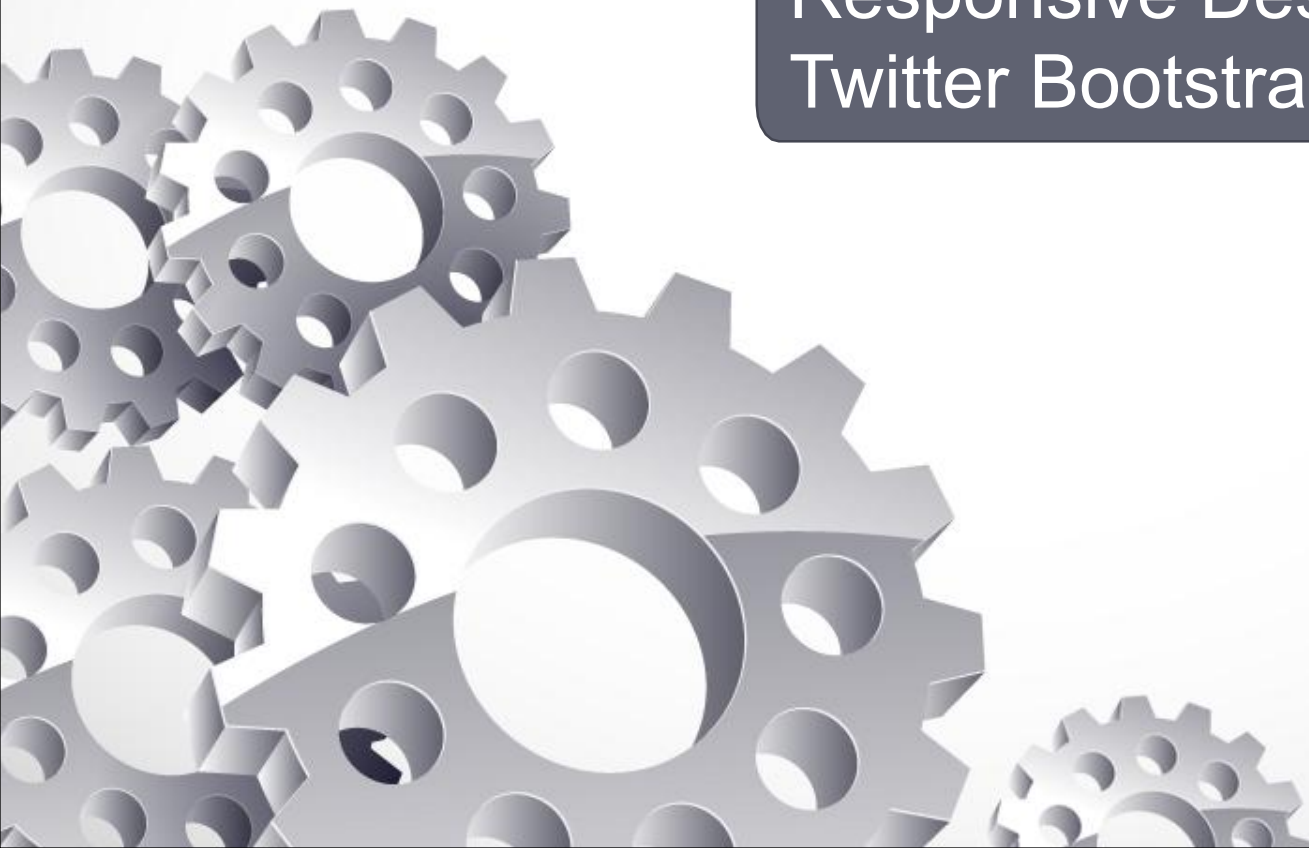


Web Technology S2 2021/22

Responsive Design and
Twitter Bootstrap



State of Today's Web





This page is best viewed with
browser X and screen resolution of
xxx X yyy

- No longer relevant today

What is Responsive Web Design (RWD)?



