

PROGRAM STUDI INFORMATIKA
SEMESTER GASAL 2023/2024

PEMROGRAMAN

WEB I

3 SKS – MINGGU 5

BENISIUS ANU – ehba@ukrida.ac.id

WENDYANTO PANGGALO – panggalowendyanto@ukipaulus.ac.id

informatika.ukrida.ac.id

ukipaulus.ac.id/page/fakultas/3/informatika-dan-komputer



UKRIDA
Universitas Kristen Krida Wacana



SILABUS

PEMROGRAMAN WEB

- *HTML CSS Framework*
- *Bootstrap*
- *Bootstrap Grid System*
- *Bootstrap Navigation Bar*
- *Bootstrap Classes Reference*

CSS FRAMEWORK

CSS Framework adalah suatu *framework* perangkat lunak yang memungkinkan desain web dilakukan secara lebih mudah dengan menggunakan bahasa *Cascading Style Sheets*.

Contoh:

- Bootstrap (<https://getbootstrap.com>)
- Foundation (<https://foundation.zurb.com>)
- Metro UI (<https://metroui.org.ua>)
- Skeleton (<http://getskeleton.com>)
- dll.



Bootstrap



Skeleton



Foundation
Start here, build everywhere.

BOOTSTRAP

CSS FRAMEWORK

- Bootstrap dikembangkan oleh Mark Otto dan Jacob Thornton di Twitter, dan dirilis sebagai produk *open source* pada bulan Agustus 2011 di GitHub.
- Bootstrap adalah *CSS Framework* gratis untuk pengembangan web secara lebih cepat dan mudah
- Bootstrap menyertakan desain template dasar HTML dan CSS untuk *typography, forms, buttons, tables, navigation, modals, image carousels* dan banyak lagi, serta *plugins* JavaScript yang bersifat opsional.

BOOTSTRAP

CSS FRAMEWORK

- Bootstrap 5 adalah versi terbaru dari Bootstrap.
- Versi ini diklaim lebih cepat dan lebih *responsiveness*.
- Bootstrap 5 mendukung semua rilis terbaru dari browser-browser utama. Namun, tidak untuk Internet Explorer 9 dan versi sebelumnya (untuknya dapat menggunakan Bootstrap 3 sebagai versi paling stabil dari Bootstrap)

BOOTSTRAP

CSS FRAMEWORK

4 alasan utama mengapa menggunakan Bootstrap:

- ***Easy to use:*** Siapa pun dengan pengetahuan dasar tentang HTML dan CSS dapat mulai menggunakan Bootstrap
- ***Responsive features:*** CSS responsif Bootstrap menyesuaikan dengan ponsel, tablet, dan desktop
- ***Mobile-first approach:*** Di Bootstrap 3, *mobile style* pertama adalah bagian dari kerangka inti
- ***Browser compatibility:*** Bootstrap kompatibel dengan semua *browser* modern (Chrome, Firefox, Internet Explorer, Safari, dan Opera)

BOOTSTRAP

CSS FRAMEWORK

Terdapat dua cara untuk dapat menggunakan Bootstrap pada suatu website:

- Mengunduh Bootstrap dari <https://getbootstrap.com>
- Menyertakan Bootstrap dari suatu *Content Delivery Network (CDN)*

BOOTSTRAP

AKTIVITAS LAB 1

1. Pada Aktivitas Lab ini kita akan menyertakan Bootstrap dengan menggunakan metode CDN.

Buat folder **bootstrap** lalu simpan sintaks berikut sebagai **index.htm**.

```
<!doctype html>  
<head>  
  <meta charset="utf-8">  
  <meta name="viewport" content="width=device-width, initial-scale=1">  
</head>  
<body>  
</body>  
</html>
```

BOOTSTRAP

AKTIVITAS LAB 1

2. Untuk bagian tag `<head>` modifikasi sintaksnya untuk mengimport Bootstrap dari CDN:

```
<head>  
  <meta charset="utf-8">  
  <meta name="viewport" content="width=device-width, initial-scale=1">  
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css">  
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>  
  <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.12.9/umd/popper.min.js"></script>  
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>  
</head>
```

BOOTSTRAP

AKTIVITAS LAB 1

Bootstrap membutuhkan suatu elemen *container* untuk membungkus konten situs. Terdapat dua kelas container yang dapat digunakan:

- The **.container** class provides a responsive *fixed width container*
- The **.container-fluid** class provides a *full width container*, spanning the entire width of the viewport

A diagram showing a blue rectangular box representing a fixed-width container. The box is centered within a white rectangular frame, which is itself centered within a larger white area. The text **.container** is written in white, italicized font in the center of the blue box.

.container

A diagram showing a blue rectangular box representing a full-width container. The box spans the entire width of the white rectangular frame it is contained within. The text **.container-fluid** is written in white, italicized font in the center of the blue box.

