

The Bootstrap Framework

RWD I1

Today's agenda

- Recap
- Why Bootstrap?
- How to add the Bootstrap Framework to a webpage project
- The Grid Layout feature
- Exercise

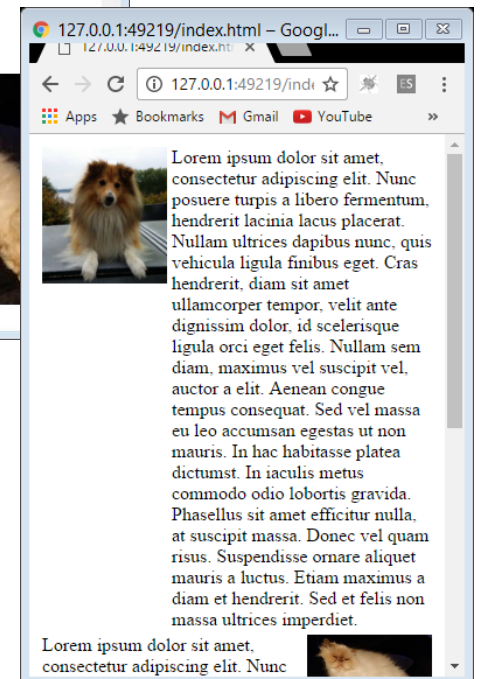
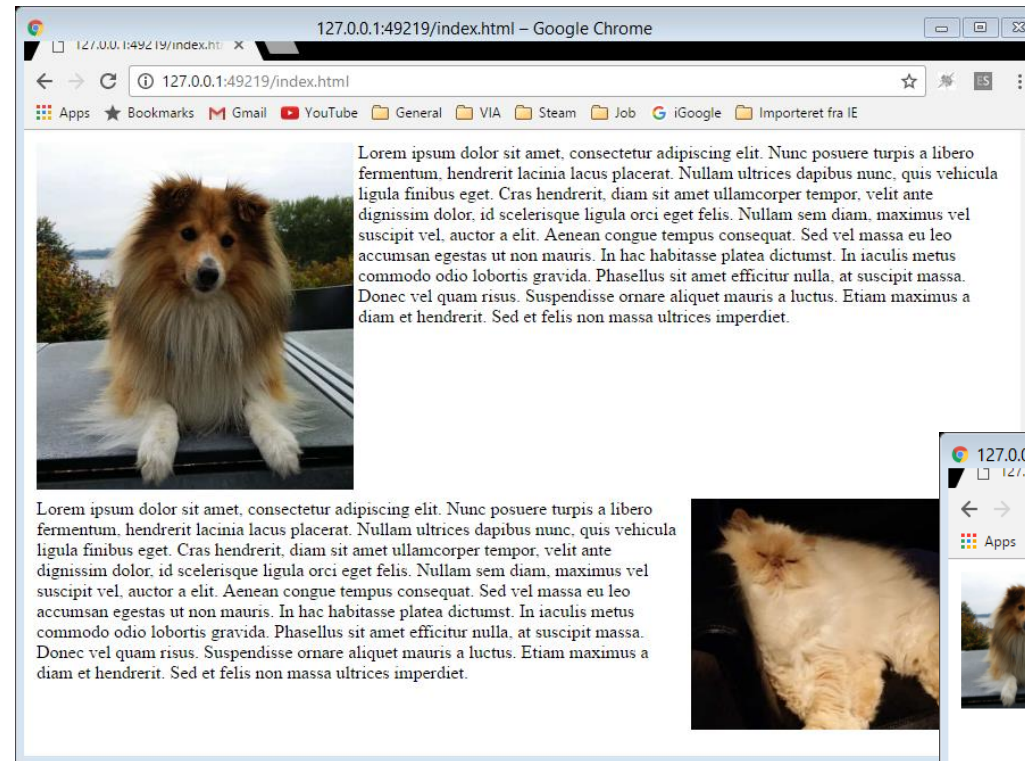
Exercises

Questions

The (Not So) Responsive Table

```
<table>
  <tr>
    <td>...</td>
    <td colspan="2">...</td>
  </tr>...
</table>
```

```
td {
  width: 33%;
}
```



