Responsive Web Design & Bootstrap Grid System > Introduction to Responsive Web Design | Cheat Sheet:

1. Bootstrap Grid System

Bootstrap Grid System is a collection of reusable code snippets to create responsive layouts. It is made up of containers, rows, and columns. It uses a 12 column system for layouting. We can create up to 12 columns across the page.

1.1 Container

The purpose of a container is to hold rows and columns.

* <div class="container"></div>

Note: Here, the container is a div element with the Bootstrap class name container.

1.2 Row

The purpose of a row is to wrap all the columns

* <div class="container"> <div class="row"></div> </div>

Note: Here, the row is a div element with the Bootstrap class name row.

1.3 Column

We should place the columns inside a row and the content inside a column.

We can specify the number of columns our content should occupy in any device. The number of columns we specify should be a number in the range of 1 to 12.

Here, the column is a div element with the Bootstrap class name col-12

```
If Bootstrap class name is col-12, it occupies the entire width available inside the row.
```

The Bootstrap class names col-* indicates the number of columns you would like to use out of the possible 12 columns per row. For example, col-1, col-5, etc.

Bootstrap Grid System | Cheat Sheet

1. Column Wrapping

When we place more than 12 grid columns in a single row, the extra grid columns will wrap in a new line.

Try out the different combinations of Bootstrap class names like

```
Code:
<!DOCTYPE html>
<html>
 <head>
  k rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"
integrity="sha384-JcKb8q3iqJ61gNV9KGb8thSsNjpSL0n8PARn9HuZOnlxN0hoP+
VmmDGMN5t9UJ0Z" crossorigin="anonymous"/>
  <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"</pre>
integrity="sha384-DfXdz2htPH0IsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVY
Uew+OrCXaRkfj" crossorigin="anonymous"></script>
  <script
src="https://cdn.jsdelivr.net/npm/popper.js@1.16.1/dist/umd/popper.min.js"
integrity="sha384-9/reFTGAW83EW2RDu2S0VKalzap3H66IZH81PoYIFhbGU+6BZp
6G7niu735Sk7IN" crossorigin="anonymous"></script>
  <script
src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"
integrity="sha384-B4qt1irGC7Jh4AqTPSdUtOBvfO8shuf57BaqhqFfPlYxofvL8/KU
EfYiJOMMV+rV" crossorigin="anonymous"></script>
 <style>
.heading {
font-size: 24px;
font-weight: bold;
 </style>
 </head>
 <body>
  <div class="container">
   <div class="row">
    <div class="col-6">
     <h1 class="heading">Taj Mahal</h1>
     The Taj Mahal is on the southern bank of the river Yamuna.
    </div>
    <div class="col-6">
     <h1 class="heading">Mysore Palace</h1>
     >
      The Mysore Palace is a historical palace and the royal residence at
      Mysore.
```

```
</div>
</div>
</div class="col-6">
</https://div>
</div>
</div class="col-6">
</https://div>
</div class="col-6">
</https://div>
</https://div>

</div>
</html>
```

Output:

Taj Mahal

The Taj Mahal is on the southern bank of the river Yamuna.

Golden Temple

The Golden Temple is a gurdwara located in the city of Amritsar.

Mysore Palace

The Mysore Palace is a historical palace and the royal residence at Mysore.

Varanasi

Varanasi is also known as Benares or Kashi. It is a city located on the bank of the river Ganges in Uttar Pradesh.

2. The Layout at different Breakpoints

Bootstrap provides different **Bootstrap Grid Column class name prefixes** for Five Responsive Tiers (Responsive Breakpoints).

Device	Device Size (Width)	Class Name Prefix
Extra small devices	<576px	col-
Small devices	>=576px	col-sm-
Medium devices	>=768px	col-md-
Large devices	>=992px	col-lg-
Extra large devices	>=1200px	col-xl-

If we define the behaviour of the Bootstrap Grid Column in a particular device, similar behaviour is guaranteed in all devices with larger sizes.

2.1 Class names in combination

We can use a combination of different Bootstrap class names for each Bootstrap Grid Column.

