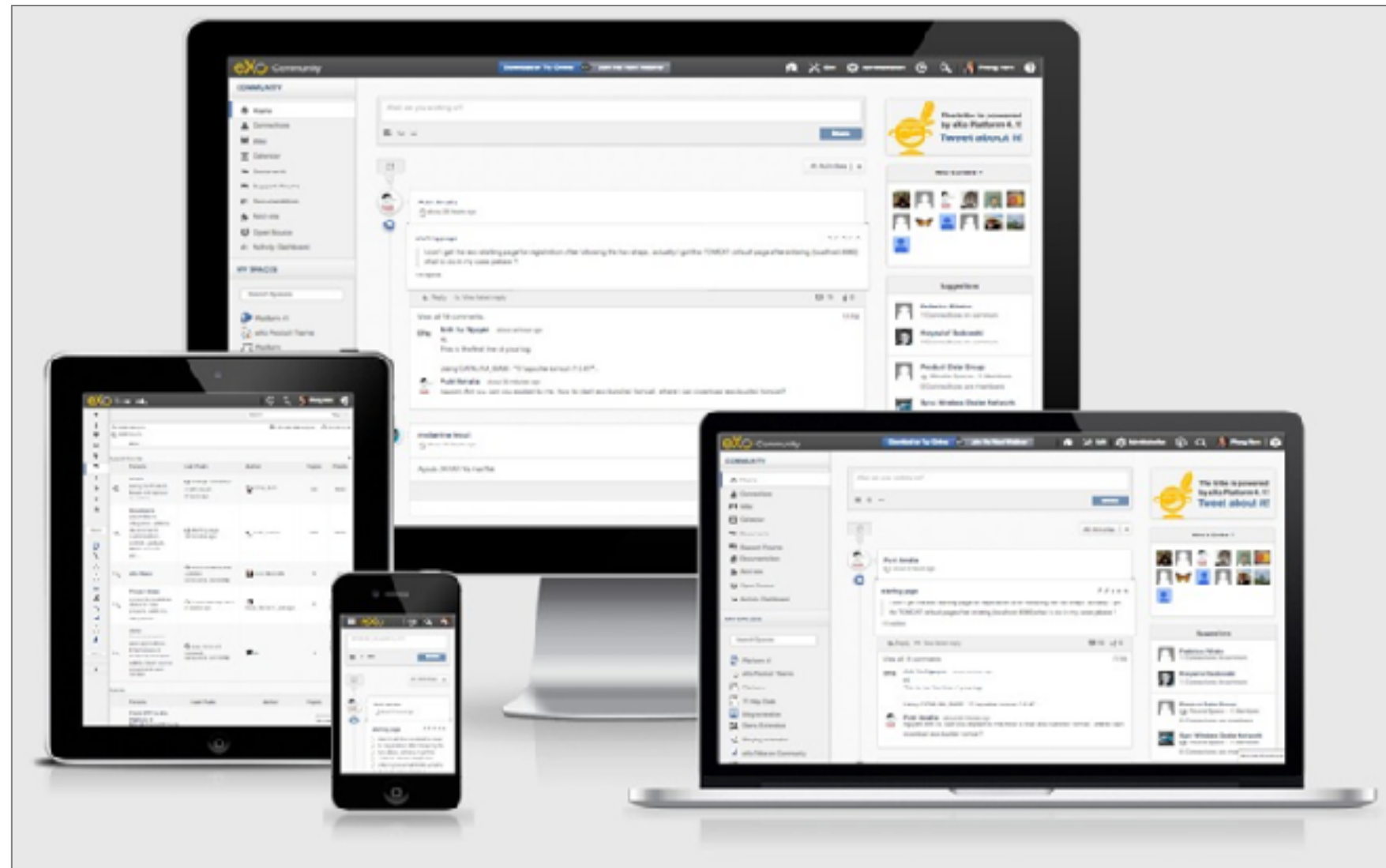
Introduction to RWD

Many companies have successfully created excellent designs for their web applications.



Introduction to RWD

But today, just a unique web application screen is not enough. We need RWD.



Introduction to Bootstrap

Topic 1 — What is Responsive Web Design (RWD)



What Is Responsive Web Design?

A Responsive Web Design is browser-responsive and can adapt to screens of any size.



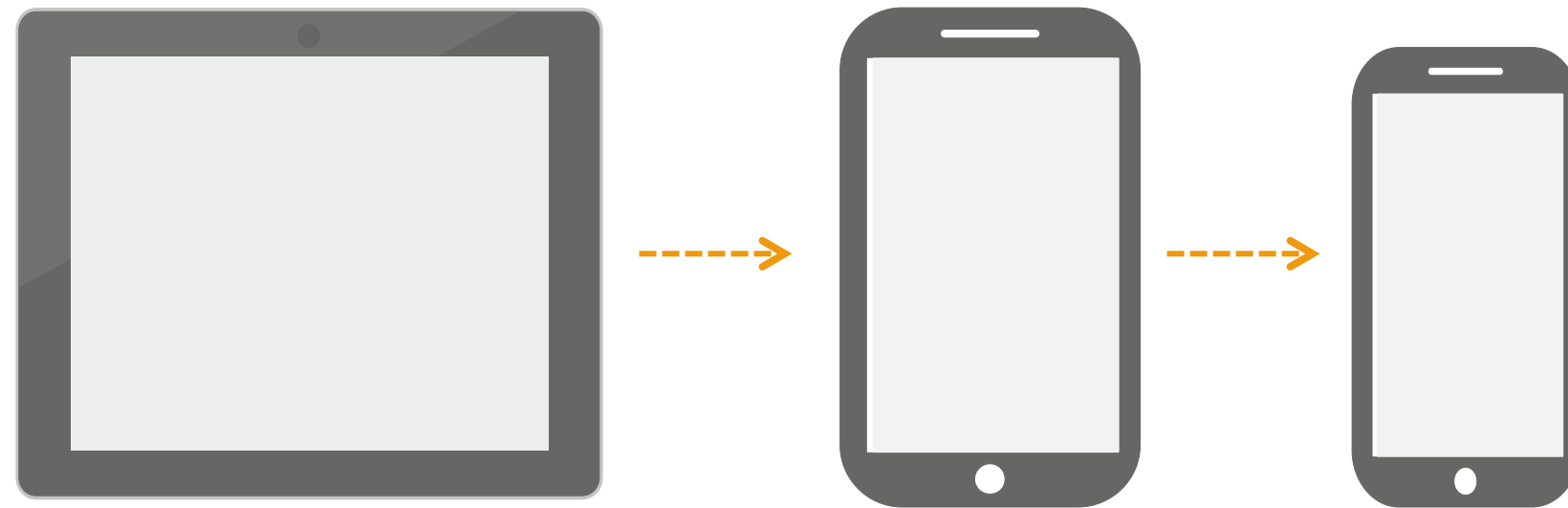
Responsive vs. Adaptive

Responsive

A responsive web design is a fluid design that responds to the browser and can resize according to the screen size with no empty spaces on the sides.

Adaptive

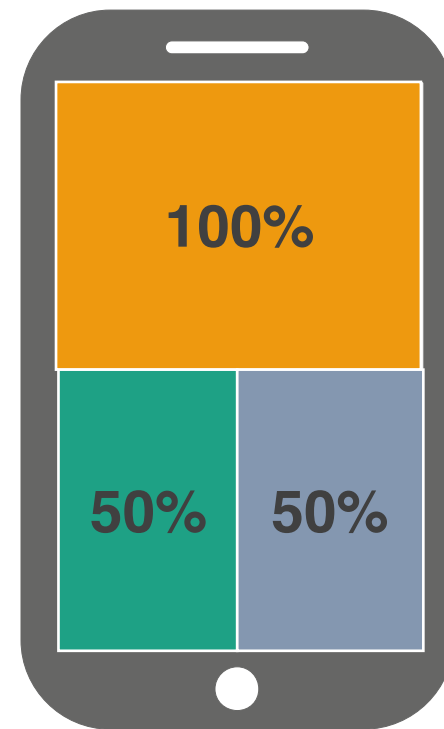
An adaptive design adapts to the screen size only at specific points.