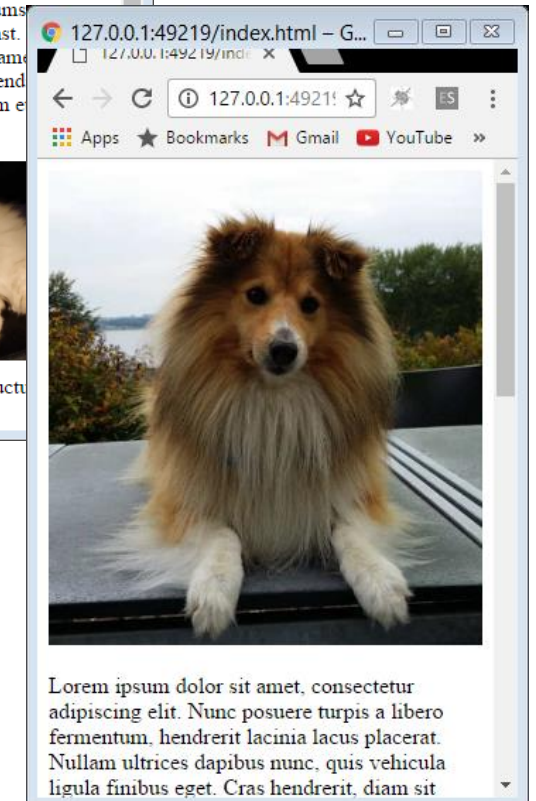
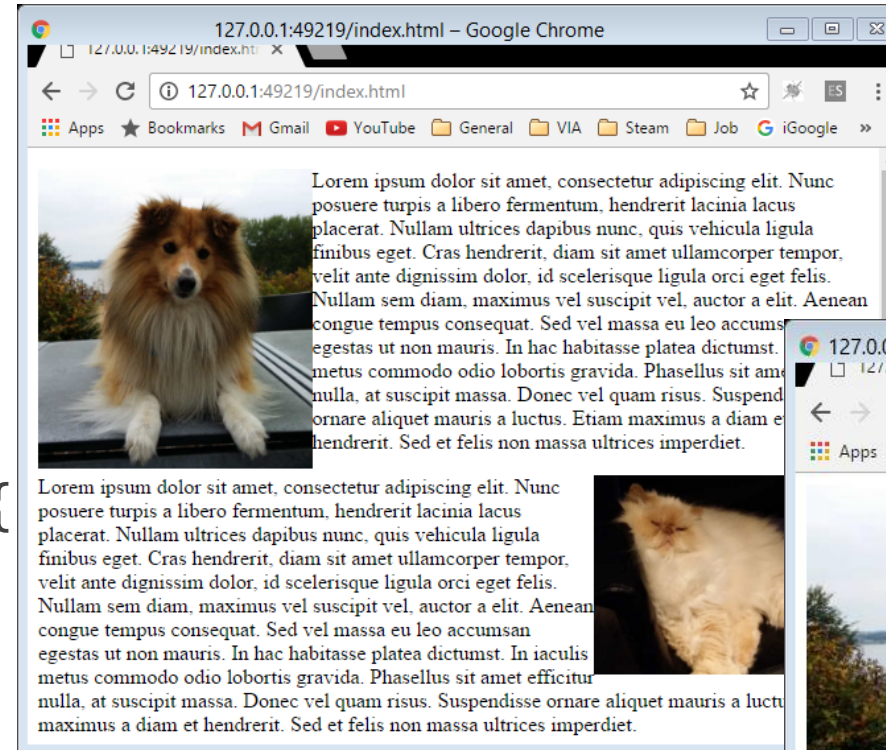
The Responsive Float

```
<div>
  <img ...>
  <p>...</p>
</div>
```

...

```
@media screen and (min-width: 650px) {
  #nickiImg {
    width: 33%;
    float: left;
  }
}
```

```
  #simbaImg {
    width: 33%;
    float: right;
  }
}
```



Combining the best of both

The Bootstrap Grid Framework

Bootstrap

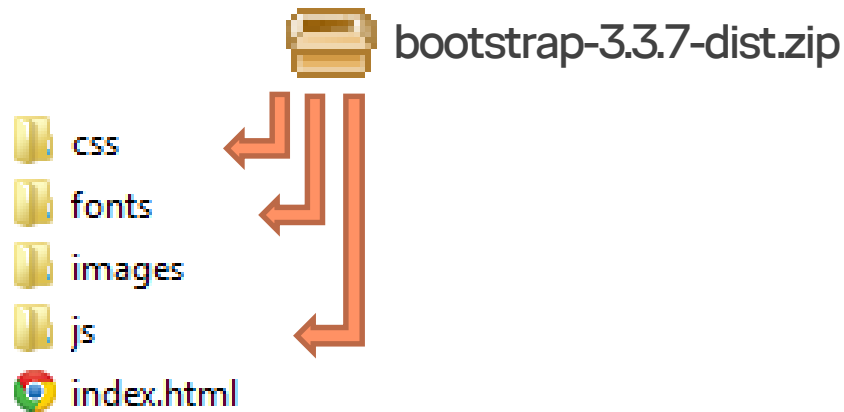
“Bootstrap is a free collection of tools for creating websites and web applications. It contains HTML and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions”

- A collection of CSS styling and JavaScript files.
- Can be customized.
- Controlled by assigning keyword class names in your HTML tags.
- Greatly reduces the amount of CSS styling code you have to write.
- In fact, setting or changing CSS style properties while at the same time trying to utilize Bootstrap features, while often cause the features not to function properly.
 - Especially **width**, **height**, **float** and **position** properties.

