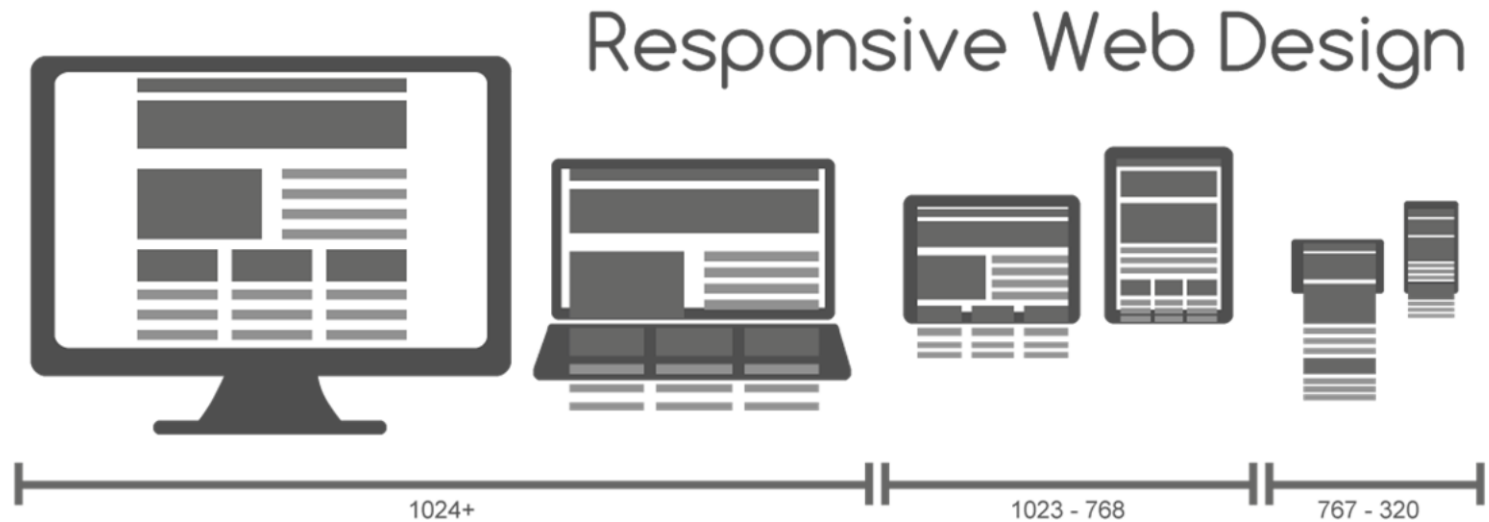# Responsive Design using Bootstarp

Responsive Design

Responsive design is an approach to **optimize the viewing experience on range of devices**: mobile, desktop, tablet, TV…

Creating Responsive Design

Responsive design can be accomplished by using the following:

- Fluid layout
  - Auto resizing the text's container and having the text reflow inside of it (e.g., using proportional values for width, margin, etc...)

- Flexible types
  - All font sizes are based on the root html element

- Flexible images
  - Images cannot go beyond their container

- Media queries
  - Apply styles based on the screen size of the client

3

Fluid Layout

Fluid layout uses proportional sizes

Sub nav	content	aside
12%	60%	20%

Margins:2%
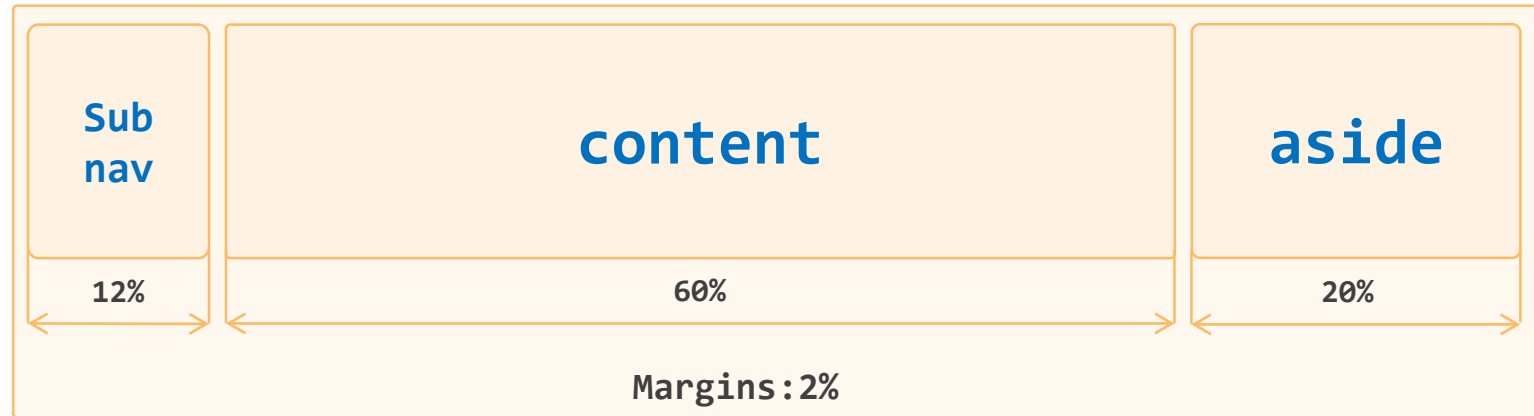
Pros:

- UI responds better to the client resolution

Cons:

- More whitespace on large screens (TV)
- Broken when using elements with fixed size such as images

Making Images Flexible

The fix to the image overflow is simple

- Just a reset in the top of the CSS

```
img { max-width:100%}
```

- `max-width` overrides the `width` property

  – If the image size is larger than the container's size, the image gets all the width

Flexible Type

- Flexible type means proportional font size relative to the root HTML element

  - Instead of pixels use proportional values (em)

  - To change the `font-size` of all elements just change the root's font-size

```css
body {
    font-size: 16px; /* baseline font size*/
}

p {
/* 1.25em relative to a 16px baseline on the body will result
in a 20px font size */
    font-size: 1.25em;
}
```
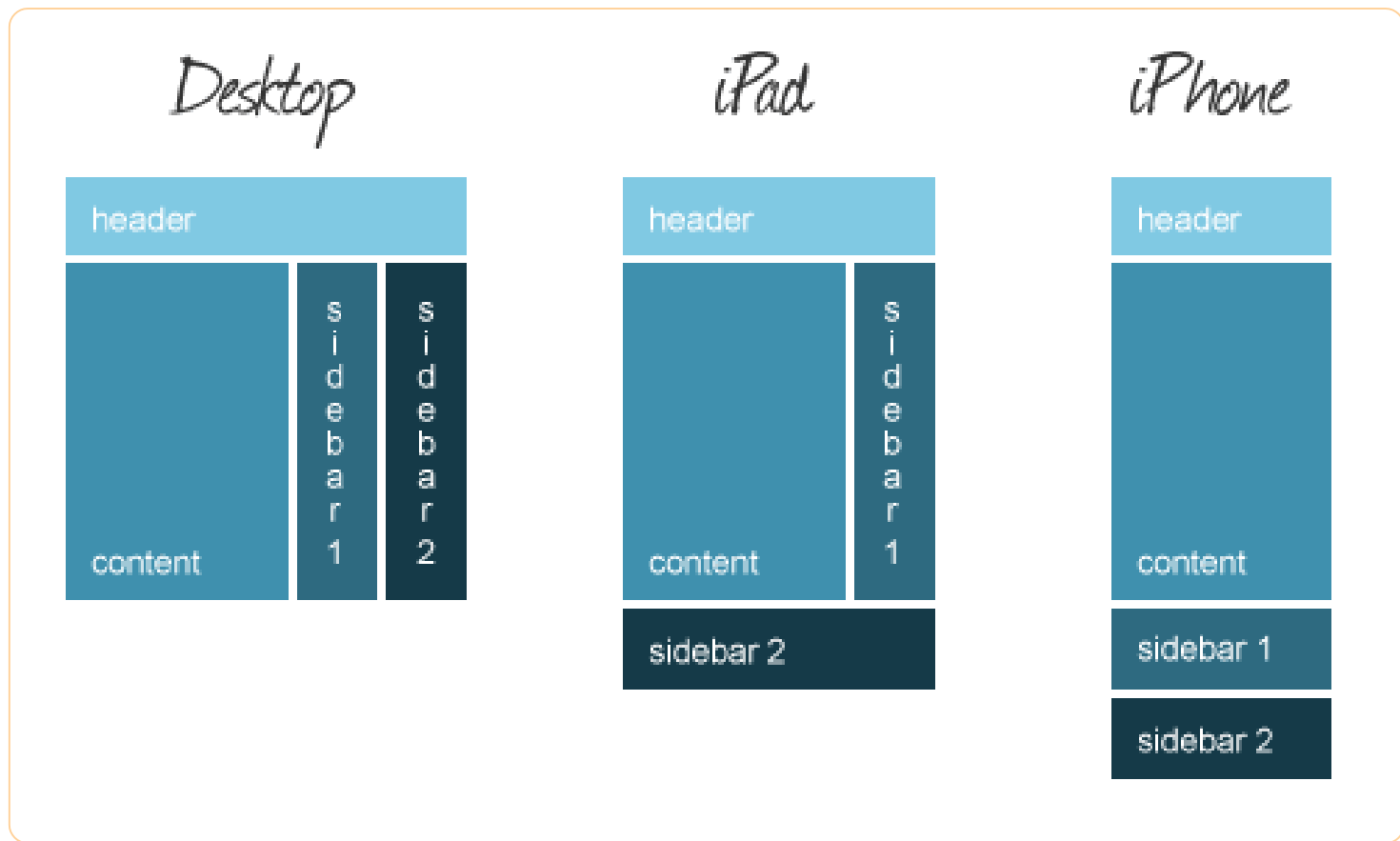
Flexible Type (2)