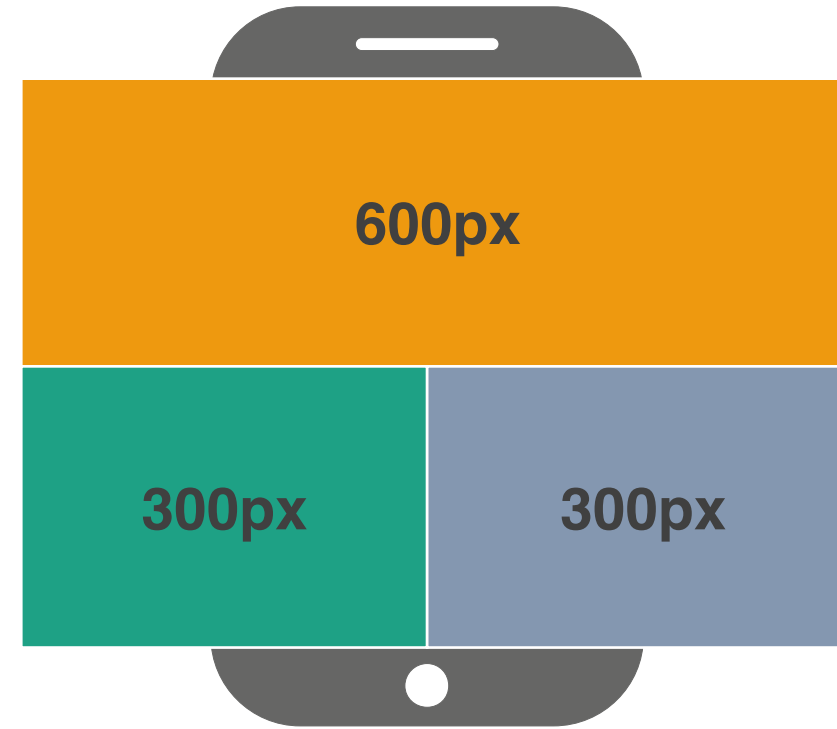
Responsive Web Design

Relative vs. Static Units

Relative units like percentages can adapt to any screen, unlike static units such as pixels.



Relative units



Static units

Flow vs. Static

The flow in a responsive web design helps the content to smoothly adjust when the screen size changes, which does not happen in static screens.



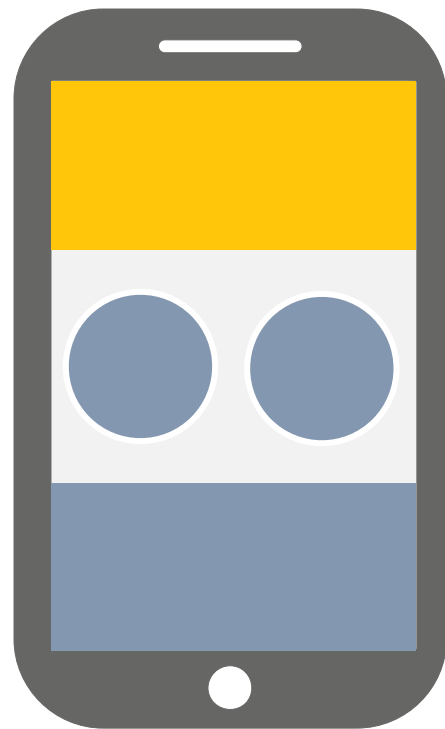
Flow



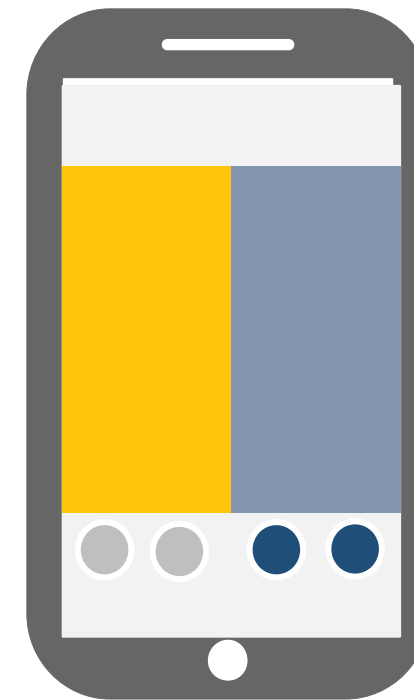
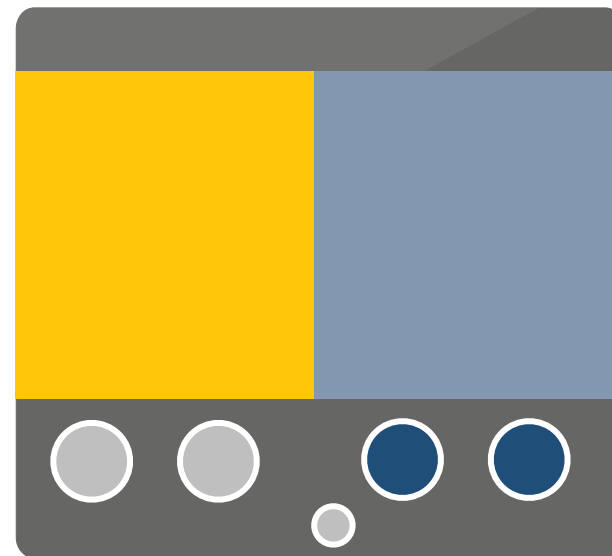
Static

With Breakpoints vs. Without Breakpoints

The presence of breakpoints allows you to adapt your content to the screen size when screen size changes.



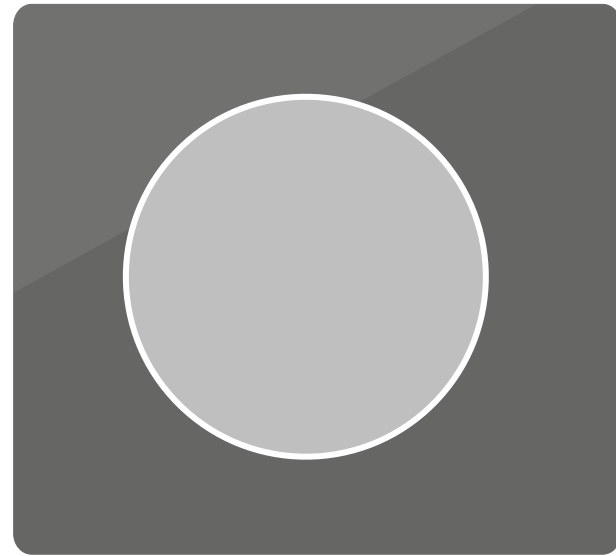
With Breakpoints



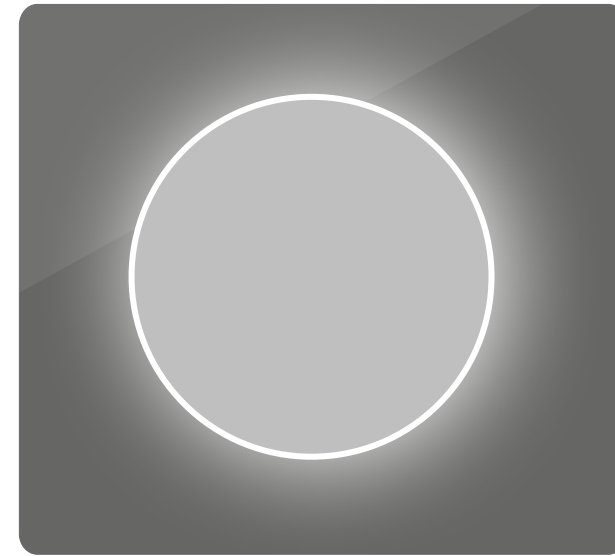
Without Breakpoints

Vectors vs. Images

A vector adapts to the resolutions of the retina, and its quality is independent of the screen resolution.



Vector



Image

Mobile First

To develop a mobile-first design:

- Start with CSS development for mobile device, followed by media queries to adapt to desktops and tablets.
- You also need to determine the content that is most important.



Why Mobile First?

It will be a design independent of the screen size.

It helps avoid overwriting of code.

It will narrow down the website information to a convenient portion.