How to get Bootstrap

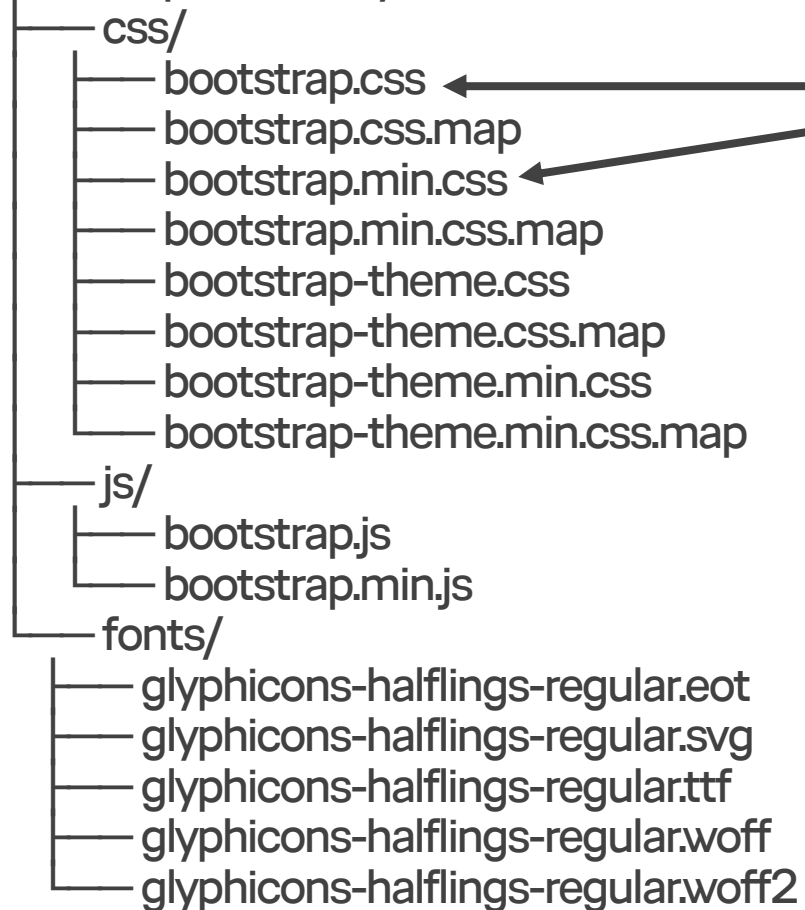
Method 1

- Go here: <http://getbootstrap.com/getting-started/#download>
- Download the Bootstrap file bundle.
- Unzip and add the Bootstrap related CSS, font and JavaScript files to your webpage root folder.
- NOTE: there is a beta version of Bootstrap 4.



How to get Bootstrap Method 1

bootstrap-3.3.7-dist/



Identical, except the “min” version have been “minified”, meaning; having had removed all unnecessary characters (for browser interpretation), such as spaces, new lines and comments without affecting the functionality of the source code.

This is done to reduce file size.

How to get Bootstrap Method 1

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Bootstrap Example</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel="stylesheet" href="css/bootstrap.min.css">
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.m
in.js"></script>
    <script src="js/bootstrap.min.js"></script>
    <link href="css/styles.css" type="text/css" rel="stylesheet">
  </head>
  <body>
    ...
  </body>
</html>
```

The `width=device-width` part sets the width of the page to follow the screen-width of the device (which will vary depending on the device).

The `initial-scale=1` part sets the initial zoom level when the page is first loaded by the browser.

Bootstrap uses jQuery to support its features, so a link (in this case external) to a jQuery script file is needed.

Your external CSS styling file (be careful).

How to get Bootstrap Method 2

- You can include it from a CDN (Content Delivery Network).
- MaxCDN provides CDN support for Bootstrap's CSS and JavaScript. You must also include jQuery:
(http://www.w3schools.com/bootstrap/bootstrap_get_started.asp)

```
<head>
  <title> Bootstrap Example </title>
  <meta charset= "utf-8" >
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <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/3.2.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
  <link href="css/styles.css" type="text/css" rel="stylesheet">
</head>
```

← Your own CSS styling

Grid Layout – One of Many Bootstrap Features

Bootstrap's grid layout divides the page (or element) into 12 columns.

If you do not want to use all 12 columns individually, you can group the columns together to create wider columns:

span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1
span 4				span 4				span 4			
span 4				span 8							
span 6						span 6					
span 12											

Bootstrap's grid layout is responsive, and the columns will re-arrange automatically depending on the browser window size.

Grid Layout – Syntax

```
<div class="row">  
  <div class="col- $\alpha$ - $\beta$ ">...</div>  
</div>
```

```
<div class="container">  
  <div class="row">  
    <div class="col-md-12">...</div>  
  </div>  
  <div class="row">  
    <div class="col-md-4">...</div>  
    <div class="col-md-4">...</div>  
    <div class="col-md-4">...</div>  
  </div>  
  <div class="row">  
    ...  
  </div>
```

Breakpoints!

α {
 xs (extra small)
 sm (small)
 md (medium)
 lg (large)

No. columns this
element should cover

β {
 1
 2
 3
 ...
 12

Grid Layout - Breakpoints

	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
Container width	None (auto)	750px	970px	1170px
Class prefix	.col-xs-	.col-sm-	.col-md-	.col-lg-

NOTE: Bootstrap 3 breakpoints are a little different from Bootstrap 4 (beta)

Grid Layout - Example