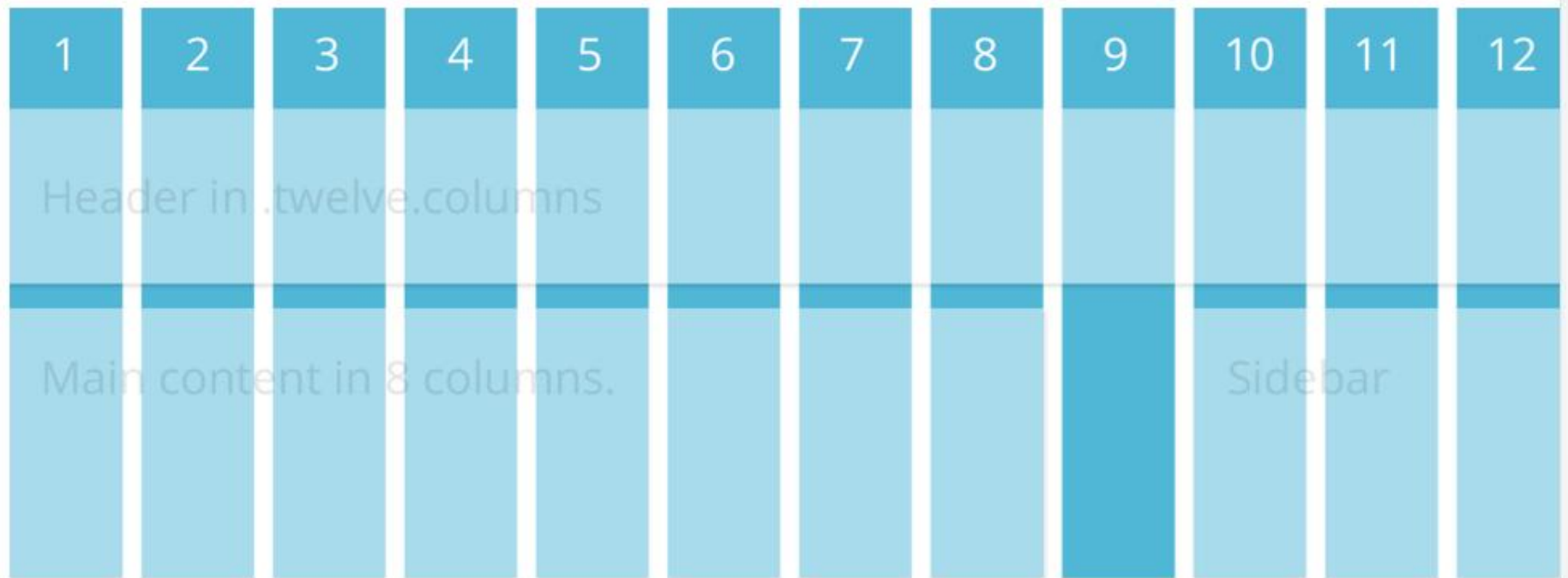
An approach to web design that provides an optimal viewing experience across a wide range of devices.

Elements of RWD



- Fluid Grid
- Resizable Images
- Media Queries

Grids





[Redacted text block]

[Redacted text block]

[Redacted text block]



