

Lesson – 3: Bootstrap Grid System

What is Bootstrap Grid System?

As put by the official documentation of Bootstrap for grid system –

Bootstrap includes a responsive, mobile first fluid grid system that appropriately scales up to 12 columns as the device or viewport size increases. It includes predefined classes for easy layout options, as well as powerful mixins for generating more semantic layouts.

Let us understand the above statement. Bootstrap 3 is mobile first in the sense that the code for Bootstrap now starts by targeting smaller screens like mobile devices, tablets, and then “expands” components and grids for larger screens such as laptops, desktops.

Mobile First Strategy

- **Content**
 - Determine what is most important.
- **Layout**
 - Design to smaller widths first.
 - Base CSS address mobile device first; media queries address for tablet, desktops.
- **Progressive Enhancement**
 - Add elements as screen size increases.

Working of Bootstrap Grid System

Grid systems are used for creating page layouts through a series of rows and columns that house your content. Here's how the Bootstrap grid system works –

- Rows must be placed within a **.container** class for proper alignment and padding.
- Use rows to create horizontal groups of columns.
- Content should be placed within the columns, and only columns may be the immediate children of rows.
- Predefined grid classes like **.row** and **.col-xs-4** are available for quickly making grid layouts. LESS mixins can also be used for more semantic layouts.
- Columns create gutters (gaps between column content) via padding. That padding is offset in rows for the first and the last column via negative margin on **.rows**.
- Grid columns are created by specifying the number of twelve available columns you wish to span. For example, three equal columns would use three **.col-xs-4**.

Media Queries

Media query is a really fancy term for "conditional CSS rule". It simply applies some CSS, based on certain conditions set forth. If those conditions are met, the style is applied.

Media Queries in Bootstrap allow you to move, show and hide content based on the viewport size. Following media queries are used in LESS files to create the key breakpoints in the Bootstrap grid system.

```
/* Extra small devices (phones, less than 768px) */  
/* No media query since this is the default in Bootstrap */  
  
/* Small devices (tablets, 768px and up) */  
@media (min-width: @screen-sm-min) { ... }  
  
/* Medium devices (desktops, 992px and up) */  
@media (min-width: @screen-md-min) { ... }  
  
/* Large devices (large desktops, 1200px and up) */  
@media (min-width: @screen-lg-min) { ... }
```

Occasionally these are expanded to include a **max-width** to limit CSS to a narrower set of devices.

```
@media (max-width: @screen-xs-max) { ... }  
@media (min-width: @screen-sm-min) and (max-width: @screen-sm-max) { ... }  
@media (min-width: @screen-md-min) and (max-width: @screen-md-max) { ... }  
@media (min-width: @screen-lg-min) { ... }
```

Media queries have two parts, a device specification and then a size rule. In the above case, the following rule is set –

Let us consider this line –

```
@media (min-width: @screen-sm-min) and (max-width: @screen-sm-max) { ... }
```

For all devices no matter what kind with *min-width: @screen-sm-min* if the width of the screen gets smaller than *@screen-sm-max*, then do something.

Grid options

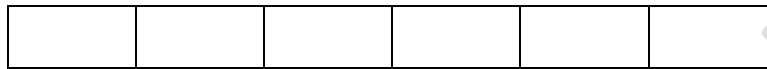
The following table summarizes aspects of how Bootstrap grid system works across multiple devices –

	Extra small devices Phones (<768px)	Small devices Tablets (≥768px)	Medium devices Desktops (≥992px)	Large devices Desktops (≥1200px)
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints	Collapsed to start, horizontal above breakpoints	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	12	12	12
Max column width	Auto	60px	78px	95px
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

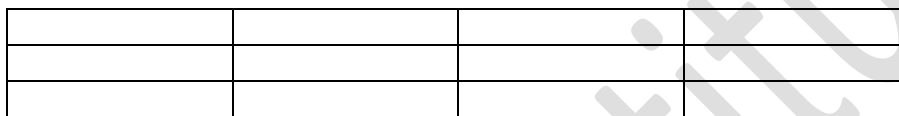
12 Columns



6 Columns



4x3 = 12 Columns



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