.container-fluid

BOOTSTRAP

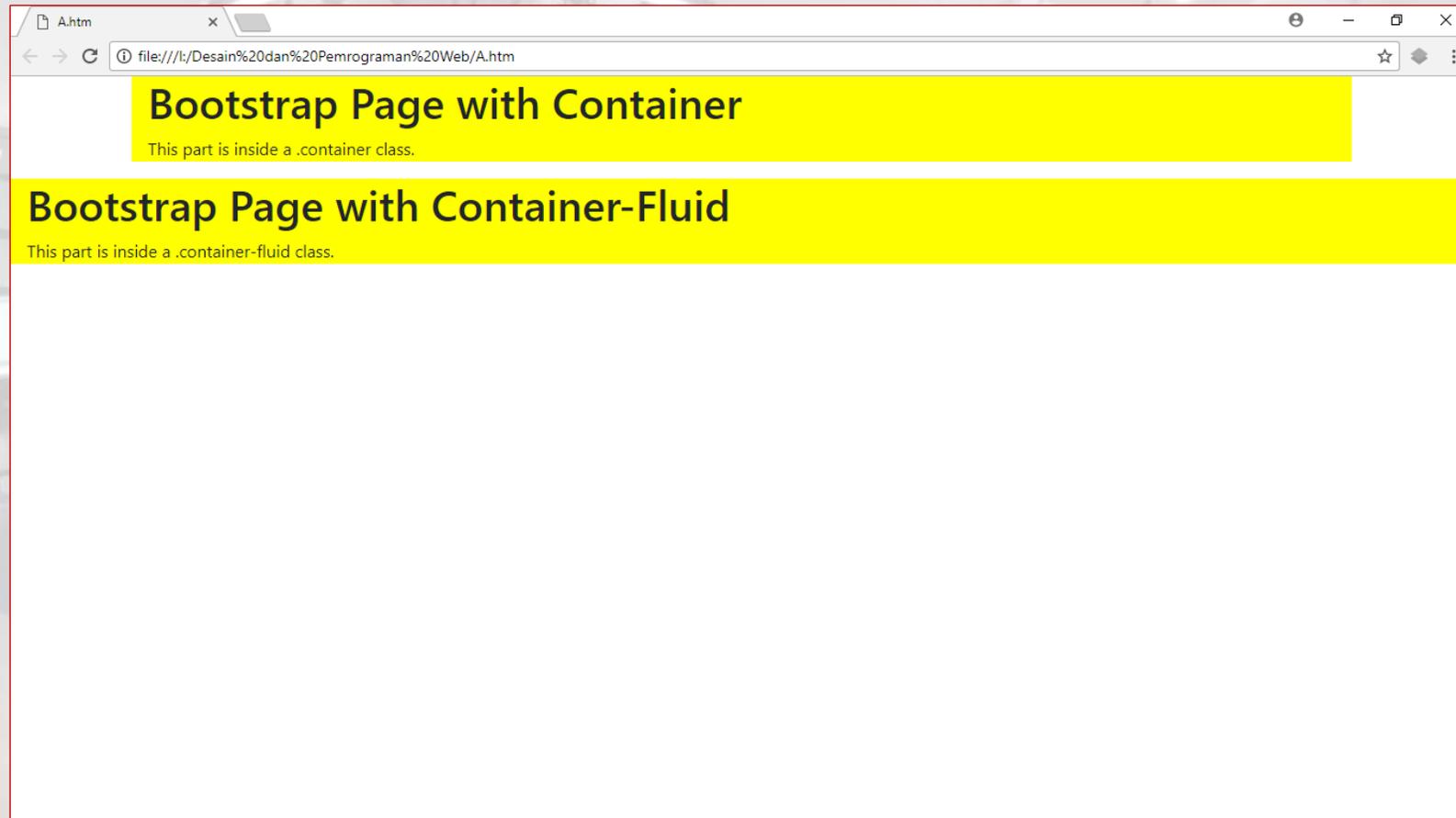
AKTIVITAS LAB 1

3. Untuk bagian tag `<body>` modifikasi sintaksnya untuk menggunakan *fixed width container* dan *full width container* sebagai berikut:

```
<body>
  <div class="container" style="background: lightgoldenrodyellow;">
    <h1>Bootstrap Page with Container</h1>
    <p>This part is inside a .container class.</p>
  </div>
  <div class="container-fluid" style="background: lightgoldenrodyellow;">
    <h1>Bootstrap Page with Container-Fluid</h1>
    <p>This part is inside a .container-fluid class.</p>
  </div>
</body>
```

BOOTSTRAP

AKTIVITAS LAB 1

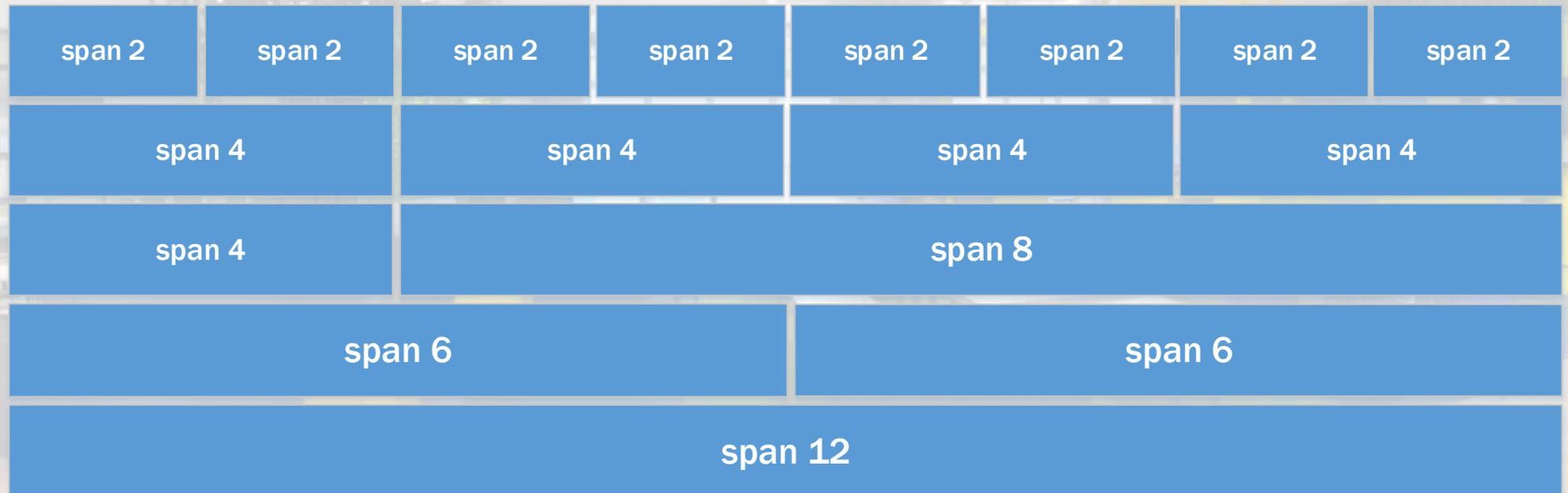


The screenshot shows a web browser window with a single tab titled 'A.htm'. The address bar contains the file path: 'file:///I:/Desain%20dan%20Pemrograman%20Web/A.htm'. The page content consists of two yellow rectangular blocks. The first block contains the text 'Bootstrap Page with Container' in bold black font, with a smaller line of text below it: 'This part is inside a .container class.' The second block contains the text 'Bootstrap Page with Container-Fluid' in bold black font, with a smaller line of text below it: 'This part is inside a .container-fluid class.'

BOOTSTRAP GRIDS

CSS FRAMEWORK

- Sistem grid Bootstrap memungkinkan hingga 12 kolom di seluruh halaman.



- Sistem grid Bootstrap bersifat responsif, dan kolom menyesuaikan secara otomatis pada ukuran layar.