```
<div class="row">  
  <div class="col-md-6">Field 1</div>  
  <div class="col-md-6">Field 2</div>  
</div>  
<div class="row">  
  <div class="col-md-4">Field 3</div>  
  <div class="col-md-4">Field 4</div>  
  <div class="col-md-4">Field 5</div>  
</div>  
<div class="row">  
  <div class="col-md-4">Field 6</div>  
  <div class="col-md-8">Field 7</div>  
</div>
```

Define where a row starts and ends

Define that the column should occupy 6/12 of the width on medium size screens and larger

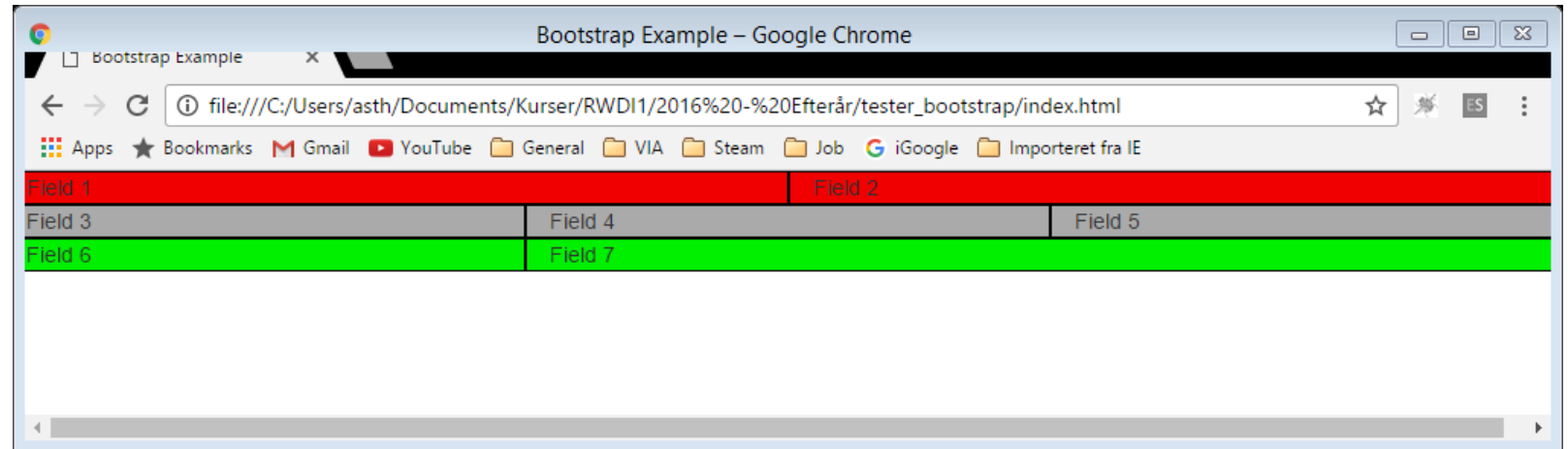
4/12 of the width on medium size screens and larger

4/12 of the width on medium size screens and larger

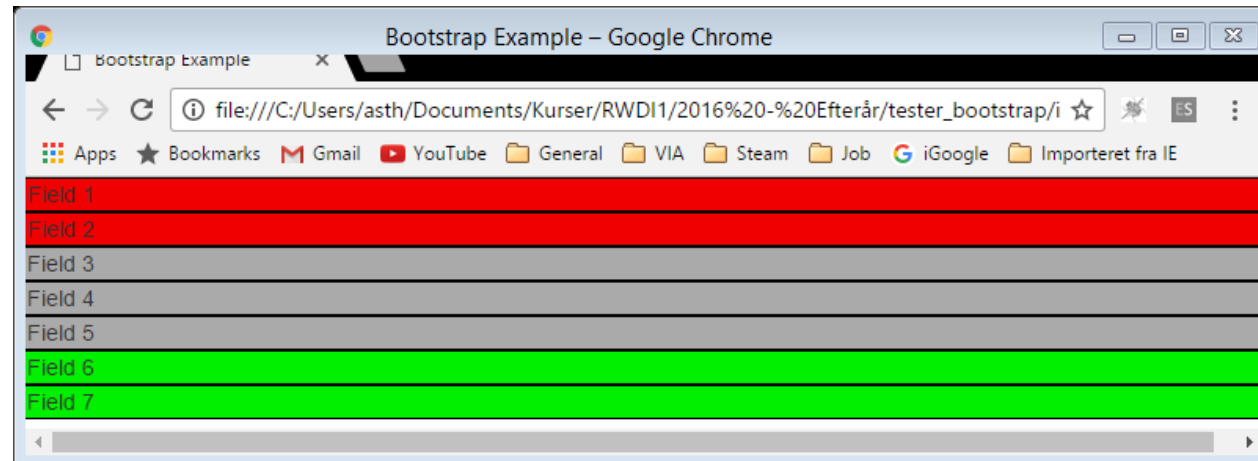
8/12 of the width on medium size screens and larger

Grid Layout - Example

Browser window size greater than the **md** breakpoint.

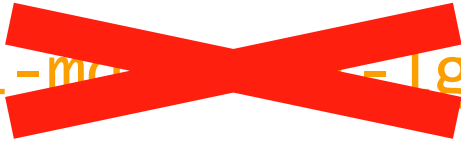