Top Navigation

Logo

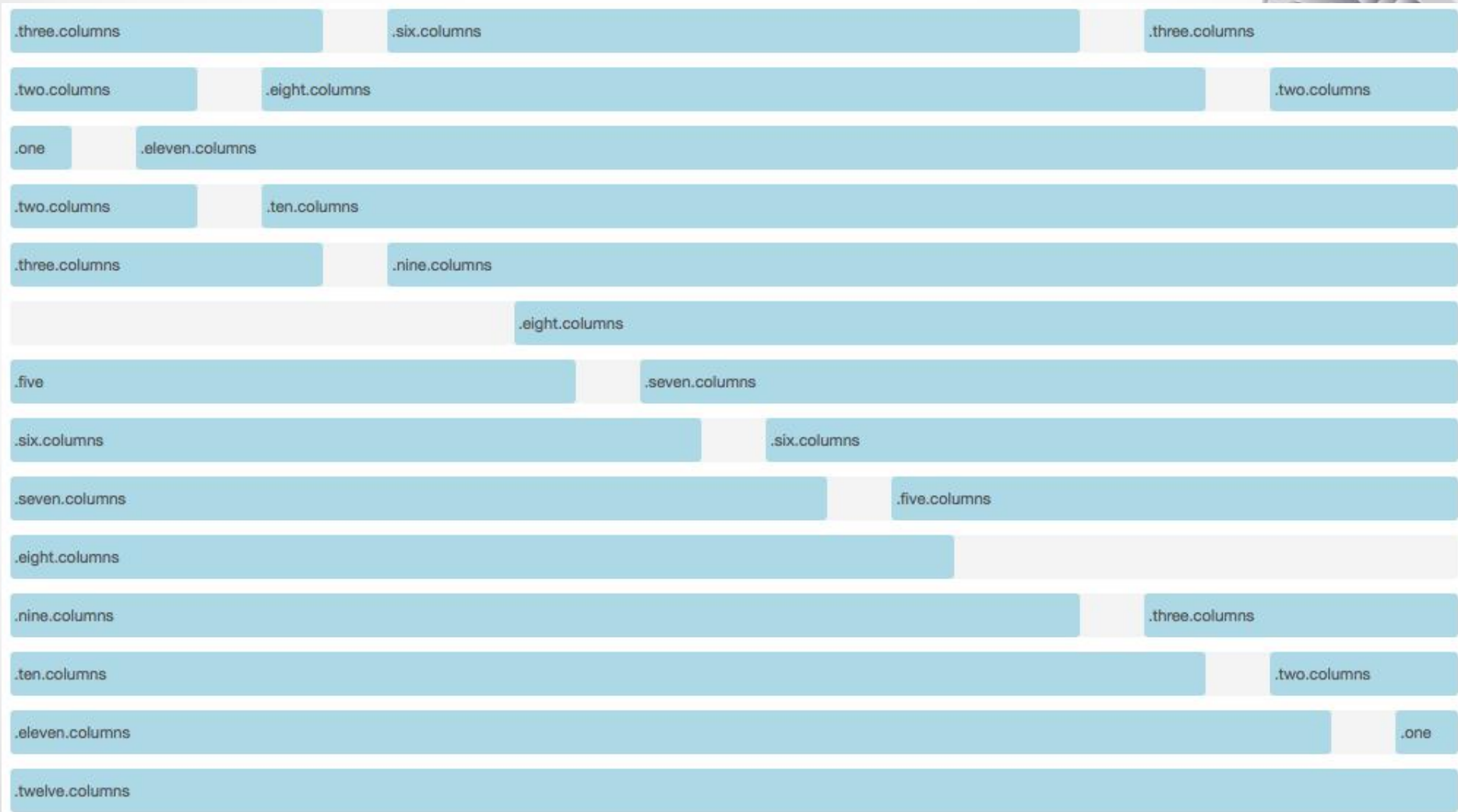
Header

Column 1

Main Content

Column 3

How do grid systems work?



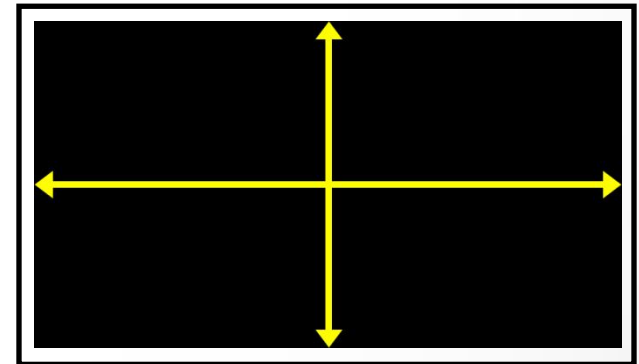
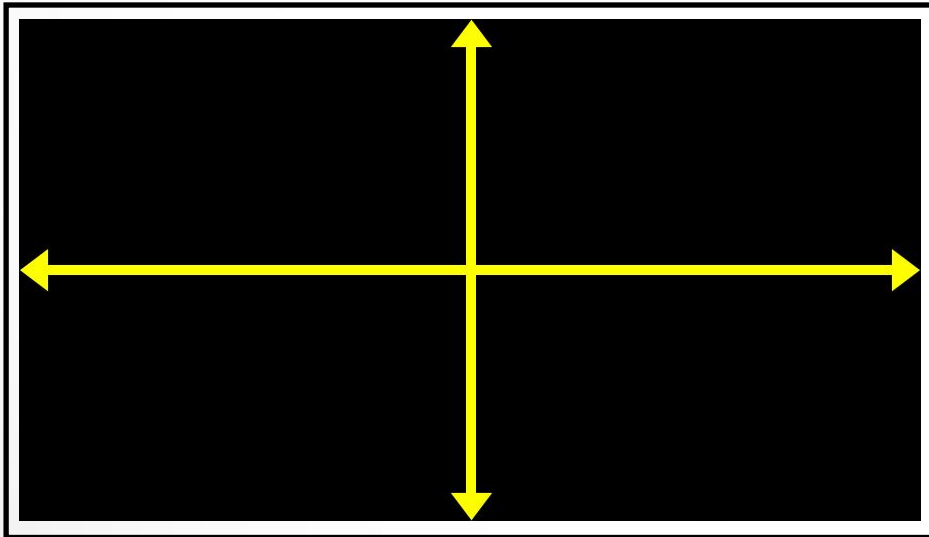
12 column version