BOOTSTRAP GRIDS

CSS FRAMEWORK

Sistem *grid* Bootstrap memiliki empat kelas:

- **xs** (*for phones - screens less than 576px wide*)
- **sm** (*for tablets - screens equal to or greater than 576px wide*)
- **md** (*for small laptops - screens equal to or greater than 768px wide*)
- **lg** (*for laptops and desktops - screens equal to or greater than 992px wide*)
- **xl** (*for laptops and desktops - screens equal to or greater than 1200px wide*)
- **xxl** (*for laptops and desktops - screens equal to or greater than 1400px wide*)

Kelas di atas dapat saling dikombinasikan untuk membuat layout yang lebih dinamis dan fleksibel.

BOOTSTRAP GRIDS

CSS FRAMEWORK

Aturan-aturan grid Bootstrap:

- Rows harus diletakkan dalam sebuah `.container` (fixed-width) atau `.container-fluid` (full-width) untuk *alignment* dan *padding* yang tepat.
- Gunakan `rows` untuk membuat *horizontal groups of columns*.
- Konten harus diletakkan dalam *column*, dan hanya *columns* yang bisa menjadi turunan langsung dari sebuah *row*.
- *Predefined classes* seperti `.row` dan `.col-sm-4` tersedia untuk pembuatan *grid layouts* secara cepat.
- *Columns* membuat *gutters* (*gaps* antara konten *column*) lewat *padding*. *Padding* tersebut diimbangi dalam baris untuk kolom pertama dan terakhir melalui *margin* negatif pada `.rows`.
- *Grid columns* dibuat dengan menentukan jumlah dari 12 kolom yang tersedia. Sebagai contoh, tiga kolom dengan ukuran yang sama dapat diset dengan menggunakan tiga `.col-sm-4`.
- Lebar *Column* adalah dalam satuan persentase. Sifatnya selalu mengalir dan berukuran relatif terhadap elemen induknya.

BOOTSTRAP GRIDS

CSS FRAMEWORK

Berikut adalah struktur dasar dari sistem *grid* Bootstrap:

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

BOOTSTRAP GRIDS

CSS FRAMEWORK

Tabel berikut merangkum bagaimana *Bootstrap grid system* bekerja dibanyak perangkat:

	Extra Small	Small	Medium	Large	Extra Large
Size	< 576px	≥ 576px	≥ 768px	≥ 992px	≥ 1200px
Class prefix	.col-	.col-sm-	.col-md-	.col-lg-	.col-xl-
Container width	None (auto)	540px	720px	960px	1140px
Suitable for	Portrait phones	Landscape phones	Tablets	Laptops	Laptops and Desktops
# of columns	12	12	12	12	12

BOOTSTRAP GRIDS

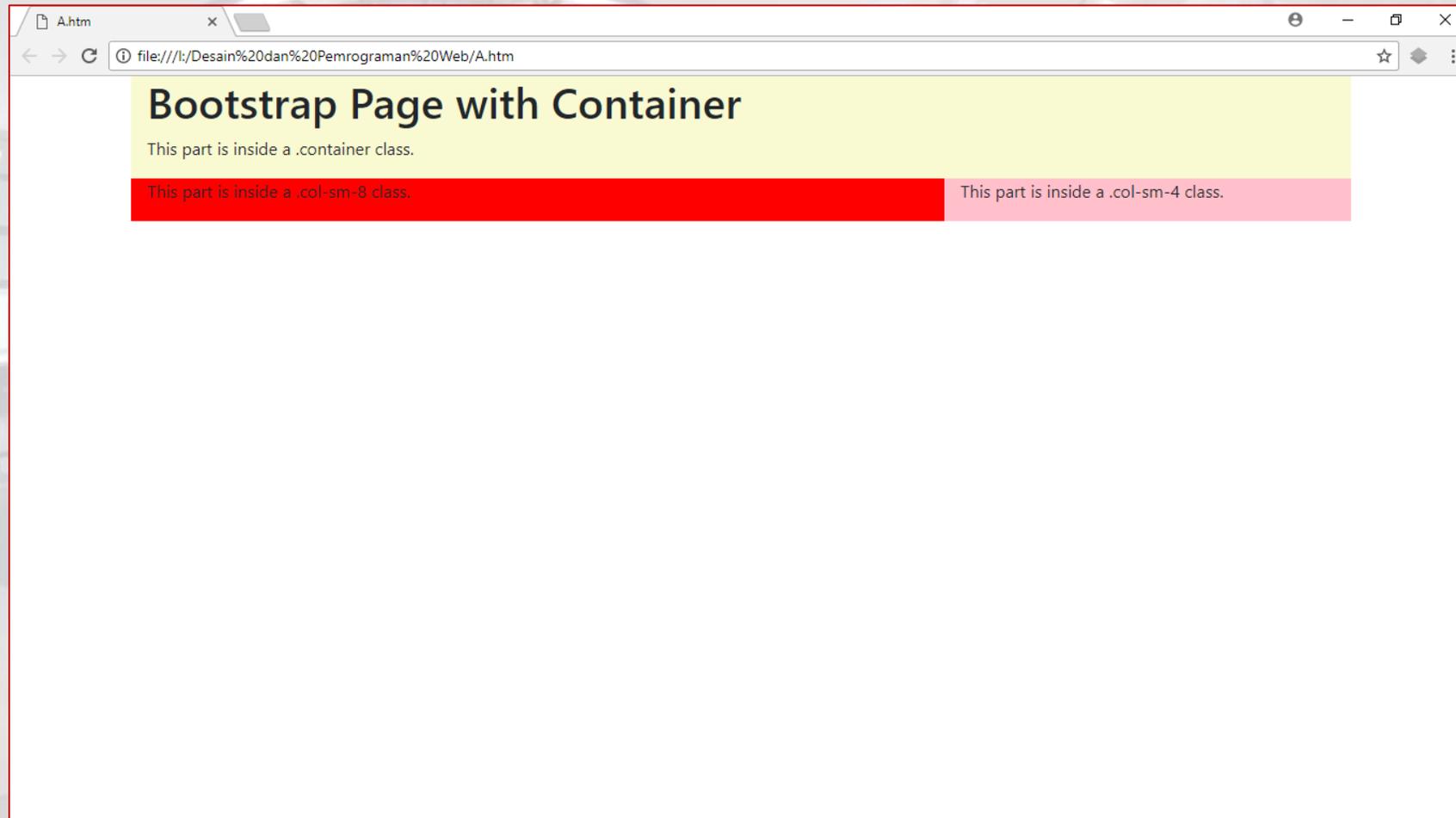
AKTIVITAS LAB 2

1. Pada file index di folder bootstrap, modifikasi bagian tag `<body>` sebagai berikut:

```
<body>
  <div class="container" style="background: lightgoldenrodyellow;">
    <h1>Bootstrap Page with Container</h1>
    <p>This part is inside a .container class.</p>
    <div class="row">
      <div class="col-sm-8" style="background-color:red;">
        <p>This part is inside a .col-sm-8 class.</p>
      </div>
      <div class="col-sm-4" style="background-color:pink;">
        <p>This part is inside a .col-sm-4 class.</p>
      </div>
    </div>
  </div>
</body>
```