Introduction to Bootstrap

Topic 2— Bootstrap 3



Bootstrap



HISTORY

Bootstrap was first
created at Twitter

Mid2010



Bootstrap 2 was
released

January2012



Bootstrap 3.0
was shipped

August2013



August2011
Bootstrap was launched
as an open source
project



February2012
Bootstrap became the most
starred development project of
GitHub



Main Features of Bootstrap



Preprocessors

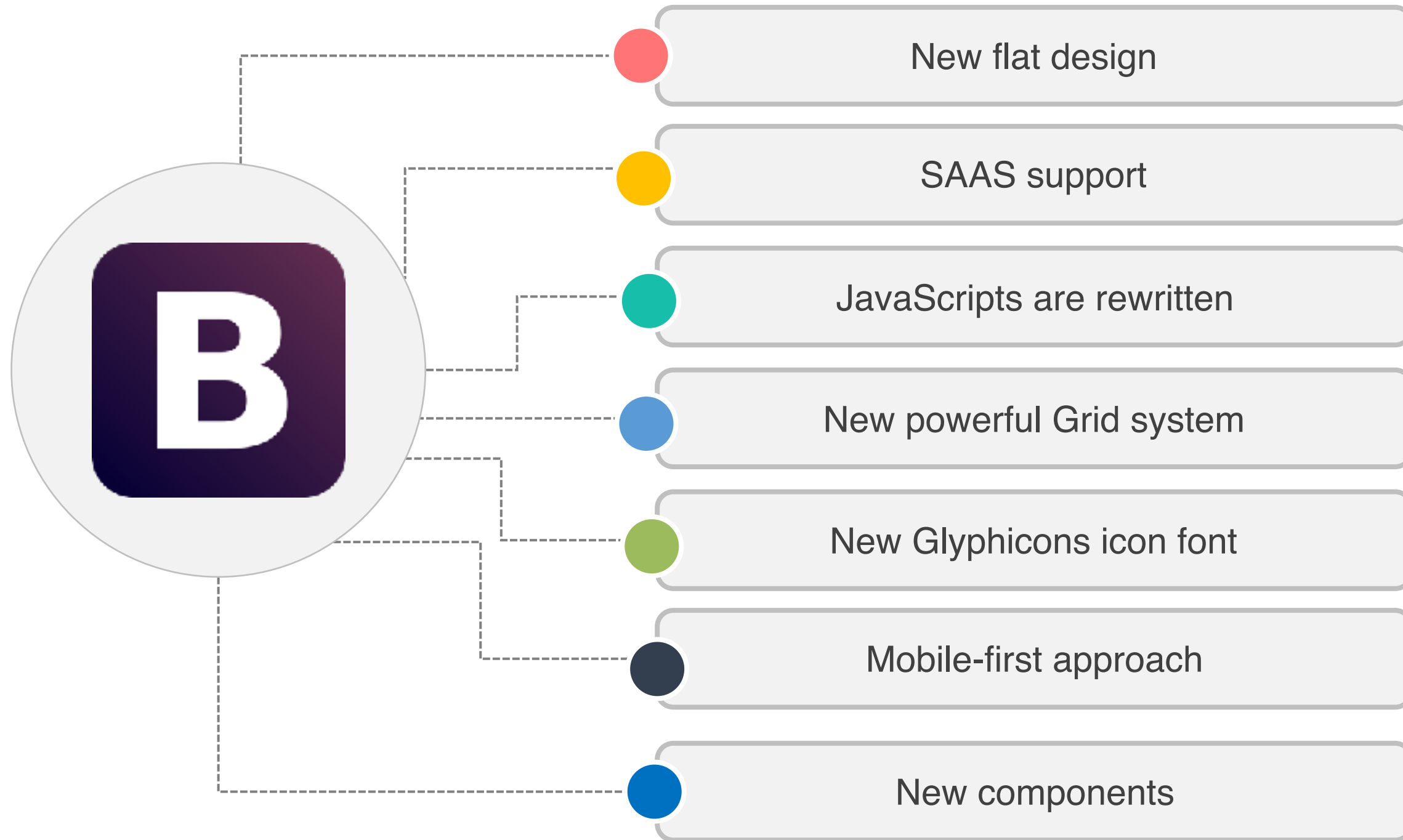


**One framework for
every device**



**Full of
features**

What's New in Bootstrap 3



Advantages of Bootstrap 3



You can create a web application very fast



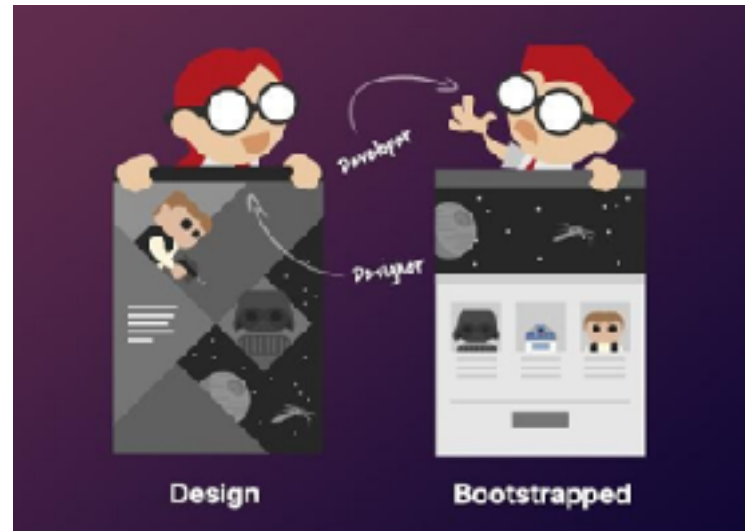
It is a native responsive framework



It is easily and fully customizable

Disadvantages of Bootstrap 3

There is not much difference in the look of the website created using Bootstrap 3.



Bootstrap does not offer backward compatibility between versions.



Bootstrap 2 to Bootstrap 3

Competitors

Bootstrap offered by Twitter is the top front-end developing tool.
But there are other alternatives in the field.



Bootstrap

VS.



Foundation

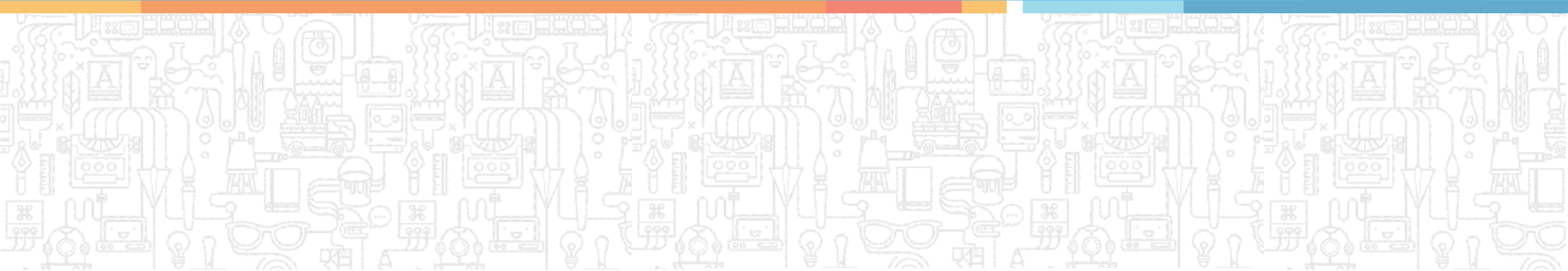
VS.



Skeleton

Introduction to Bootstrap

Topic 3—Creating a Responsive Web Application



Responsive with Bootstrap 3

Bootstrap 3 helps you to create responsive and mobile-friendly websites easily.

It offers:

Grid system

CSS3 media queries



**Responsive embed and
flexible image**

Responsive utilities

Use of @media Rule

With @media rule in Bootstrap 3, you can have a different layout for all screens, including tablet, mobile, and desktops.



Introduction to Grid Systems



In Bootstrap 3

- Grid system permits a maximum of 12 columns in a page.
- You can group and create wider columns instead of using them individually.
- For decent organization and padding, place the rows within `.container-fluid` (full-width) or a `.container` (fixed-width).
- Group columns into horizontal groups using `rows`.
- Create grid columns by specifying the number of available 12 columns you wish to span.
- For example, 3 equal columns would use three `.col-xs-4`.
- Place the content within columns, and only columns may be immediate children of rows.

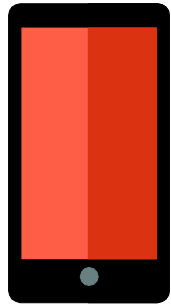
Grid System

In Bootstrap 3, the grid system presents a swift and simple way to build responsive website layouts.