Making fonts "responsive" needs a little math

- ems = targetPx / rootPx

- 1.4375em = 23px / 16px

```
body{ font-size:16px}
  body header{ font-size:23px} // 23 / 16 = 1.4375
```

```
body{ font-size:16px;}
  body header { font-size:1.4375em}
```

Media Queries

Media Queries

- Media queries (MQs) are part of CSS 3

- A media query consists of a media type and at least one expression using media features like width, height and luminosity

- MQs change the presentation of content

```
@media (max-width: 480px) {
      h1 { font-size: 18px; }
 }
@media (min-width: 980px) {
      h1 { font-size: 32px; }
}
```

Media Queries (2)

- Media queries consist of a `media type` and expressions evaluated to TRUE or FALSE
  - If the evaluated result is TRUE, the styles in the query are applied

```
.box {width: 250px; height: 250px; display: inline-block}

@media only screen and (max-width: 1024px) {
  .box {width: 300px; height: 300px}
}

@media only screen and (max-width: 960px) {
  .box {width: 310px; height: 310px}
}

@media only screen and (max-width: 480px) {
  .box { display: block; width: 95%; height:auto}
}
```

Constructing a Responsive Design

The construction of responsive design combines all of the above

- Fluid layout

- Flexible images

- Flexible types

- Media queries

=> CSS becomes complex and very hard to maintain

CSS Framework such as **Bootstrap** comes to the rescue

Bootstarp

What is Bootstrap?

Bootstrap is a front-end framework for responsive Web sites

- Developed by former Twitter employees (a.k.a. Twitter Bootstrap)

- Open-source, available at GitHub: https://github.com/twbs/bootstrap

- Dramatically simplifies the development of responsive sites
  - Built on 12-column fluid grid system
  - Manages most of UI aspects: default CSS styles, typography, lists, tables, forms, buttons, images, navigations, alerts, pagination, panels, etc.
  - A lot of themes (free and paid)

- Complete and feature-rich CSS framework

- Official site: http://getbootstrap.com

Bootstrap 3

Twitter Bootstrap Installation

- Download at: http://getbootstrap.com/

- Add bootstrap.min.css to your HTML

- Add jQuery to your HTML

- Add bootstrap.min.js below jQuery

- Done!

Why

Reason #1: Rich Features

Designed for everyone, everywhere.

Need reasons to love Bootstrap? Look no further.

Built for and by nerds

Like you, we love building awesome products on the web. We love it so much, we decided to help people just like us do it easier, better, and faster. Bootstrap is built for you.

12-column grid

Grid systems aren't everything, but having a durable and flexible one at the core of your work can make development much simpler. Use our built-in grid classes or roll your own.

Growing library

Despite being only 10kb (gzipped), Bootstrap is one of the most complete front-end toolkits out there with dozens of fully functional components ready to be put to use.

HTML5

Built to support new HTML5 elements and syntax.

For all skill levels

Bootstrap is designed to help people of all skill levels— designer or developer, huge nerd or early beginner. Use it as a complete kit or use to start something more complex.

Responsive design

With Bootstrap 2, we've gone fully responsive. Our components are scaled according to a range of resolutions and devices to provide a consistent experience, no matter what.

Custom jQuery plugins

What good is an awesome design component without easy-to-use, proper, and extensible interactions? With Bootstrap, you get custom-built jQuery plugins to bring your projects to life.

CSS3

Progressively enhanced components for ultimate style.