BOOTSTRAP GRIDS

AKTIVITAS LAB 2



BOOTSTRAP GRIDS

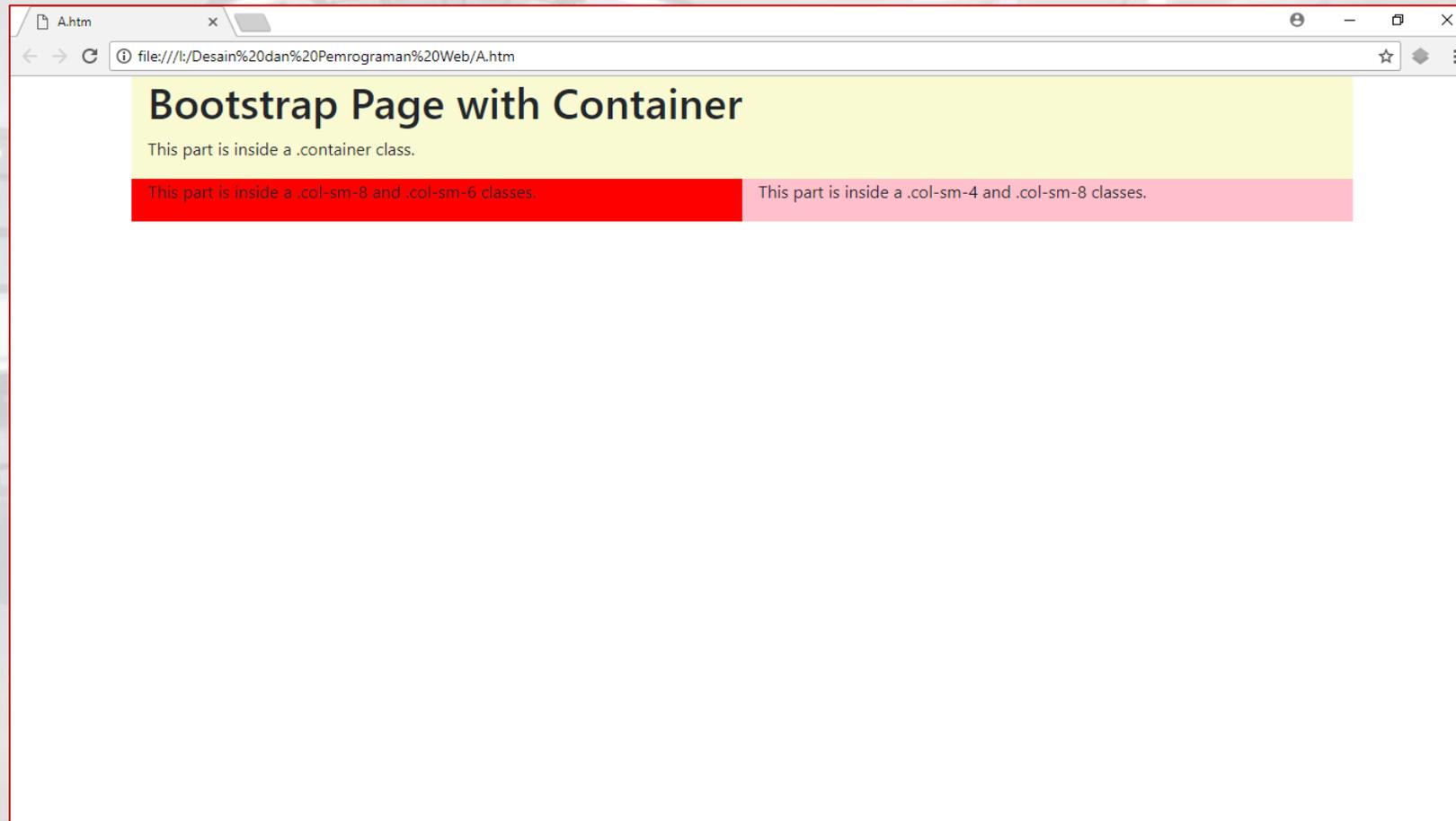
AKTIVITAS LAB 2

2. Tambahkan kelas **col-md** seperti berikut:

```
<body>
  <div class="container" style="background: lightgoldenrodyellow;">
    <h1>Bootstrap Page with Container</h1>
    <p>This part is inside a .container class.</p>
    <div class="row">
      <div class="col-sm-8 col-md-6" style="background-color:red;">
        <p>This part is inside a .col-sm-8 class.</p>
      </div>
      <div class="col-sm-4 col-md-6" style="background-color:pink;">
        <p>This part is inside a .col-sm-4 class.</p>
      </div>
    </div>
  </div>
</body>
```

BOOTSTRAP GRIDS

AKTIVITAS LAB 2



A screenshot of a web browser window displaying a Bootstrap grid layout. The browser's address bar shows the file path: `file:///I:/Desain%20dan%20Pemrograman%20Web/A.htm`. The page content includes:

- A yellow header bar with the text: **Bootstrap Page with Container**
- A text block below the header: `This part is inside a .container class.`
- A row of two columns below the text:
 - A red column on the left with the text: `This part is inside a .col-sm-8 and .col-sm-6 classes.`
 - A pink column on the right with the text: `This part is inside a .col-sm-4 and .col-sm-8 classes.`