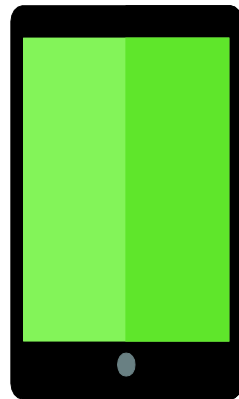
	Extra small devices Phones (<768px)	Small devices Tablets (≥768px)	Medium devices Desktops (≥992px)	Large devices Desktops (≥1200px)
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints		
Container width	None (auto)	750px	970px	1170px
Class prefix	<code>.col-xs-</code>	<code>.col-sm-</code>	<code>.col-md-</code>	<code>.col-lg-</code>
# of columns	12			
Column width	Auto	~62px	~81px	~97px
Gutter width	30px (15px on each side of a column)			

Bootstrap Grid Classes

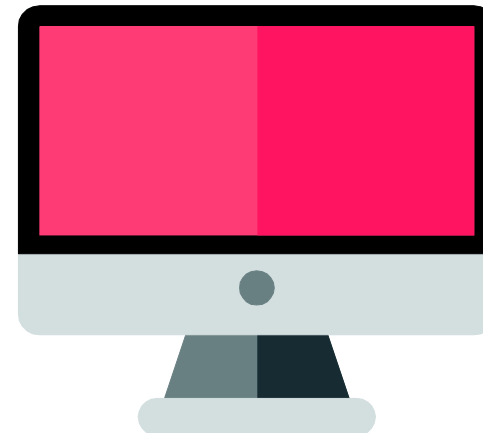
The Bootstrap grid system has four classes:



xs (for phones)



sm (for tablets)



md (for desktops)



lg (for larger desktops)

These classes can be combined to create more dynamic and flexible layouts.

Bootstrap Grid Classes

This is a basic Bootstrap grid structure :

```
<div class="row">

  <div class="col-md-4">.col-md-4</div>
  <div class="col-md-4">.col-md-4</div>
  <div class="col-md-4">.col-md-4</div>

</div>
```

Responsive Utilities

For quick mobile-friendly development, Bootstrap offers you utility classes.

	Extra small devices Phones (<768px)	Small devices Tablets (≥768px)	Medium devices Desktops (≥992px)	Large devices Desktops (≥1200px)
<code>.visible-xs-*</code>	Visible	Hidden	Hidden	Hidden
<code>.visible-sm-*</code>	Hidden	Visible	Hidden	Hidden
<code>.visible-md-*</code>	Hidden	Hidden	Visible	Hidden
<code>.visible-lg-*</code>	Hidden	Hidden	Hidden	Visible
<code>.hidden-xs</code>	Hidden	Visible	Visible	Visible
<code>.hidden-sm</code>	Visible	Hidden	Visible	Visible
<code>.hidden-md</code>	Visible	Visible	Hidden	Visible
<code>.hidden-lg</code>	Visible	Visible	Visible	Hidden

Bootstrap Components

Bootstrap 3 offers various components:

- Labels
- Panels
- Jumbotron
- Page Header
- Navbar
- Thumbnails
- Alerts
- List group
- Page Header
- Wells
- Badges
- Dropdowns
- Button groups
- Glyphicons
- Button Drops
- Breadcrumbs
- Input groups
- Navs
- Pagination
- Media Object

Step 1: Creating First Page with Bootstrap

At the start of the page, include HTML5 doctype. Also include the lang attribute and the right character set.

```
<!DOCTYPE html>
<html lang="pt">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
  </head>
</html>
```


Step 2: Creating First Page with Bootstrap

- Add the viewport `<meta>` tag for proper touch zooming and rendering
- Adjust the width of the page and the initial zoom level per your device
- This will ensure that you have a better experience, and there will be no need for zooming

Step 3: Creating First Page with Bootstrap

- Include the following files:

- **bootstrap.min.css**
- **jquery.min.js**
- **bootstrap.min.js**

- Download these files and include in your page. In this example, we include them from the Internet:

```
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/
bootstrap.min.css">
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.1.1/jquery.min.js"></
script>
<script src="https://maxcdn.bootstrapcdn.com/ajax/bootstrap/3.3./js/bootstrap.min.js"></
script>
```

Step 4: Creating First Page with Bootstrap

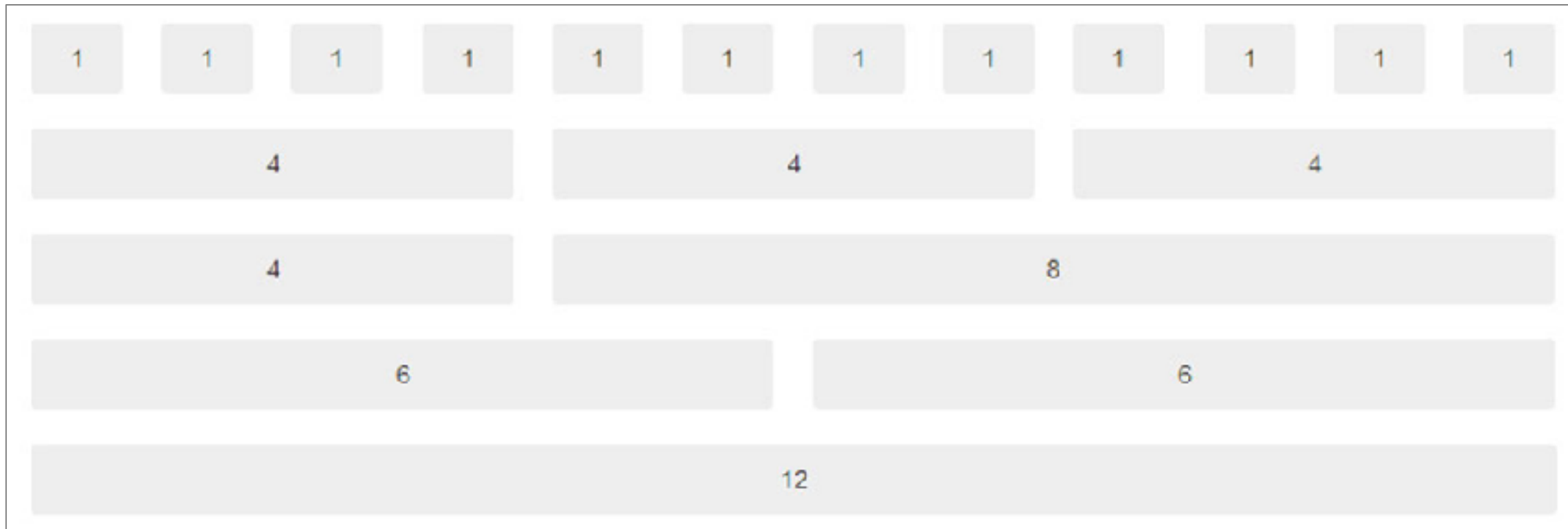
In Bootstrap 3, you can include elements to wrap the site contents.

```
<div class="container">  
  <h1>My First Bootstrap Page</h1>  
  <p>this is some text.</p>  
</div>
```

```
<div class="container-fluid">  
  <h1>My First Bootstrap Page</h1>  
  <p>This is some text.</p>  
</div>
```

Bootstrap Grids

- Grid system allows a maximum of 12 columns in a page.
- Each container can be divided into rows and each row into columns with the space multiple 12.