Browser window size smaller than the **md** breakpoint.



Grid Layout – Multiple Breakpoints

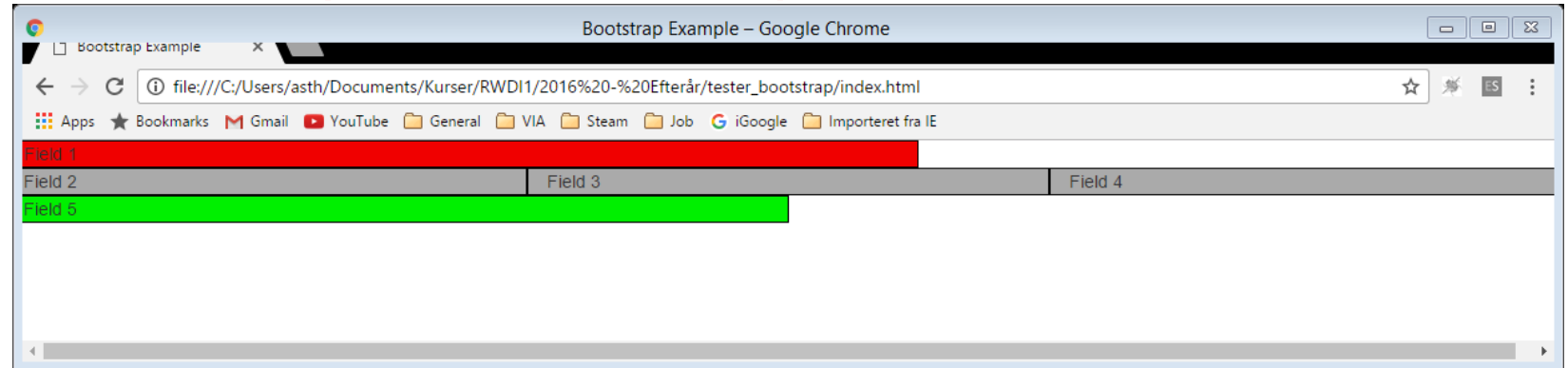
```
<div class="row">
  <div class="col-md-10 col-lg-7">Field 1</div>
</div>
<div class="row">
  <div class="col-sm-6 col-md-4">Field 2</div>
  <div class="col-sm-4">Field 3</div>
  <div class="col-sm-2 col-md-4">Field 4</div>
</div>
<div class="row">
  <div class="col-sm-6 col-md-4 col-lg-6">Field 5</div>
</div>
```



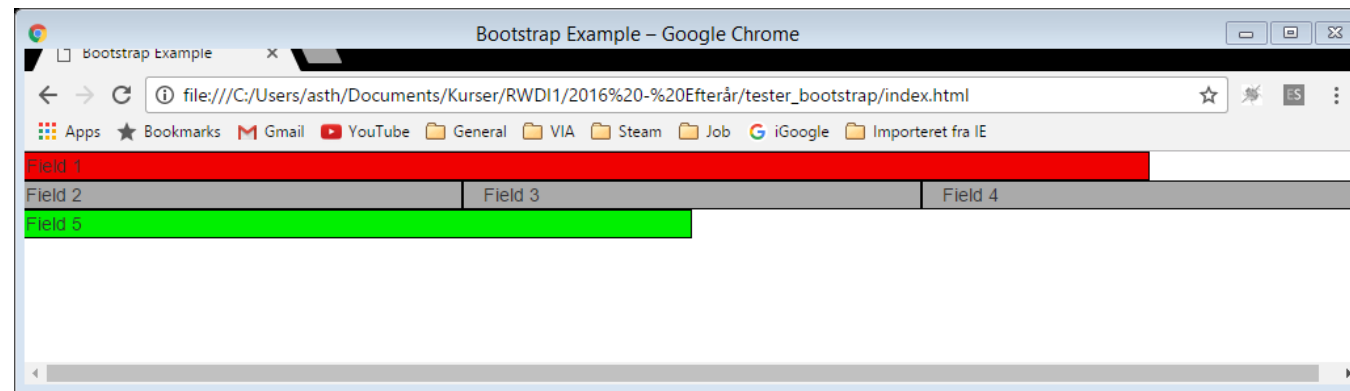
Completely redundant; avoid at all cost!

Grid Layout – Multiple Breakpoints

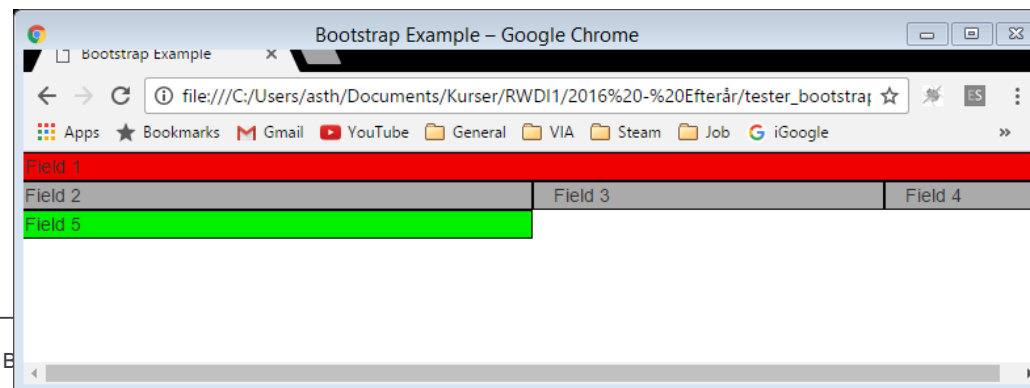
Browser window size greater than the **lg** breakpoint.



Browser window size greater than the **md** breakpoint.



Browser window size greater than the **sm** breakpoint.

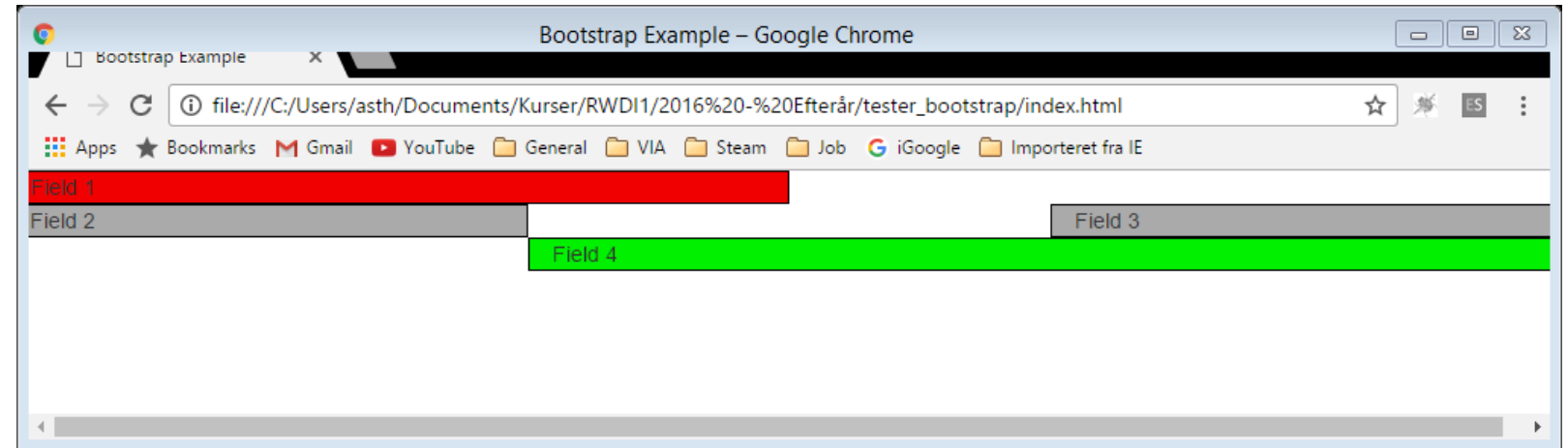


Grid Layout – Offset and Empty Columns