BOOTSTRAP GRIDS

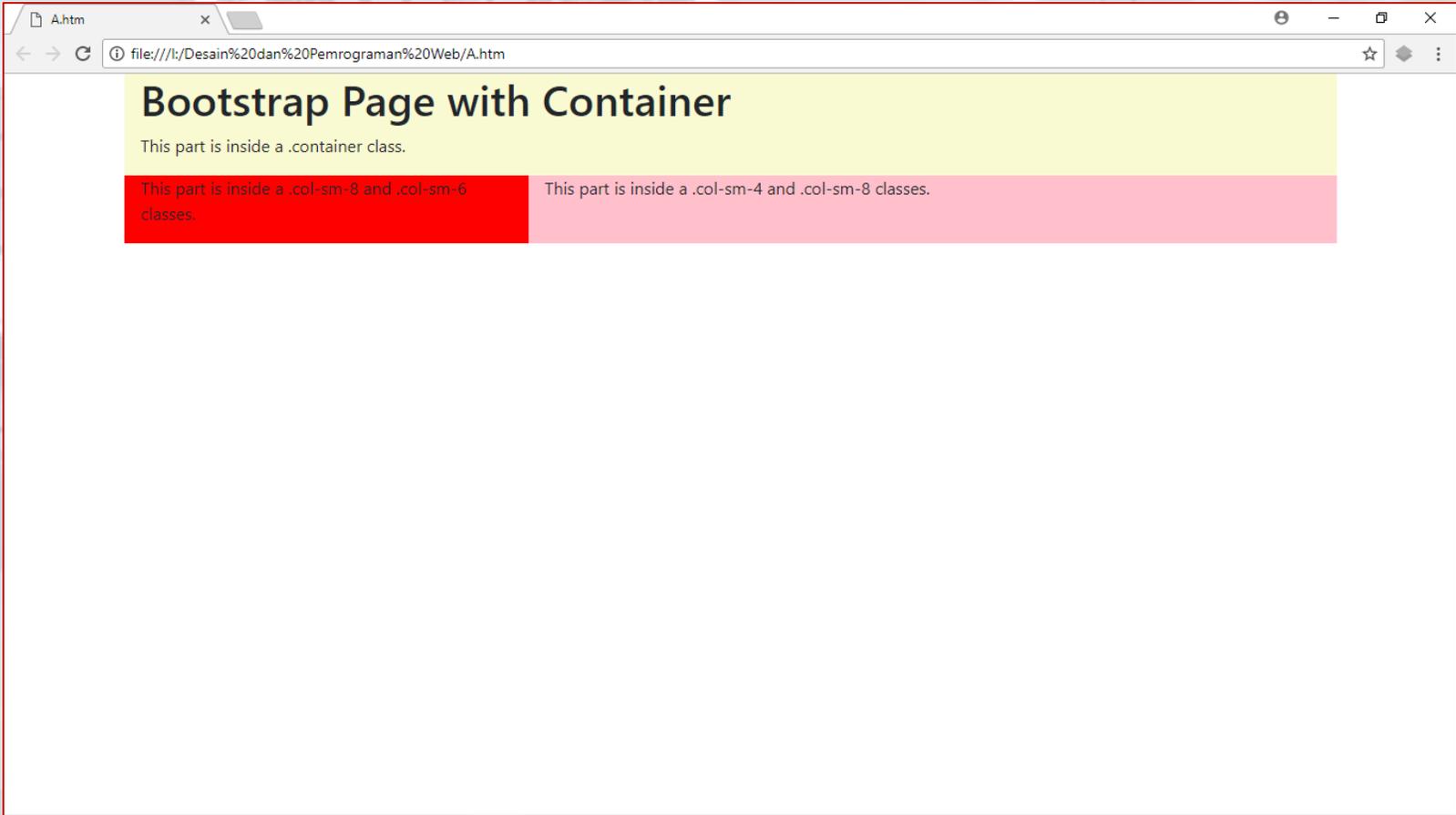
AKTIVITAS LAB 2

3. Tambahkan kelas **col-lg** seperti berikut:

```
<body>
  <div class="container" style="background: lightgoldenrodyellow;">
    <h1>Bootstrap Page with Container</h1>
    <p>This part is inside a .container class.</p>
    <div class="row">
      <div class="col-sm-8 col-md-6 col-lg-4" style="background-color:red;">
        <p>This part is inside a .col-sm-8 class.</p>
      </div>
      <div class="col-sm-4 col-md-6 col-lg-8" style="background-color:pink;">
        <p>This part is inside a .col-sm-4 class.</p>
      </div>
    </div>
  </div>
</body>
```

BOOTSTRAP GRIDS

AKTIVITAS LAB 2



The screenshot shows a web browser window with the following content:

- Address bar: file:///I:/Desain%20dan%20Pemrograman%20Web/A.htm
- Title: Bootstrap Page with Container
- Text: This part is inside a .container class.
- Text: This part is inside a .col-sm-8 and .col-sm-6 classes.
- Text: This part is inside a .col-sm-4 and .col-sm-8 classes.

Silahkan mengubah-ubah ukuran *browser* dan perhatikan *grid system* akan menyesuaikan berdasarkan resolusi layar.