Cross-everything

Originally built with only modern browsers in mind, Bootstrap has evolved to include support for all major browsers (even IE7!) and, with Bootstrap 2, tablets and smartphones, too.

Styleguide docs

Unlike other front-end toolkits, Bootstrap was designed first and foremost as a styleguide to document not only our features, but best practices and living, coded examples.

Built on LESS

Where vanilla CSS falters, LESS excels. Variables, nesting, operations, and mixins in LESS makes coding CSS faster and more efficient with minimal overhead.
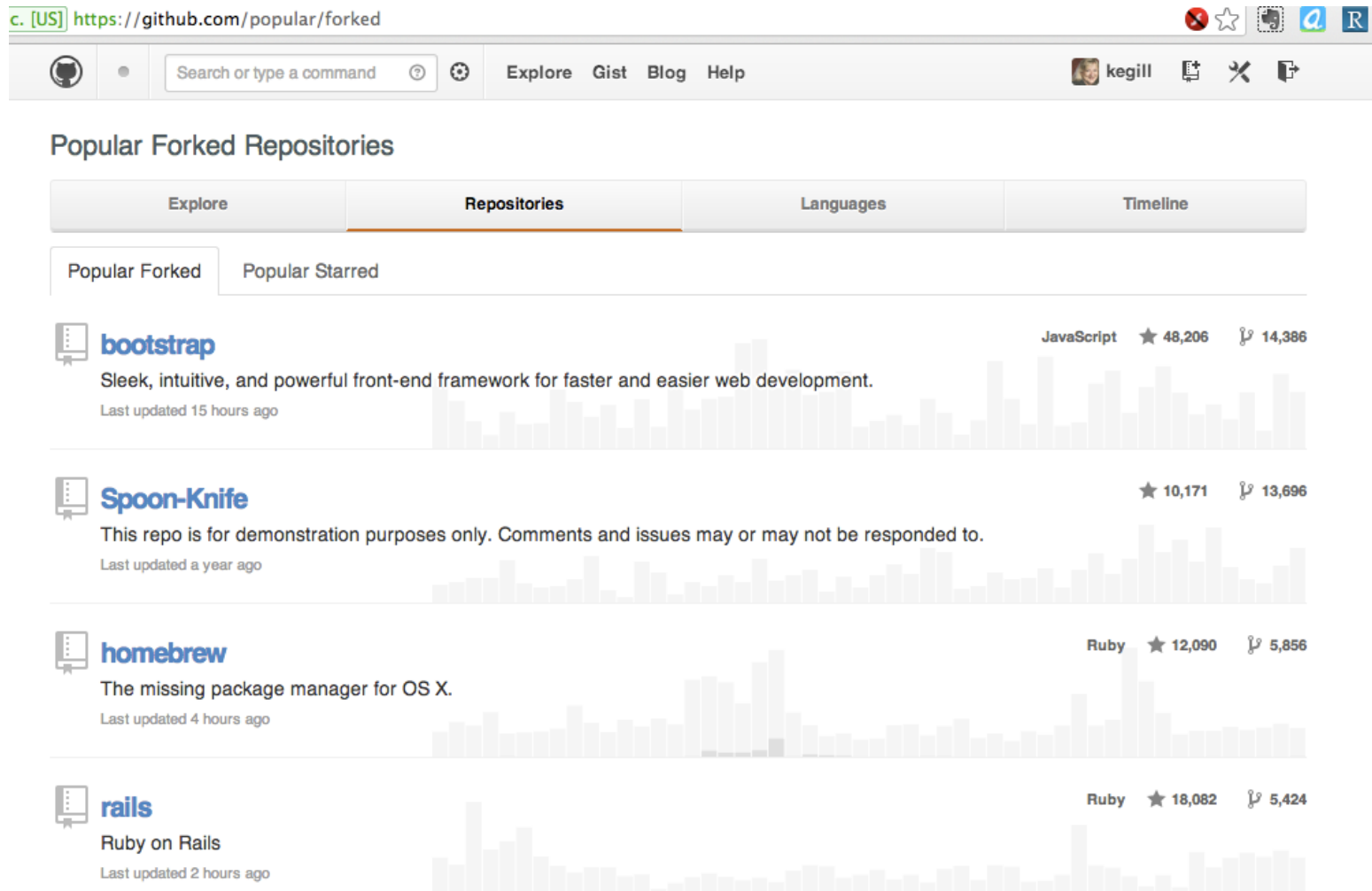
Open-source

Built for and maintained by the community via GitHub.