Bootstrap Grids

Example:

- In this example, the space inside the container is divided into a single row and the row is divided into 3 columns.
- Each column has the same sides, that is, $4+4+4 = 12$
- Any possible combination that sums up to 12 can be used.

```
<div class="container">
  <h1>Bootstrap Grid</h1>
<div class="row">
  <div class="col-sm-4">.col-sm-4</div>
  <div class="col-sm-4">.col-sm-4</div>
  <div class="col-sm-4">.col-sm-4</div>
</div>
```

Bootstrap Grids

Output:

Here is what a responsive grid system in Bootstrap 3 with 3 columns in the page looks like:

Bootstrap Grid
`.col-sm-4`
`.col-sm-4`
`.col-sm-4`

Small Screens

Bootstrap Grid
`.col-sm-4` `.col-sm-4` `.col-sm-4`

Big Screens

Bootstrap Tables

There are four main and five contextual classes in Bootstrap 3 tables:

Main Classes

Contextual Classes

1. `.table`
2. `.table-striped`
3. `.table-bordered`
4. `.table-hover`

Bootstrap Tables

There are four main and five contextual classes in Bootstrap 3 tables:

Main Classes

Contextual Classes

1. `.active`
2. `.success`
3. `.info`
4. `.warning`
5. `.danger`

Bootstrap Tables—Example

```
<div class="container">
  <h1>Bootstrap Table</h1>
<table class="table table-stripped table-bordered table-hover">
<thead>
  <tr>
    <th>Firstname</th>
    <th>lastname</th>
    <th>Email</th>
  </tr>
</thead>
<tbody>
<tr>
  <td>John</td>
  <td>Doe</td>
  <td>john@example.com</td>
</tr>
<tr>
  <td>Joseph</td>
  <td>saints</td>
  <td>joseph@example.com</td>
</tr>
<tr class="warning">
  <td>Mary Help</td>
  <td>saints</td>
  <td>mary@example.com</td>
</tr>
</tbody>
</table>
</div>
```

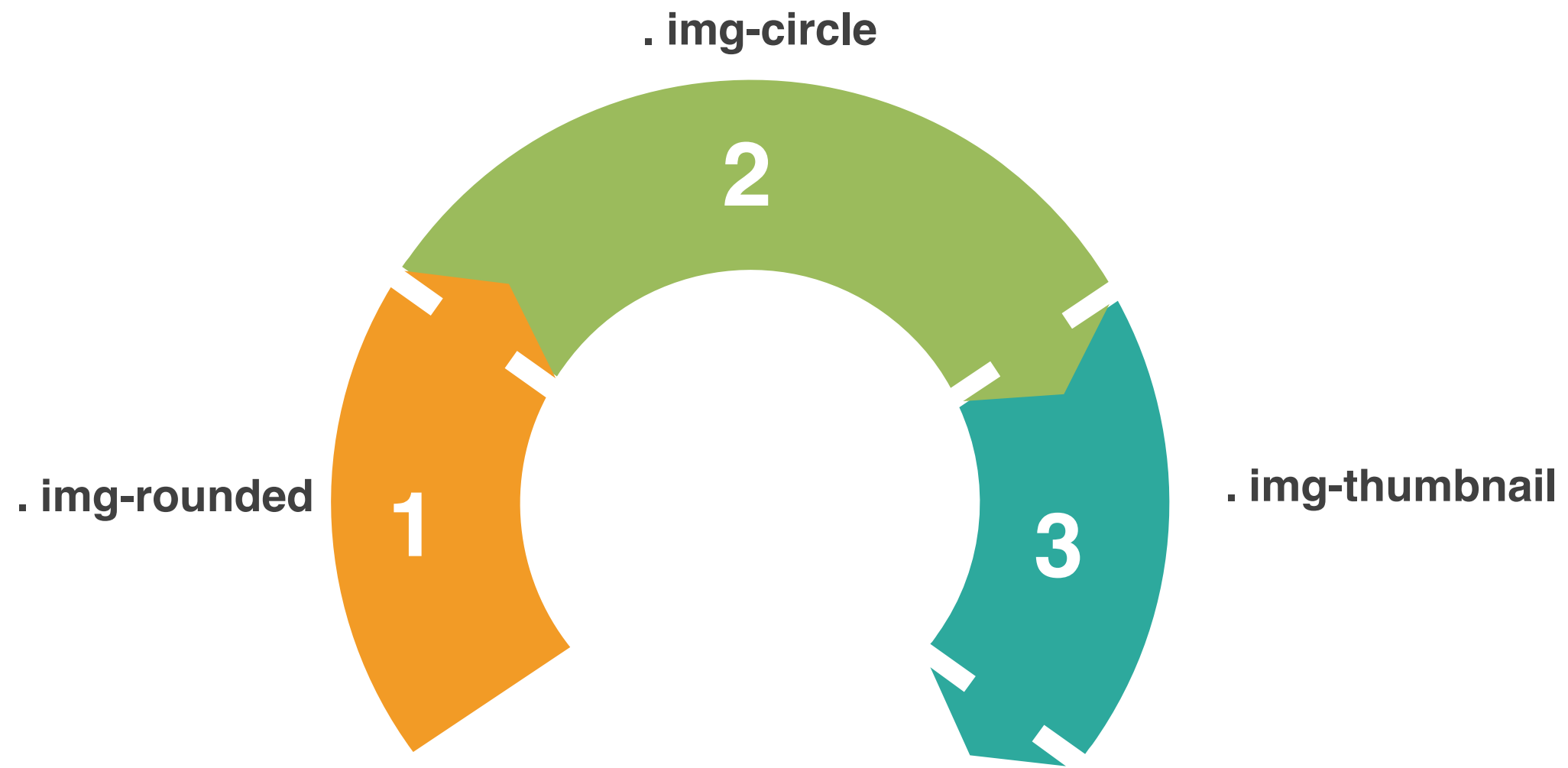
Bootstrap Tables—Example

Output:

Firstname	Lastname	Email
John	Doe	john@example.com
Joseph	Saints	joseph@example.com
Mary	Saints	mary@example.com

Bootstrap Images

Bootstrap 3 has three main classes for images:



Bootstrap Images—Example

```
<div class="row">
  <div class="col-md-4">
    
  </div>
  <div class="col-md-4">
    
  </div>
  <div class="col-md-4">
    
  </div>
</div>
```

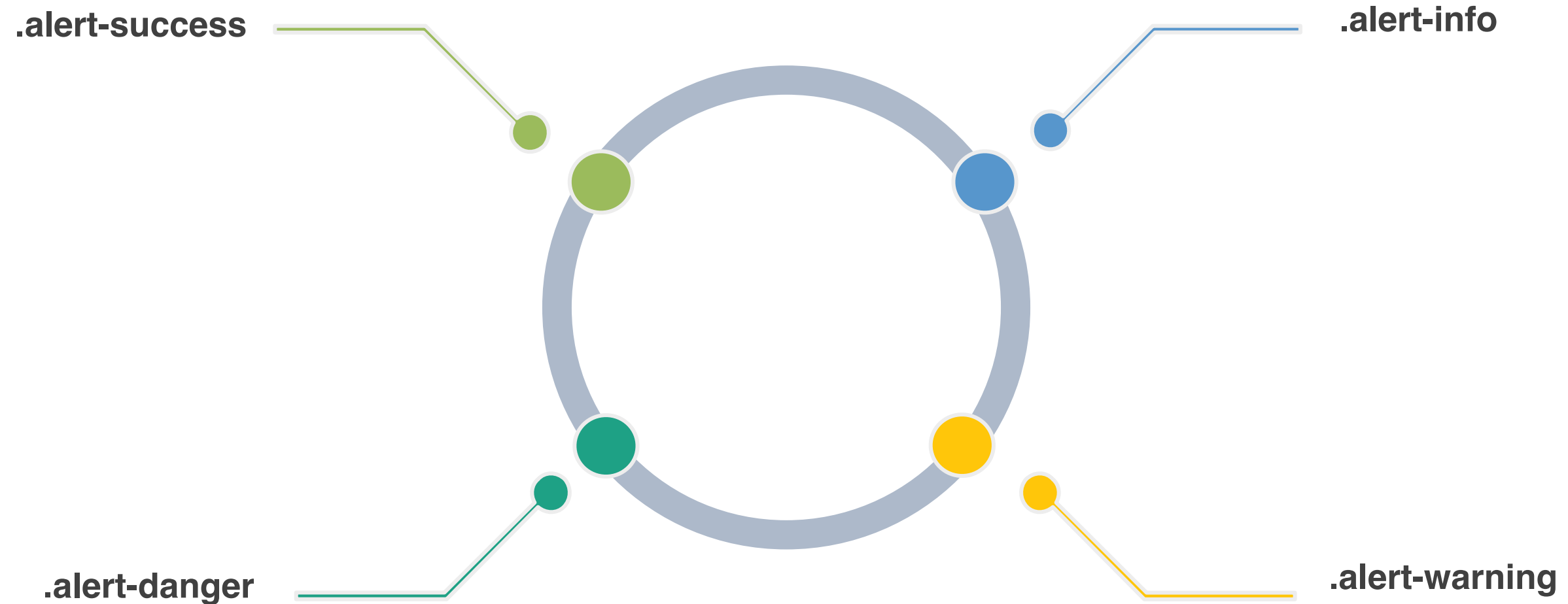
Bootstrap Images

Output:



Bootstrap Alerts

In Bootstrap 3, you have an easy way to create predefined alert messages using **alert class**, followed by one of these **contextual classes**.