BOOTSTRAP GRIDS

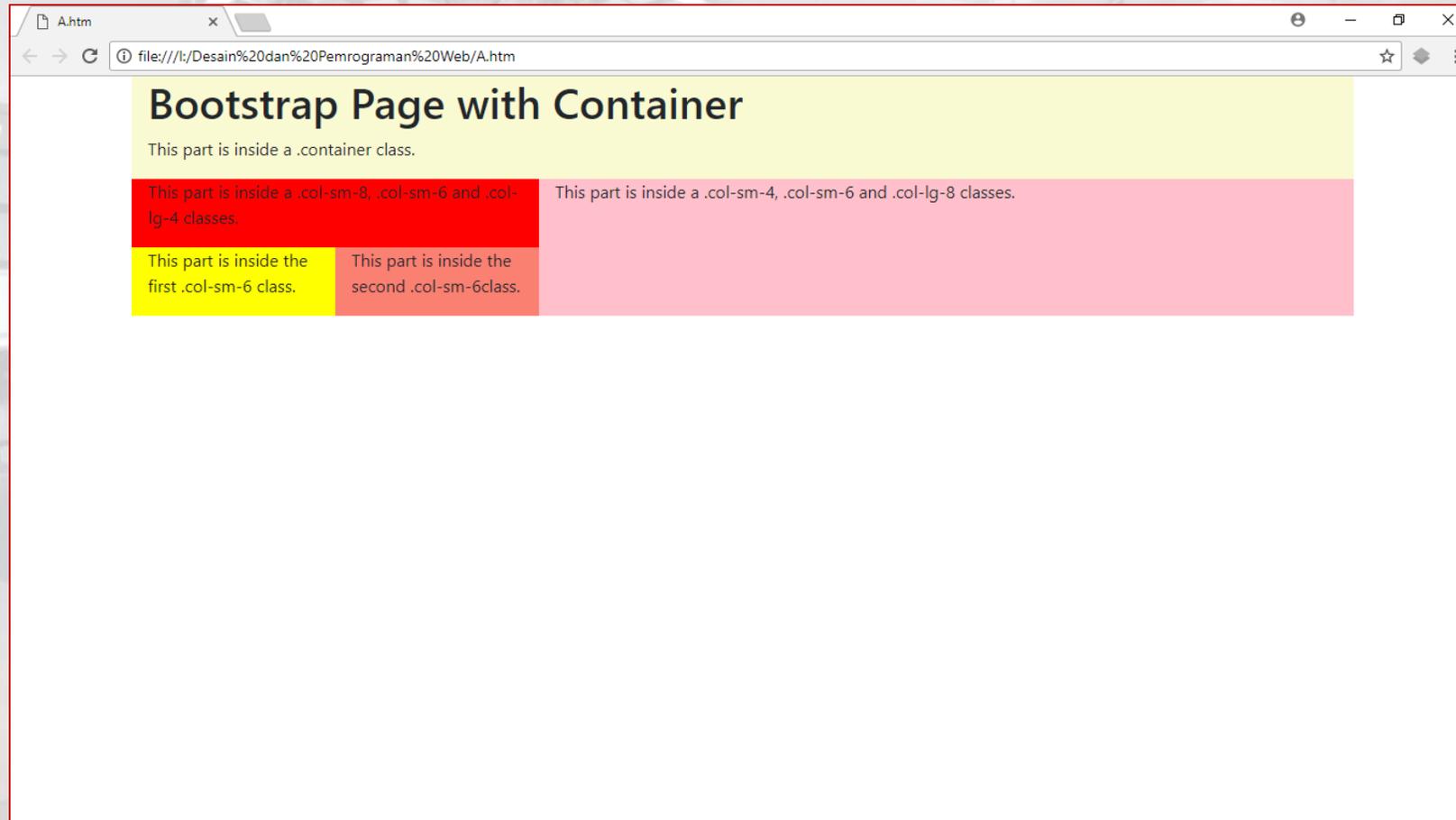
AKTIVITAS LAB 2

4. Sekarang kita akan membuat kolom di dalam kolom. Modifikasi sintaks agar menjadi seperti berikut:

```
<div class="row">
  <div class="col-sm-8 col-md-6 col-lg-4" style="background-color:red;">
    <p>This part is inside a .col-sm-8, .col-sm-6 and .col-lg-4 classes.</p>
    <div class="row">
      <div class="col-md-6" style="background-color:yellow;">
        <p>This part is inside the first .col-sm-6 class.</p>
      </div>
      <div class="col-md-6" style="background-color:salmon;">
        <p>This part is inside the second .col-sm-6class.</p>
      </div>
    </div>
  </div>
  ...
</div>
```

BOOTSTRAP GRIDS

AKTIVITAS LAB 2



A screenshot of a web browser window displaying a Bootstrap grid layout. The browser's address bar shows the file path: `file:///I:/Desain%20dan%20Pemrograman%20Web/A.htm`. The page content is as follows:

- A yellow header bar with the title **Bootstrap Page with Container** and the text "This part is inside a .container class."
- A red bar with the text "This part is inside a .col-sm-8, .col-sm-6 and .col-lg-4 classes." on the left, and a pink bar with the text "This part is inside a .col-sm-4, .col-sm-6 and .col-lg-8 classes." on the right.
- Below the red bar, there are two smaller bars: a yellow one with the text "This part is inside the first .col-sm-6 class." and a pink one with the text "This part is inside the second .col-sm-6 class."

BOOTSTRAP GRIDS

CSS FRAMEWORK

Untuk mempelajari lebih lanjut tentang *Bootstrap 4 grid system* silahkan untuk mengakses:

- <https://getbootstrap.com/docs/4.0/layout/grid/>
- https://www.w3schools.com/bootstrap/bootstrap_grid_basisc.asp

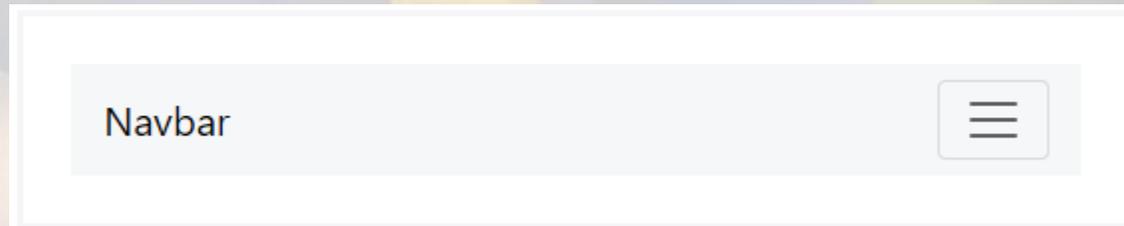
BOOTSTRAP NAVIGATION BAR

CSS FRAMEWORK

- *A navigation bar is a navigation header that is placed at the top of the page.*



- *With Bootstrap, a navigation bar can extend or collapse, depending on the screen size.*



BOOTSTRAP NAVIGATION BAR

CSS FRAMEWORK

Beberapa hal penting terkait penggunaan *navbar*:

- *Navbars* memerlukan pembungkus `.navbar` dengan `.navbar-expand{sm|-md|-lg|-xl}` untuk *responsive collapsing* dan *color scheme classes*.
- *Navbars* dan kontennya bersifat *fluid* secara *default*. Gunakan ***containers*** (opsional) untuk membatasi lebar horizontal-nya.
- Gunakan ***spacing*** dan ***flex utility classes*** untuk mengontrol *spacing* dan *alignment* di *navbars*.
- *Navbars* bersifat *responsive* secara *default*,
- *Navbars* tersembunyi secara *default* ketika dicetak. Agar dapat dicetak tambahkan ***.d-print*** ke `.navbar`.