Made at Twitter

Brought to you by an experienced engineer and designer.
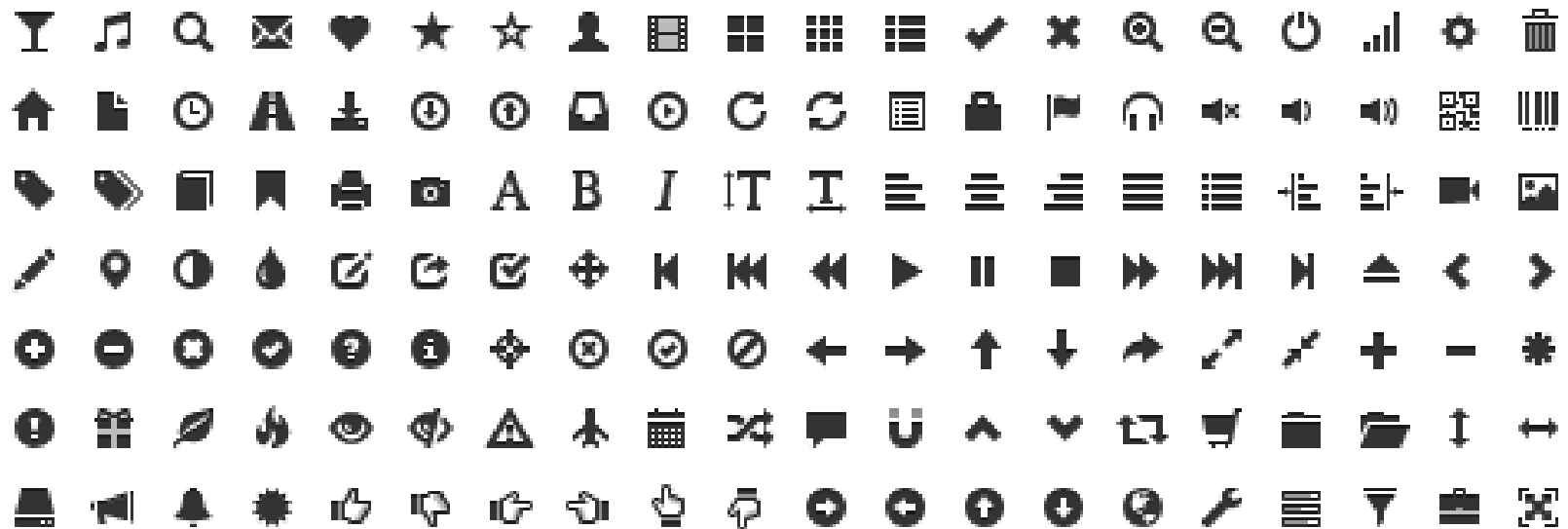
Why