Bootstrap Alerts—Example

```
<div class="container">
  <h1>Bootstrap Alerts</h1>

  <div class="alert alert-success">
    <strong>Success!</strong> Indicates a successful or positive action.
  </div>
  <div class="alert alert-info">
    <strong>Info!</strong> Indicates a neutral informative change or action.
  </div>
  <div class="alert alert-warning">
    <strong>Warning!</strong> Indicates a warning that might need attention.
  </div>
  <div class="alert alert-danger">
    <strong>Dnager!</strong> Indicates a dangerous or potentially negative action.
  </div>
</div>
```

Bootstrap Alerts

Output:

 Success! Indicates a successful or positive action.

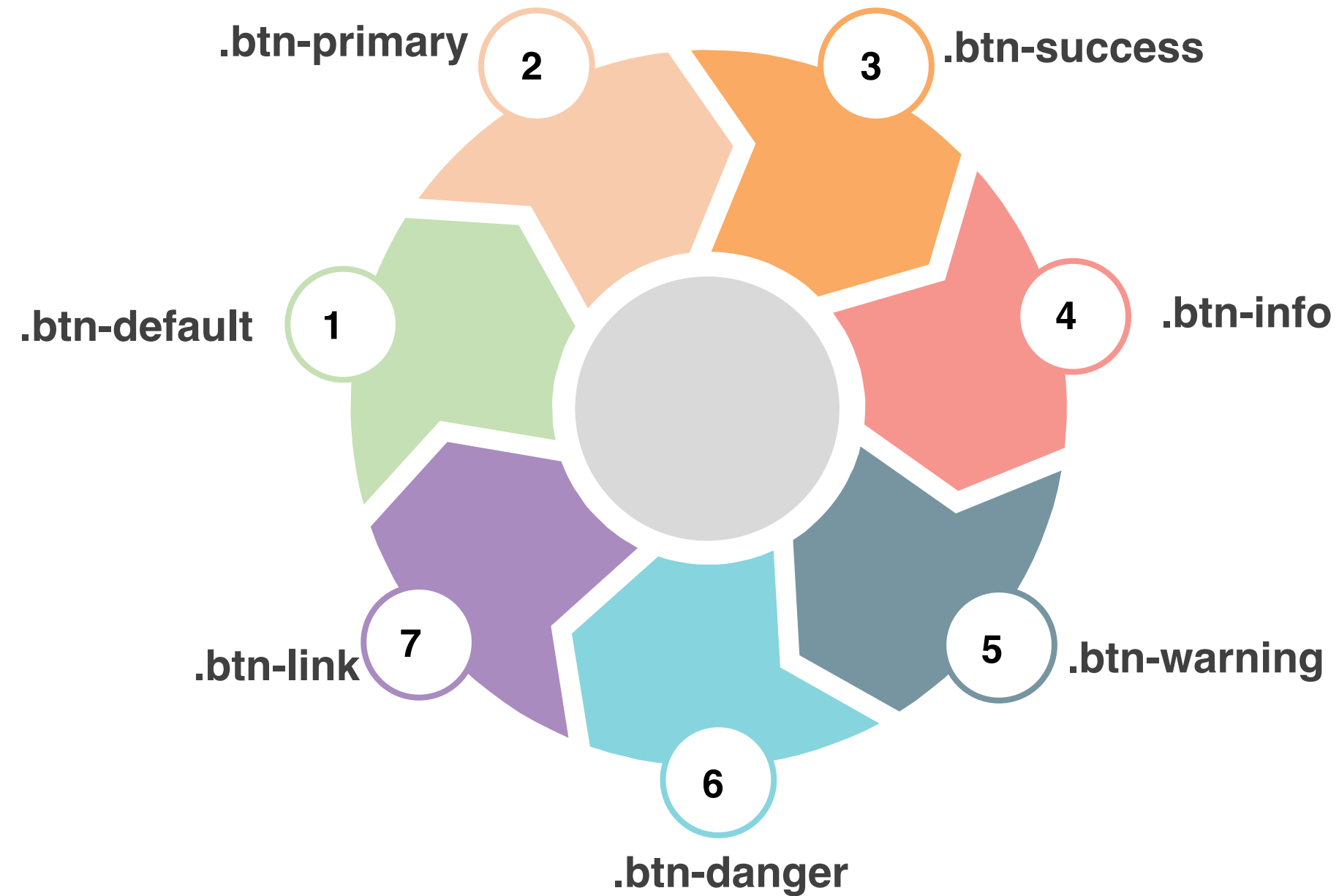
 Info! Indicates a neutral informative change or action.

 Warning! Indicates a warning that might need attention.

 Danger! Indicates a dangerous or potentially negative action.

Bootstrap Buttons

In Bootstrap 3, there are seven styles of buttons that can be created using these **contextual classes**:



Bootstrap Buttons—Example

```
<div class="container">
  <h1>Bootstrap Button</h1>
  <button type="button" class="btn btn-default">Default</button>
  <button type="button" class="btn btn-default">Primary</button>
  <button type="button" class="btn btn-default">Success</button>
  <button type="button" class="btn btn-default">Info</button>
  <button type="button" class="btn btn-default">Warning</button>
  <button type="button" class="btn btn-default">Danger</button>
  <button type="button" class="btn btn-default">Link</button>
</div>
```

Output:

Default

Primary

Success

Info

Warning

Danger

Link

Bootstrap Glyphicons

- The Glyphicons Halflings set provides 260 glyphs.
- (<http://getbootstrap.com/components/>)




Bootstrap Glyphicons—Example

```
<div class="container">
  <h1>Bootstrap glyphicon</h1>
  <p>simple span:
    <span class="glyphicon glyphicon-check"></span>
  </p>
  <p>Default button with icon:
    <button type="button" class="btn btn-default">Play
      <span class="glyphicon glyphicon-play"></span>
    </button>
  </p>
  <p>search icon on a styled button:
    <button type="button" class="btn btn-info">
      <span class="glyphicon glyphicon-search"></span> Search
    </button>
  </p>
  <p>Link with icon:
    <a href="#" class="btn btn-success btn-lg">
      <span class="glyphicon glyphicon-print"></span>Print
    </a>
  </p>
</div>
```

Bootstrap Glyphicons

Output:

Simple Span: 

Default button with icon: [Play !\[\]\(bd1a142de767a21e5362c595f844a4ff_img.jpg\)](#)

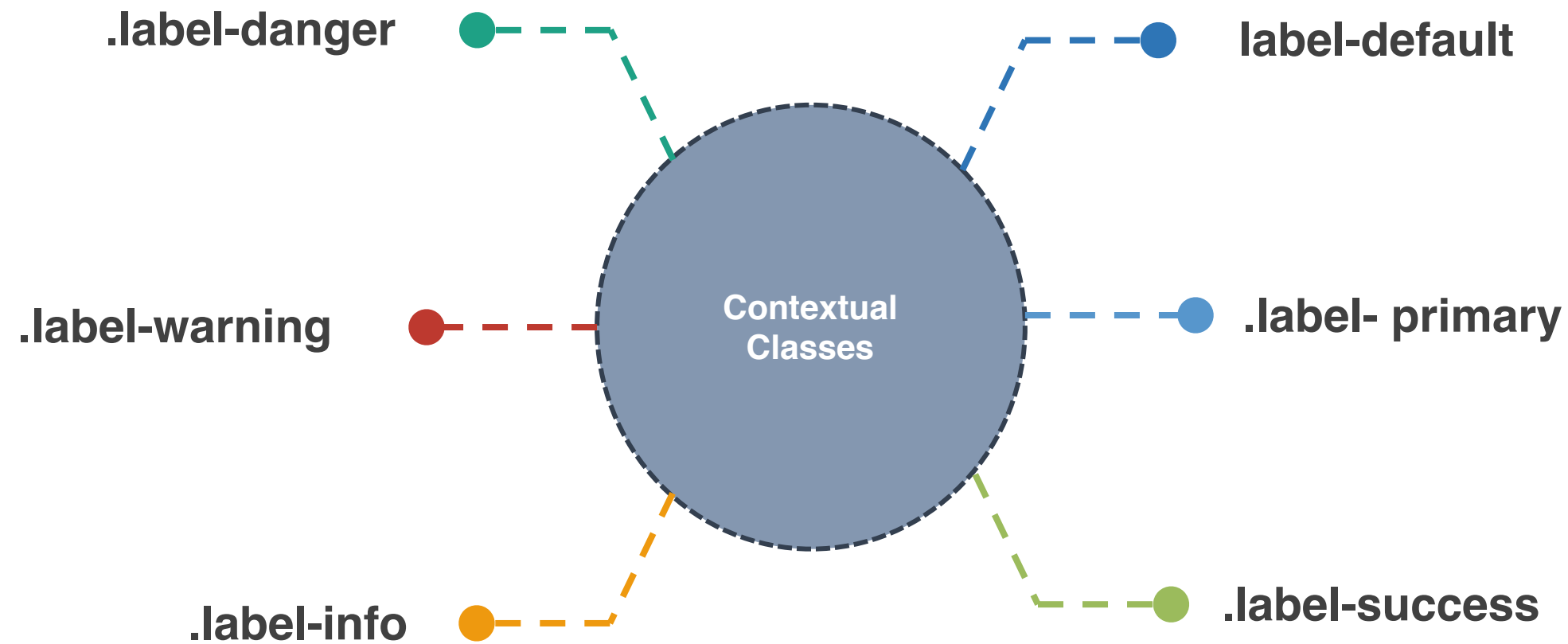
Search icon on a styled button: [🔍 Search](#)