Try out the combinations of different Bootstrap class names like

```
col-lg-4, col-lg-3, col-lg-8, etc. in the below Code Playground.
```

```
Code:
<!DOCTYPE html>
<html>
 <head>
  k rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"
integrity="sha384-JcKb8q3iqJ61gNV9KGb8thSsNjpSL0n8PARn9HuZOnlxN0hoP+
VmmDGMN5t9UJ0Z" crossorigin="anonymous"/>
  <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"</pre>
integrity="sha384-DfXdz2htPH0IsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVY
Uew+OrCXaRkfj" crossorigin="anonymous"></script>
  <script
src="https://cdn.jsdelivr.net/npm/popper.js@1.16.1/dist/umd/popper.min.js"
integrity="sha384-9/reFTGAW83EW2RDu2S0VKalzap3H66IZH81PoYIFhbGU+6BZp
6G7niu735Sk7IN" crossorigin="anonymous"></script>
  <script
src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"
integrity="sha384-B4gt1jrGC7Jh4AgTPSdUtOBvfO8shuf57BaghqFfPIYxofvL8/KU
EfYiJOMMV+rV" crossorigin="anonymous"></script>
 </head>
 <body>
  <div class="container">
   <div class="row">
    <div class="col-12 col-lg-6">
     <h1 class="heading">Taj Mahal</h1>
     The Taj Mahal is on the southern bank of the river Yamuna.
    </div>
    <div class="col-12 col-lg-6">
     <h1 class="heading">Mysore Palace</h1>
     >
      The Mysore Palace is a historical palace and the royal residence at
      Mysore.
     </div>
    <div class="col-12 col-lg-6">
     <h1 class="heading">Golden Temple</h1>
```

```
The Golden Temple is a gurdwara located in the city of Amritsar.
</div>
<div class="col-12 col-lg-6">
<h1 class="heading">Varanasi</h1>
Varanasi is also known as Benares or Kashi. It is a city located on the bank of the river Ganges in Uttar Pradesh.
</div>
</div>
</div>
</div>
</div>
</div>
</div>
</html>
```

o/p:1

Taj Mahal	
The Taj Mahal is on the	southern bank of the river Yamuna.
Mysore Palace	
The Mysore Palace is a	historical palace and the royal residence at Mysore.
Golden Temple	2
The Golden Temple is a	gurdwara located in the city of Amritsar.
Varanasi	
Varanasi is also known Uttar Pradesh.	as Benares or Kashi. It is a city located on the bank of the river Ganges in

Output1:for device upto medium size

o/p:2

Taj Mahal	Mysore Palace
The Taj Mahal is on the southern bank of the river Yamuna.	The Mysore Palace is a historical palace and the royal residence at Mysore.
Golden Temple	Varanasi
The Golden Temple is a gurdwara located in the city of Amribar.	Varanasi is also known as Benares or Kashi. It is a city located on the bank of the river Ganges in Uttar Pradesh.

Output2: for device above medium



Bootstrap follows Mobile First Approach.

First, design the Layout of a mobile version, and this will be adopted by devices with larger sizes.

Bootstrap Grid System | Part 2 | Cheat Sheet

1. CSS Box Properties

1.1 Margin

We can get spacing between the two HTML elements with the CSS Box property margin.

To get space only on one particular side, we use **Margin Variants**.

- margin-top
- margin-right
- margin-bottom
- margin-left

Try out changing the Margin Variants in the below Code Playground.

2. Bootstrap Spacing Utilities

2.1 Margin

CSS Margin property	Bootstrap class name
margin	m-*
margin-top	mt-*
margin-right	mr-*
margin-bottom	mb-*
margin-left	ml-*

The asterisk (*) symbols can be any number in the range of 0 to 5. For example, m-5, mr-2, mb-3, etc.

2.1.1 Margin Values

Size	Value
0	0
1	0.25 * spacer
2	0.5 * spacer
3	1 * spacer
4	1.5 * spacer
5	3 * spacer

The **spacer** is a variable and has a value of 16 pixels by default.

For example,

- mb-3 = 1 * 16px = 16px
- m-5 = 3 * 16px = 48px

∄ Note

Avoid using CSS margin-left and margin-right properties for **Bootstrap Grid Columns**. It disturbs the Bootstrap Grid System and gives unexpected results.