BOOTSTRAP NAVIGATION BAR

CSS FRAMEWORK

Navbar hadir dengan dukungan bawaan untuk beberapa sub-komponen. Pilih dari yang berikut sesuai kebutuhan:

- *.navbar-brand* for your company, product, or project name.
- *.navbar-nav* for a full-height and lightweight navigation (including support for dropdowns).
- *.navbar-toggler* for use with our collapse plugin and other navigation toogling behaviors.
- *.form-inline* for any form controls and actions.
- *.navbar-text* for adding vertically centered strings of text.
- *.collapse.navbar-collapse* for grouping and hiding navbar contents by a parent breakpoint.

BOOTSTRAP NAVIGATION BAR

AKTIVITAS LAB 3

1. Pada file index di folder bootstrap, tambahkan sebuah tag `<nav>` sebagai berikut:

```
<body>
  <div class="container" style="background: lightgoldenrodyellow;">
    <h1>Bootstrap Page with Container</h1>
    <p>This part is inside a .container class.</p>
    <nav class="row"> </nav>
    <div class="row">
      <div class="col-sm-8" style="background-color:red;">
        <p>This part is inside a .col-sm-8 class.</p>
      </div>
      <div class="col-sm-4" style="background-color:pink;">
        <p>This part is inside a .col-sm-4 class.</p>
      </div>
    </div>
  </div>
</body>
```

BOOTSTRAP NAVIGATION BAR

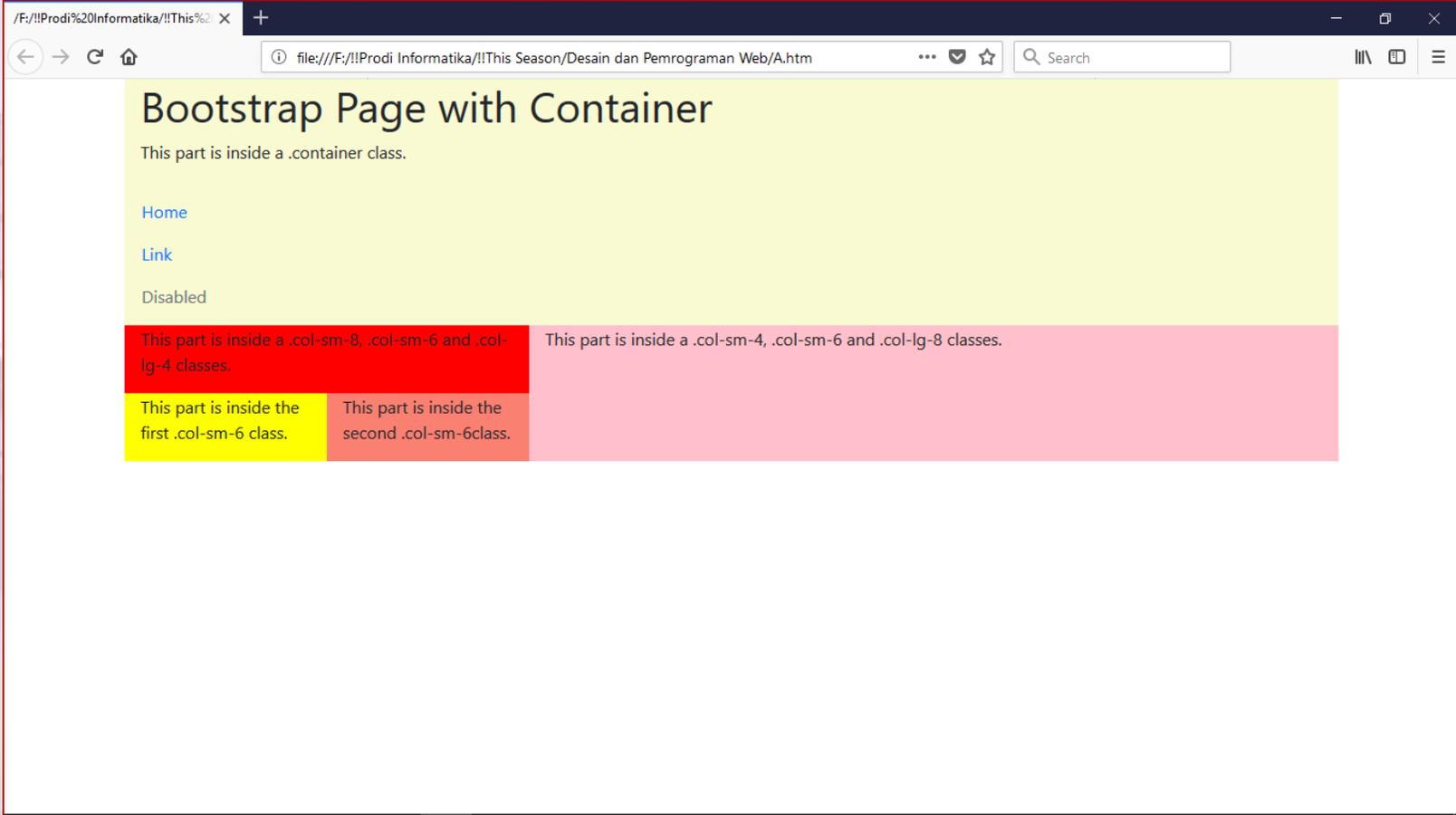
AKTIVITAS LAB 3

2. Pada tag `<nav>` tambahkan sintaks berikut:

```
<nav class="row navbar">
  <ul class="navbar-nav">
    <li class="nav-item active">
      <a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a>
    </li>
    <li class="nav-item">
      <a class="nav-link" href="#">Link</a>
    </li>
    <li class="nav-item">
      <a class="nav-link disabled" href="#">Disabled</a>
    </li>
  </ul>
</nav>
```

BOOTSTRAP NAVIGATION BAR

AKTIVITAS LAB 3



The screenshot shows a web browser window with the following content:

- Address bar: `file:///F:/!!Prodi Informatika/!!This Season/Desain dan Pemrograman Web/A.htm`
- Page Title: **Bootstrap Page with Container**
- Text: `This part is inside a .container class.`
- Navigation links: [Home](#), [Link](#), `Disabled`
- Red block: `This part is inside a .col-sm-8, .col-sm-6 and .col-lg-4 classes.`
- Yellow block: `This part is inside the first .col-sm-6 class.`
- Light blue block: `This part is inside the second .col-sm-6 class.`
- Light pink block: `This part is inside a .col-sm-4, .col-sm-6 and .col-lg-8 classes.`