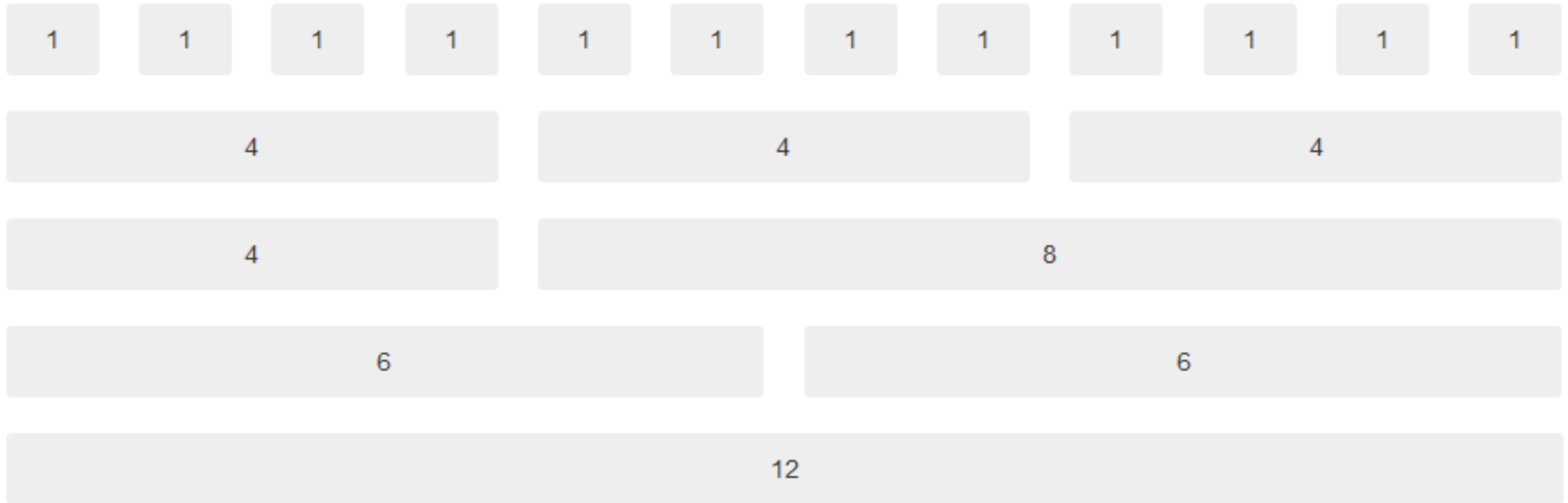## Reason #2: Popularity

Why

Reason #3: Browser Support

Why

Reason #4: Glyph Icon Set

Why

Reason #5: Grid System

| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| 4 | 4 | 4 |

| 4 | 8 |

| 6 | 6 |

| 12 |

960 Grid System http://960.gs/

Blue Print CSS http://www.blueprintcss.org/

Golden Grid System http://goldengridsystem.com/

Why

Reason #6: Components

➤ **Buttons:**

| Action ▾ | Action ▾ | Danger ▾ | Warning ▾ | Success ▾ | Info ▾ | Inverse ▾ |

➤ Tabs:

| Home | Profile | Messages |

➤ Breadcrumb:

Home / Library / Data

➤ Pagination:

| « | 1 | 2 | 3 | 4 | 5 | » |

➤ Alerts:

Warning! Best check yo self, you're not looking too good.   ✕
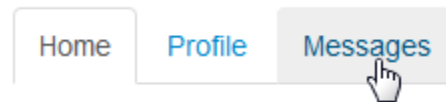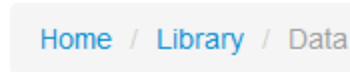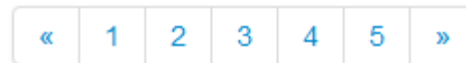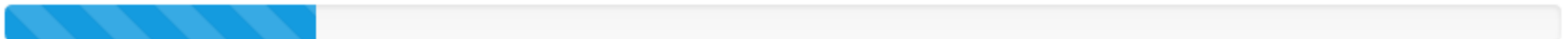
➤ Progress bar:

Bootstrap Features

Grid system

- 12-column fluid grid system for phones / tablets / desktops

CSS styles predefined UI design for the most page elements

- Typography: headings, subheadings, fonts, colors, lists, etc.

- Tables, forms and controls, buttons, image shapes, etc.
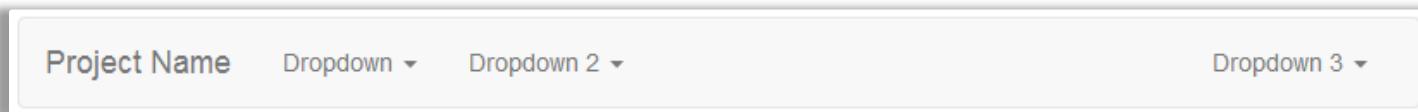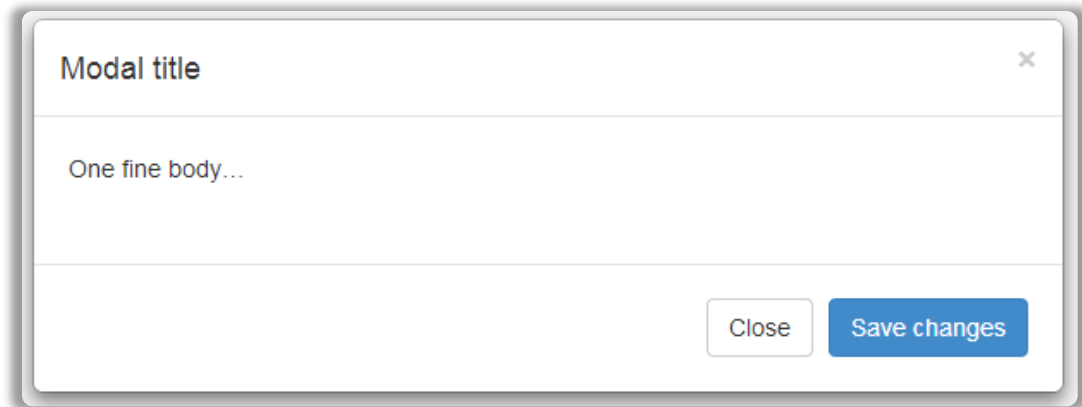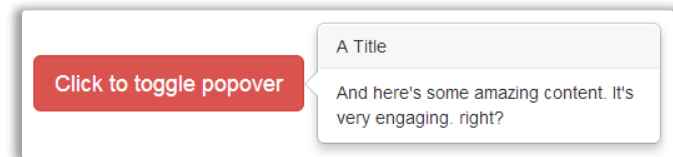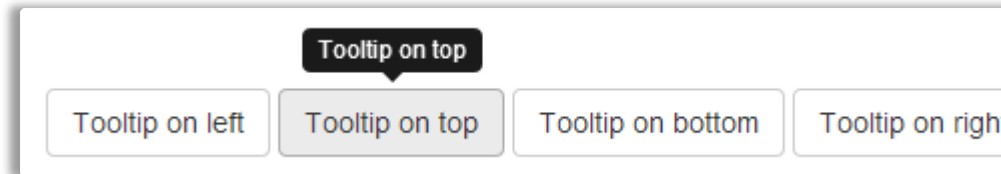
Components