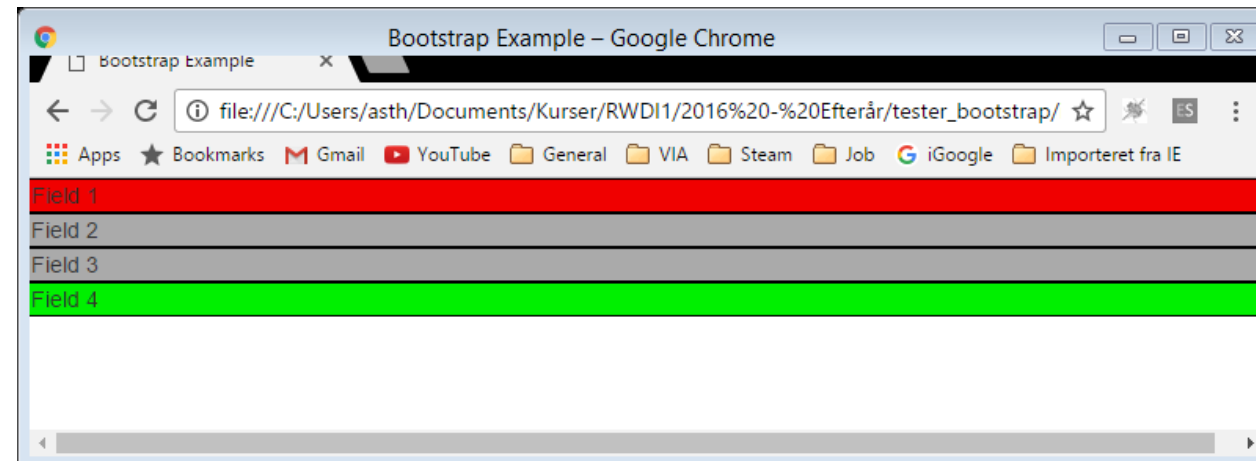
```
<div class="row">
  <div class="col-md-6">Field 1</div>
</div>
<div class="row">
  <div class="col-md-4">Field 2</div>
  <div class="col-md-4 col-md-offset-4">Field 3</div>
</div>
<div class="row">
  <div class="col-md-8 col-md-offset-4">Field 4</div>
</div>
```

Grid Layout – Offset and Empty Columns

Browser window size greater than the **md** breakpoint.



Browser window size smaller than the **md** breakpoint.



Grid Layout – Hiding Columns

Classes	Range	Less than 768px	768px to 992px	992px to 1200px	More than 1200px
.visible-xs-*		Visible	Hidden	Hidden	Hidden
.visible-sm-*		Hidden	Visible	Hidden	Hidden
.visible-md-*		Hidden	Hidden	Visible	Hidden
.visible-lg-*		Hidden	Hidden	Hidden	Visible
.hidden-xs		Hidden	Visible	Visible	Visible
.hidden-sm		Visible	Hidden	Visible	Visible