Resizable Images



```
img {  
  max-width: 100%;height: auto;}
```



Media Queries



- A CSS3 module that renders web pages based on conditions such as screen resolution
- Drafted in 2001 by the W3C
- Became a recommended standard in June 2012

Common Breakpoints



| Label | Layout Width |
|-------------------|-----------------|
| Smartphones | 480px and below |
| Portrait Tables | 480px to 768px |
| Landscape Tablets | 768px to 940px |
| Default | 940px and up |
| Large Screens | 1210px and up |

Bootstrap



- A freely available design framework for websites and web applications
- Based upon HTML5, CSS and JavaScript
- Supports all major browsers (even IE7!)
- Released on GitHub in August 2011



Grid System



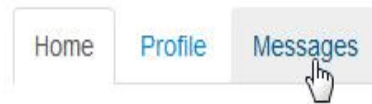


Components

➤ Buttons:



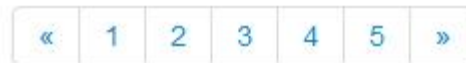
➤ Tabs:



➤ Breadcrumb:

[Home](#) / [Library](#) / [Data](#)

➤ Pagination:



➤ Alerts:

Warning! Best check yo self, you're not looking too good.



➤ Progress bar:



Javascript/jQuery



☒ Transitions (required for any animation)

☒ Modals

☒ Dropdowns

☒ Scrollspy

☒ Toggable tabs

☒ Tooltips

☒ Popovers (requires Tooltips)

☒ Affix

☒ Alert messages

☒ Buttons

☒ Collapse

☒ Carousel

☒ Typeahead

Templates



<http://bootswatch.com/>

Bootswatch News Gallery Preview ▾ Built With Bootstrap ↗ WrapBootstrap ↗

Gallery

Amelia new!
Sweet and cheery.

Preview Download ▾

Cerulean
A calm, blue sky.

Preview Download ▾

Cyborg
Jet black and electric blue.

Preview Download ▾

Journal
Crisp like a new sheet of paper.

Preview Download ▾

Readable new!
Optimized for legibility.

Preview Download ▾

Simplex updated!
Mini and minimalist.

Preview Download ▾

HowTo



- Download source:
<https://getbootstrap.com/docs/3.3/>
- Initializr
- Use boilerplate provided
 - bootstrap/code/boilerplate

Structure

- <project_folder>
 - <js folder>
 - jquery.min.js
 - bootstrap.min.js
 -
 - <fonts folder>
 - <css folder>
 - bootstrap.min.css
 - Index.html





```
1  <!DOCTYPE html>
2  <html lang="en">
3      <head>
4          <title>Bootstrap Example</title>
5          <meta charset="utf-8">
6          <meta name="viewport" content="width=device-width, initial-scale=1">
7          <link rel="stylesheet" href="css/bootstrap.min.css">
8      </head>
9      <body>
10         <!-- Your html content start after this comment-->
11
12         <script src="js/jquery-3.2.1.min.js"></script>
13         <script src="js/bootstrap.min.js"></script>
14     </body>
15 </html>
```

Add content in body (after the opening body tag)



- Add container
 - `<div class="container">`
 - Add row
 - `<div class="row">`
 - Add grid
 - `<div class="col-*-*"></div>`

Grid Classes



- The Bootstrap grid system has four classes:
 - xs (for phones)
 - sm (for tablets)
 - md (for desktops)
 - lg (for larger desktops)
- The classes above can be combined to create more dynamic and flexible layouts.
- Automatically detecting currently active devices

Grid Options



Grid Options

The following table summarizes how the Bootstrap grid system works across multiple devices:

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

Basic Structure of a Bootstrap Grid



```
<div class="row">
  <div class="col-*-*"></div>
</div>
<div class="row">
  <div class="col-*-*"></div>
  <div class="col-*-*"></div>
  <div class="col-*-*"></div>
</div>
<div class="row">
  ...
</div>
```



Two Unequal Columns

.col-sm-4

.col-sm-8

The following example shows how to get two various-width columns starting at tablets and scaling to large desktops:

Example

```
<div class="row">
  <div class="col-sm-4">.col-sm-4</div>
  <div class="col-sm-8">.col-sm-8</div>
</div>
```

Other examples

- Nested ([nested_columns.htm](#))
- Offset ([offset.html](#))
- Mixed devices ([mixed_devices.html](#))