- Glyph icons, dropdowns, button groups, input groups, tabs, navigation bars (site headers), breadcrumps, pagers, labels, badges, thumbnails, alerts, list groups, …

Bootstrap UI Components

Bootstrap [JavaScript extensions](#) (jQuery plugins)

- Modal popup dialogs
- Tooltips and popovers
- Alerts
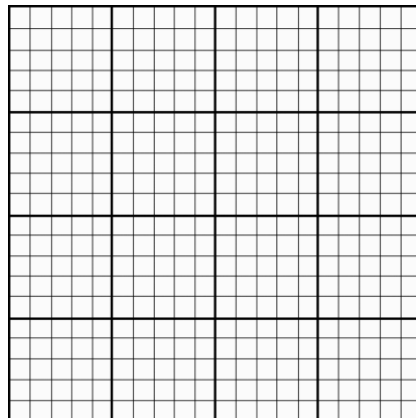- Special buttons
- Accordion
- Carousel

…

Bootstrap Grid System

Bootstrap includes a responsive, mobile first **fluid grid system**

- 12 column-based grid system

- .container class for grid wrapper

- .row class for rows

- .col-md-# for columns

Examples - http://getbootstrap.com/examples/grid/

Grids

1	2	3	4	5	6	7	8	9	10	11	12

Header in .twelve.columns

Main content in 8 columns.   Sidebar
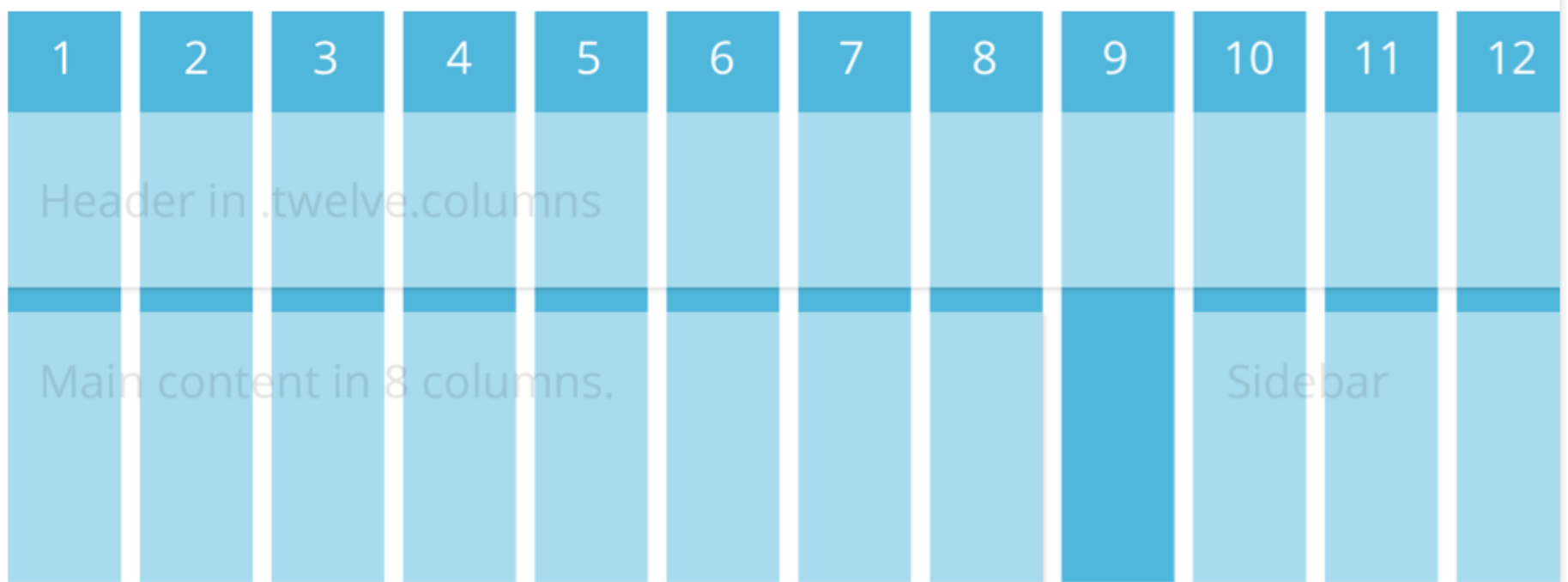
Top Navigation