.hidden-md		Visible	Visible	Hidden	Visible
.hidden-lg		Visible	Visible	Visible	Hidden

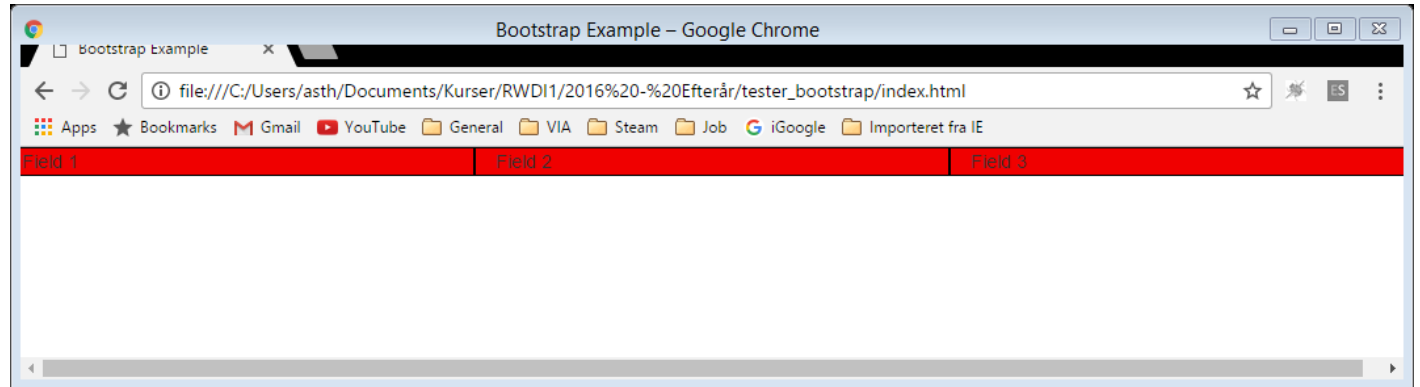
See: http://www.w3schools.com/bootstrap/bootstrap_ref_css_helpers.asp

Grid Layout – Hiding Columns

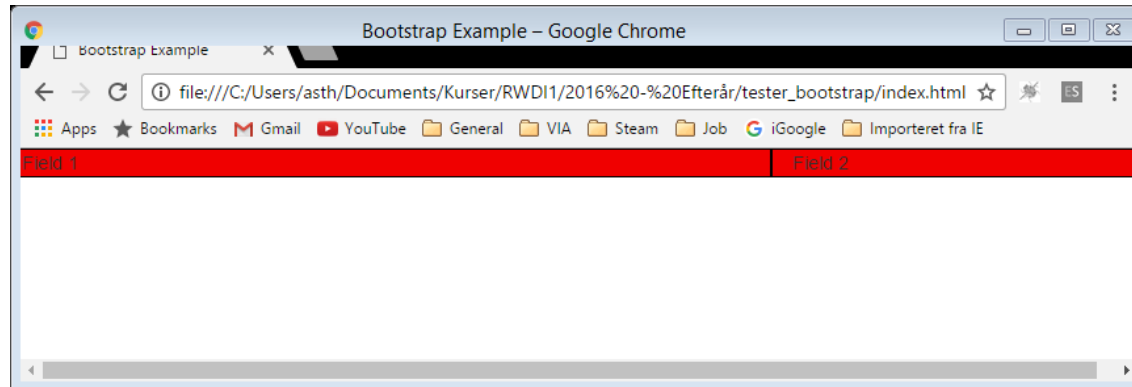
```
<div class="row">  
  <div class="col-sm-8 col-md-4">Field 1</div>  
  <div class="col-sm-4">Field 2</div>  
  <div class="hidden-sm col-md-4">Field 3</div>  
</div>
```


Grid Layout – Hiding Columns

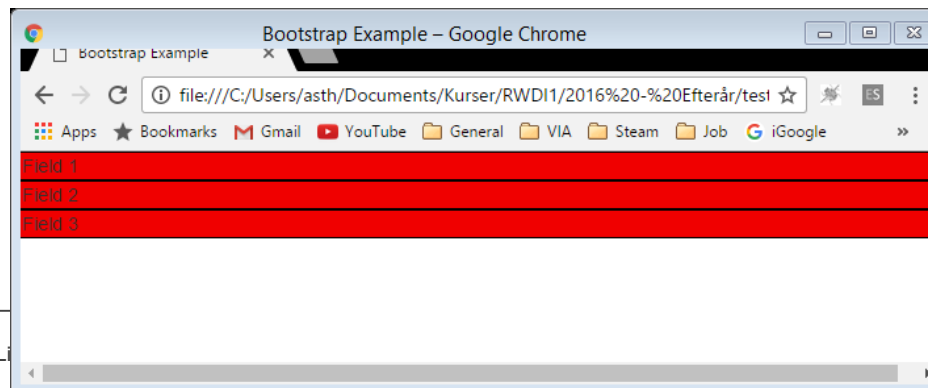
Browser window size greater than the **md** breakpoint.



Browser window size greater than the **sm** breakpoint.



Browser window size smaller than the **sm** breakpoint.

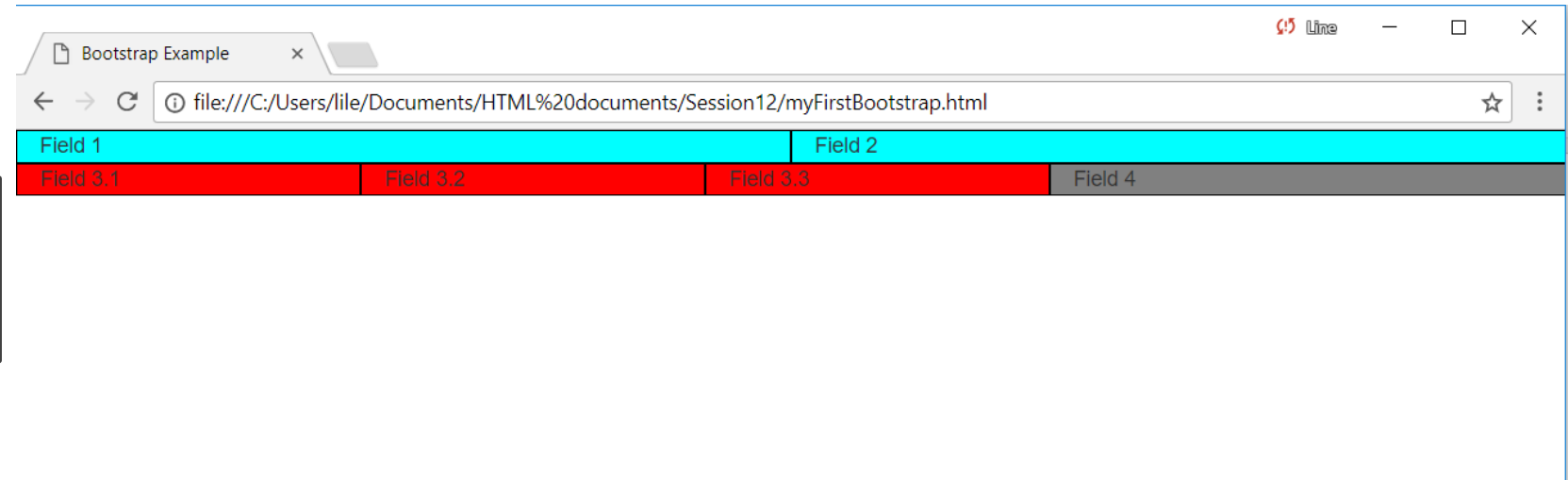


Grid Layout – Nested Grids

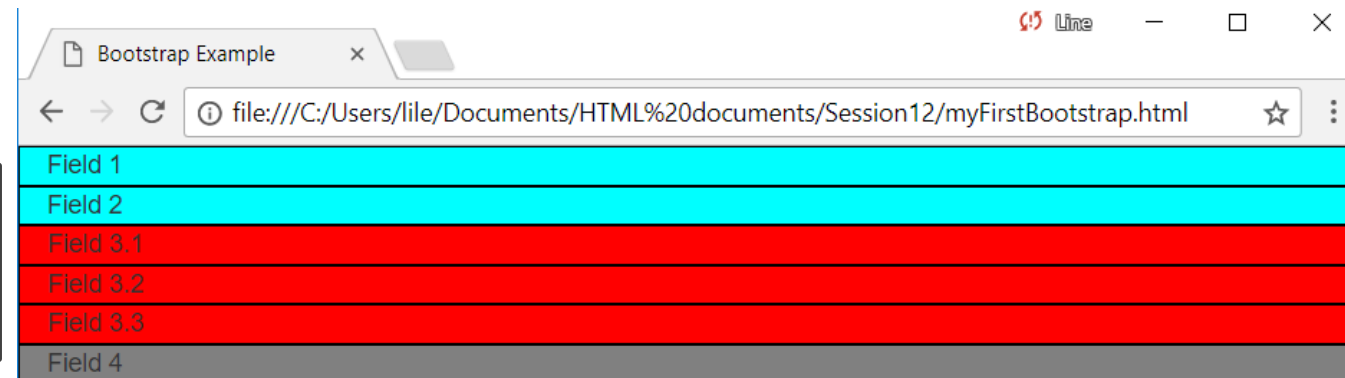
```
<div class="row">
  <div class="col-md-6">Field 1</div>
  <div class="col-md-6">Field 2</div>
</div>
<div class="row">
  <div class="col-md-8">
    <div class="row">
      <div class="col-md-4">Field 3.1</div>
      <div class="col-md-4">Field 3.2</div>
      <div class="col-md-4">Field 3.3</div>
    </div>
  </div>
  <div class="col-md-4">Field 4</div>
</div>
```

Grid Layout – Nested Grids

Browser window size
greater than the **md**
breakpoint.



Browser window size
smaller than the **md**
breakpoint.



Additional Information

w3schools:

http://www.w3schools.com/bootstrap/bootstrap_grid_system.asp

Official site:

<http://getbootstrap.com/examples/grid/>

To test your responsive designs use the Chrome window resizer extension:

<https://chrome.google.com/webstore/detail/window-resizer/kkelicaakdanhinjdeammilcgefonfh>

Exercises

- **Today's Exercise:**
 - Try out the Bootstrap Grid Layout feature.