Link with icon: [🖨️ Print](#)

Bootstrap Labels

In Bootstrap 3:

- The main purpose of label is to provide information.
- You can create labels with backgrounds of different colors using the ***.label class*** and one of these:



Bootstrap Labels—Example

```
<div class="container">
  <h1>Bootstrap Label</h1>

  <span class="label label-default">Default Label</span>
  <span class="label label-primary">Primary Label</span>
  <span class="label label-success">Success Label</span>
  <span class="label label-info">Info Label</span>
  <span class="label label-warning">Warning Label</span>
  <span class="label label-danger">Danger Label</span>
```

Output:

Default Label

Primary Label

Success Label

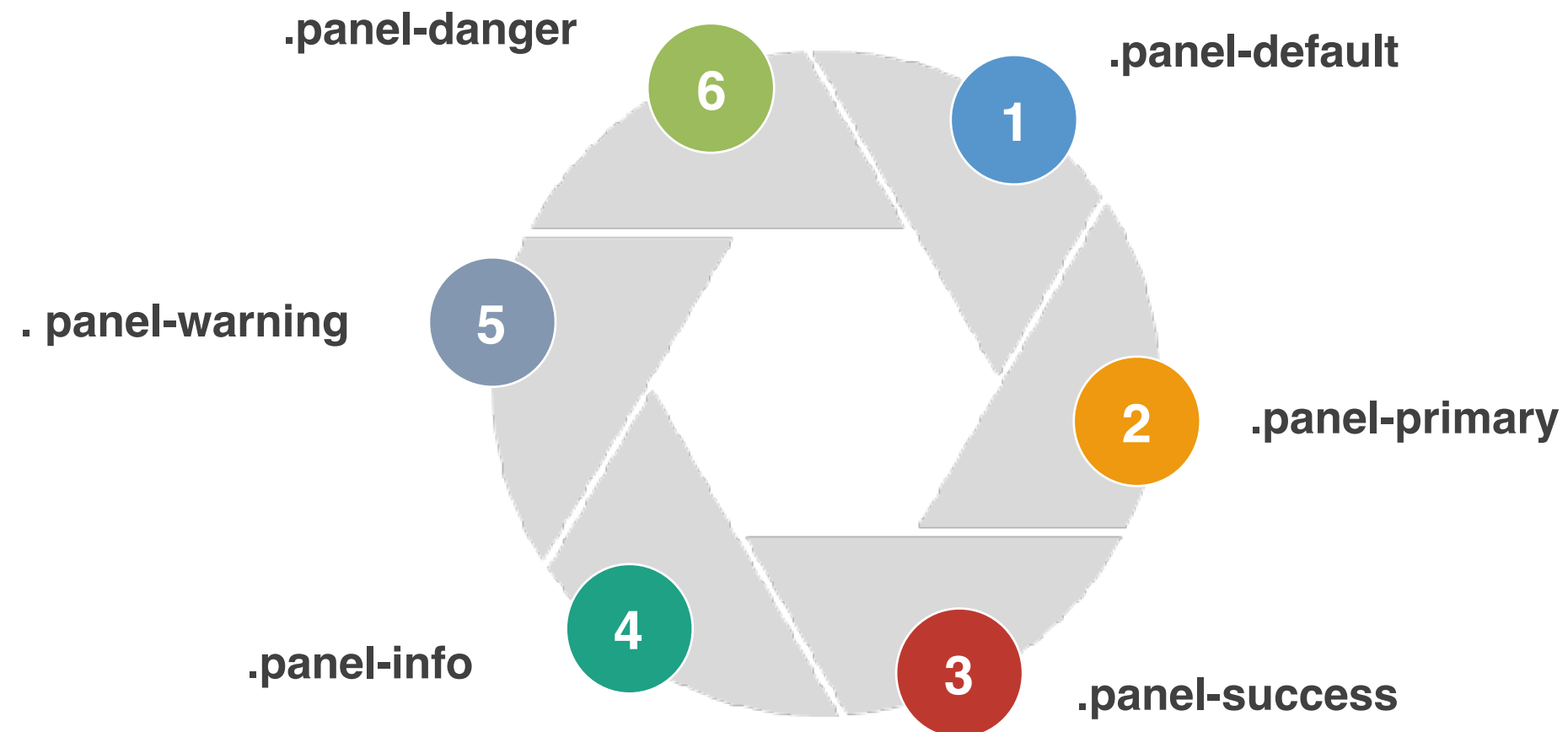
Info Label

Warning Label

Danger Label

Bootstrap Panels

- In Bootstrap 3, a panel is a box with a border and padding around the content.
- The main purpose of the panel is to highlight or separate some information.
- To create a panel, use one of the following contextual classes:



Bootstrap Panels—Example

```
<div class="container">
  <h1>Bootstrap Panel</h1>

  <div class="Panel panel-success">
    <div class="panel-heading">Panel heading</div>
    <div class="panel-body">Panel Content</div>
    <div class="panel-footer">Panel Footer</div>
  </div>
```

Output:

Panel Heading
Panel Content
Panel Footer

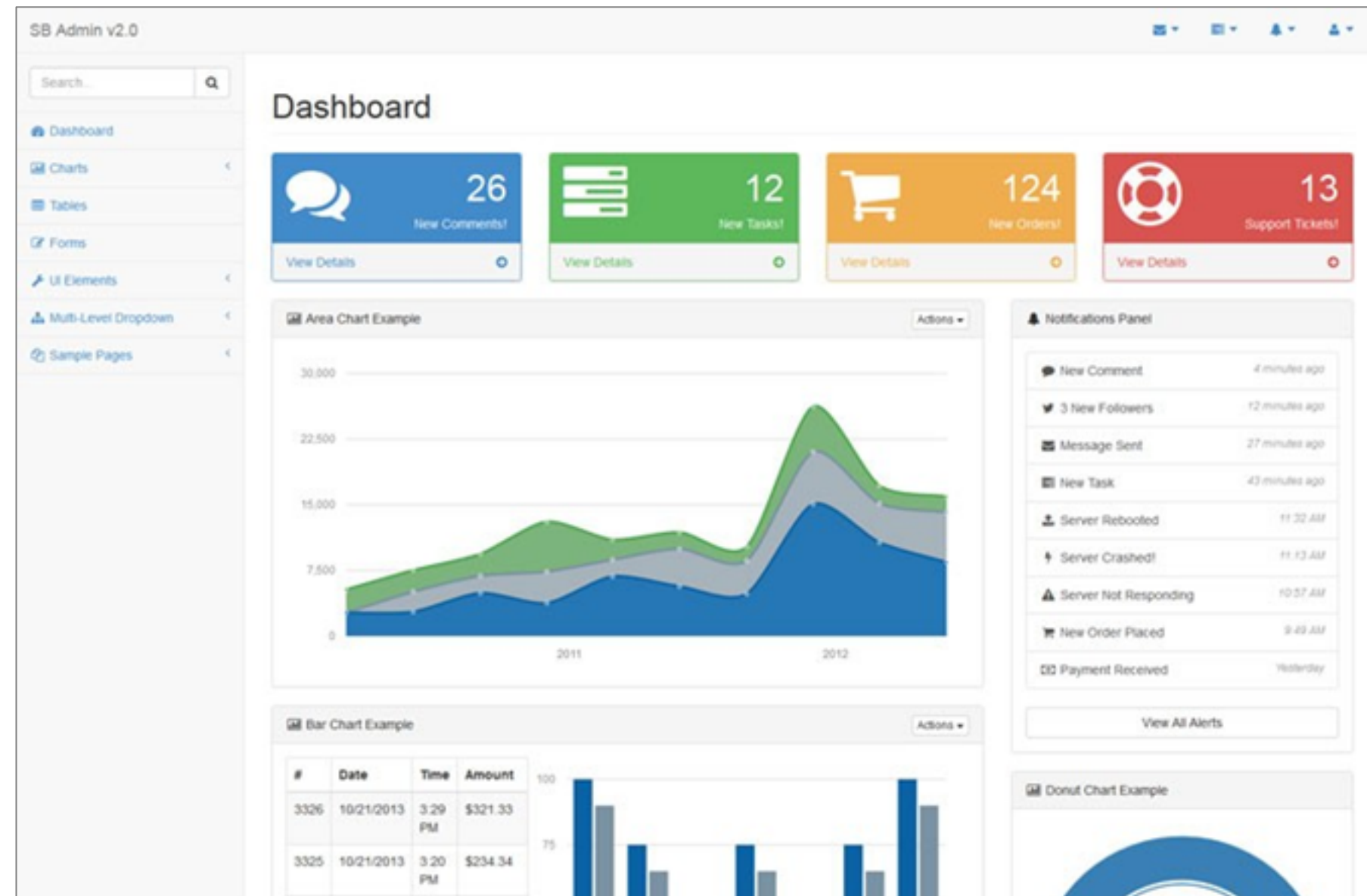
Bootstrap Themes and Templates

- **Theme:** A customized CSS
- **Template:** One or more predesigned HTML pages that use a theme

- Both theme and template are a collection of elements like grids, buttons, and panels that are put together to create a fully functional website/web application.
- You can download several freely available templates themes.
- Some templates can be downloaded from <https://startbootstrap.com/template-categories/all/>

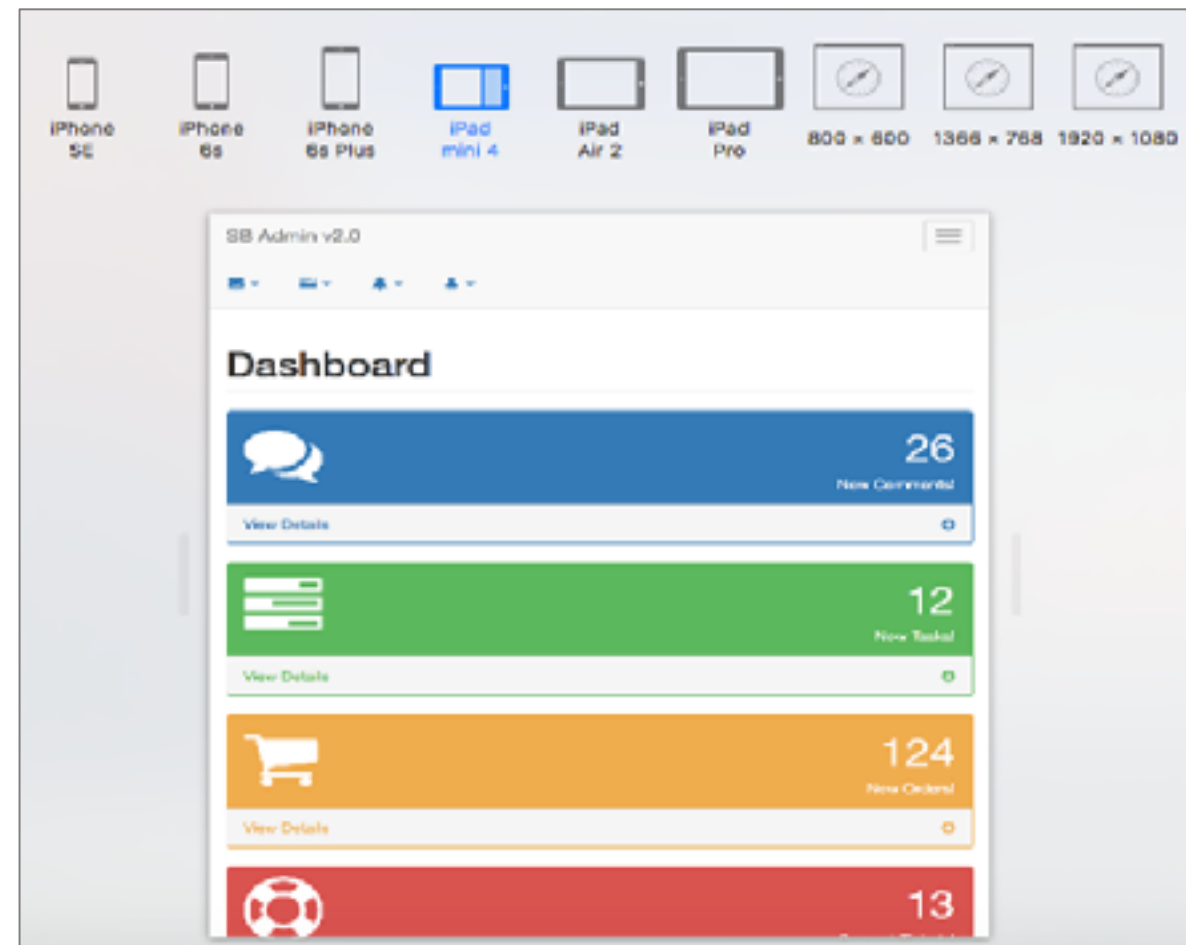
Bootstrap Themes and Templates

SB Admin 2 template is relevant for web applications. It consists of tables, forms, charts, and other components.



Bootstrap Themes and Templates

- Download the SB Admin 2 template on your computer
- Open the /pages/index.html in your web browser
- Customize it or write the application design from scratch



Key Takeaways



- ✔ A Responsive Web Design is a unique design that can adapt to any screen size.
- ✔ A grid system presents a swift and simple way to build responsive website layouts.
- ✔ Bootstrap 3 offers various components, including tables, images, alerts, panels, buttons, templates, themes and more that you can use to create your web design.



QUIZ

1

Bootstrap's grid system allows up to _____.

- a. 6 columns across the page
- b. 12 columns across the page
- c. 24 columns across the page
- d. 10 columns across the page



QUIZ

1

Bootstrap's grid system allows up to _____.

- a. 6 columns across the page
- b. 12 columns across the page
- c. 24 columns across the page
- d. 10 columns across the page



The correct answer is **b.**

Bootstrap's grid system allows up to 12 columns across the page.

QUIZ

2

In `<meta name="viewport" content="width=device-width, initial-scale=1">` the width=device-width part sets _____.

- a. The view in Desktop only
- b. The width of the page to follow the screen-width of the device (which will vary depending on the device)
- c. The view for Mobile only
- d. None of the above



QUIZ

2

In `<meta name="viewport" content="width=device-width, initial-scale=1">` the width=device- the width part sets _____.

- a. The view in Desktop only
- b. The width of the page to follow the screen-width of the device (which will vary depending on the device)
- c. The view for Mobile only
- d. None of the above



The correct answer is **b.**

In `<meta name="viewport" content="width=device-width, initial-scale=1">` the width=device-, the width part sets the width of the page to follow the screen-width of the device (which will vary depending on the device).

QUIZ

3

We can create badges inside buttons.

- a. True
- b. False



QUIZ

3

We can create badges inside buttons.

- a. True
- b. False



The correct answer is **a**

We can create badges inside buttons.

QUIZ

4

Which class creates a list of items?

- a. lst-group
- b. list-group
- c. menu-group
- d. list-grp



QUIZ

4

Which class creates a list of items?

- a. lst-group
- b. list-group
- c. menu-group
- d. list-grp



The correct answer is **b.**

list-group is the class that creates a list of items.