Logo

Header

Column 1

Main Content

Column 3

Bootstrap Screen Sizes

Bootstrap is designed to support 4 types of devices:

- **Extra small devices** like smart phones (width < 768px) – **xs**

- **Small devices** like tablets (width ≥ 768px) – **sm**

- **Medium devices** like desktop computers (width ≥ 992px) – **md**

- **Large devices** like large desktops (width ≥ 1200px) – **lg**

It may define column spans for different screen sizes

- Show / hide columns (e.g. hide the sidebar for smart phones)

- Done through CSS classes, no additional CSS, no JavaScript

Bootstrap 3.0

Grid system options

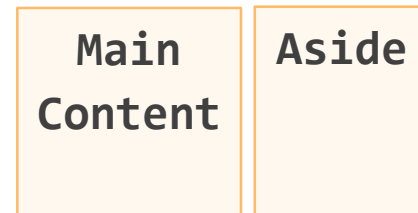|	**Extra small devices** Phones (<768px)	**Small devices** Tablets (≥768px)	**Medium devices** Desktops (≥992px)	**Large devices** Desktops (≥1200px)
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints		
Max container width	None (auto)	750px	970px	1170px
Class prefix	`.col-xs-`	`.col-sm-`	`.col-md-`	`.col-lg-`
# of columns	12			
Max column width	Auto	60px	78px	95px
Gutter width	30px (15px on each side of a column)			
Nestable	Yes			
Offsets	Yes			
Column ordering	Yes			

Bootstrap Grid: CSS Classes

Put everything in `.container > .row`

Use `.col-sm-9` to use 9 columns for tablets and larger screens

Use `.col-lg-3` to use 3 columns for desktops and larger screens

```
<div class="container">
  <div class="row">
    <div class="col-sm-9">
      Main Content</div>
    <aside class="col-sm-3">
  </div>
</div>
```

Tablet+
(sm, md, lg)

| **Main Content** | **Aside** |

Smartphone
(xs)

| **Main Content** |
| **Aside** |

Bootstrap 3

Typography – text colors

.text-muted – grey

.text-primary – light blue

.text-success – green

.text-info – dark blue

.text-warning – yellow

.text-danger – red

Typography - built-in alignment classes

.text-left

.text-center

.text-right

Bootstrap 3

Tables - on <table> elements

- .table – default table
- .table-striped – every second row is colored
- .table-bordered – adds border to a table
- .table-hover – adds hover element to a table
- .table-condensed – makes the table compact

Tables – on <tr> and <td> elements

- .active, .success, .warning, .danger

Bootstrap 3

Forms

- Add .form to the <form> element

- Add .form-control to all form elements

- Group them with .form-group

Buttons

- .btn for buttons

- .btn-primary, .btn-danger, … for colors

- .btn-lg, btn-sm, btn-xs for sizes

Bootstrap 3

Images

- .img-rounded – for image with round edges

- .img-circle – for image as circle

- .img-thumbnail – adds small border

Helper classes

- Close icon - .close on any button

- Quick float - .pull-left, .pull-right

Summary

Bootstrap

- Powerful front-end framework for responsive Web sites

- Defined ready-to-use CSS classes and UI components

Bootstrap fluid grid system

- Use `.container` `.row` div

- Use the `.col-xs-5`, `.col-md-3`, …

Getting started

http://getbootstrap.com/css/