3. Sekarang kita akan menambahkan sebuah tombol toogler untuk menangani menu agar responsif:

```
<nav class="row navbar">
  <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-
expanded="false" aria-label="Toggle navigation">
    <span class="navbar-toggler-icon"></span>
  </button>

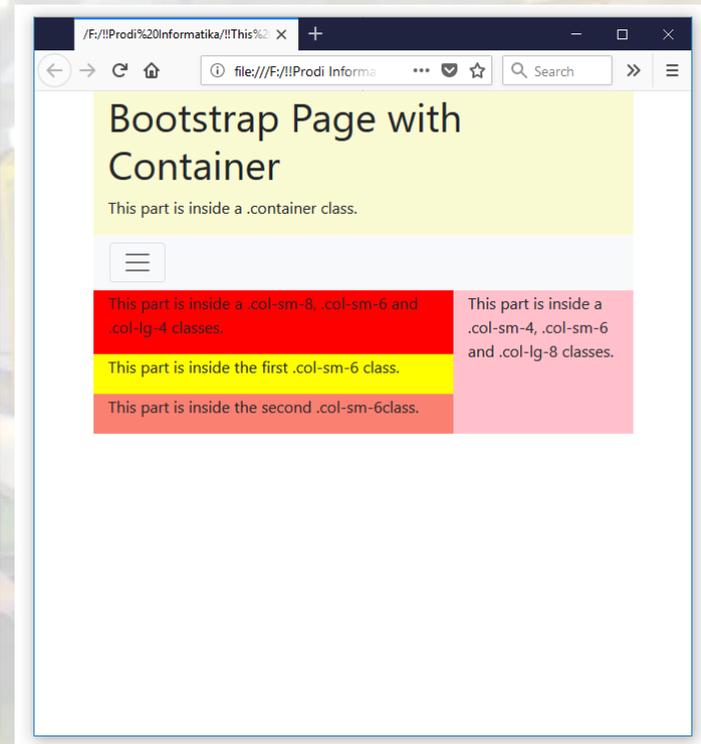
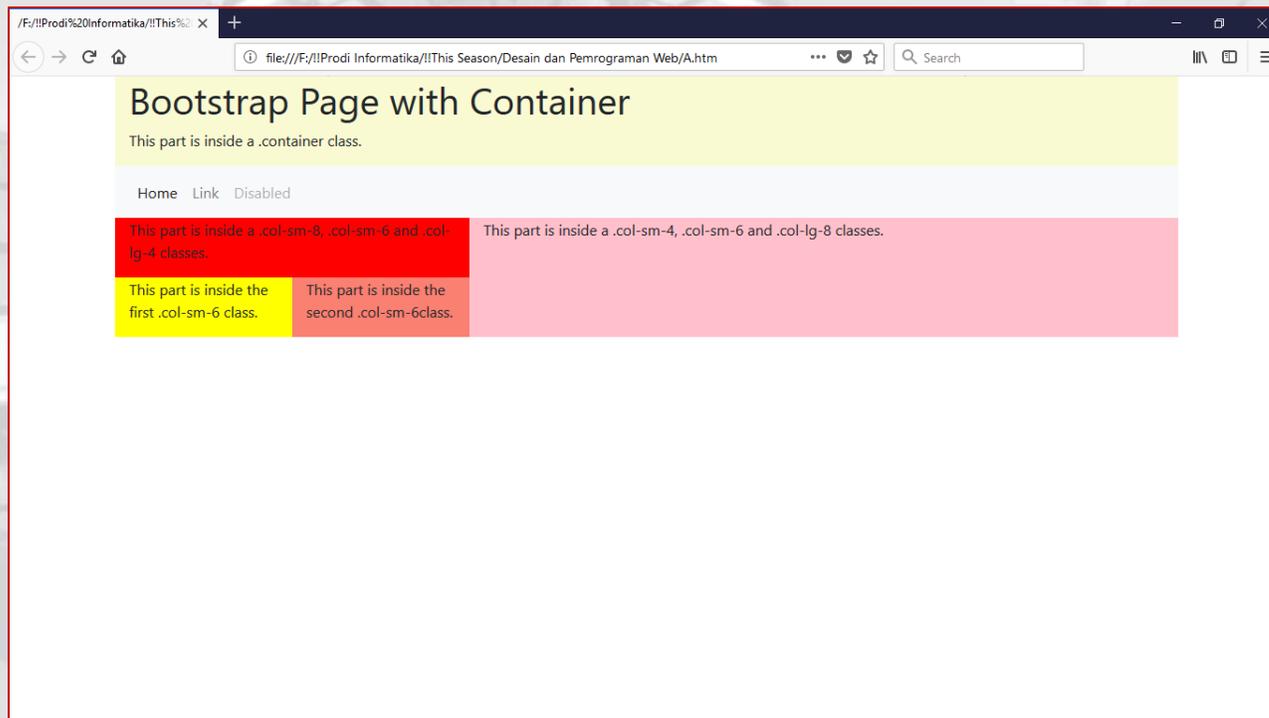
  <div class="collapse navbar-collapse" id="navbarSupportedContent">
    <ul class="navbar-nav">
      <li class="nav-item active">
        <a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#">Link</a>
      </li>
      <li class="nav-item">
        <a class="nav-link disabled" href="#">Disabled</a>
      </li>
    </ul>
  </div>
</nav>
```

4. Pada pada tag nav tambahkan kelas berikut untuk dapat melihat perubahan:

```
<nav class="row navbar navbar-expand-lg navbar-light bg-light">  
  <button class="navbar-toggler" type="button" data-toggle="collapse" data-  
target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false"  
aria-label="Toggle navigation">  
    <span class="navbar-toggler-icon"></span>  
  </button>  
  
  <div class="collapse navbar-collapse" id="navbarSupportedContent">  
    <ul class="navbar-nav">  
      <li class="nav-item active">  
        <a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a>  
      </li>  
      <li class="nav-item">  
        <a class="nav-link" href="#">Link</a>  
      </li>  
      <li class="nav-item">  
        <a class="nav-link disabled" href="#">Disabled</a>  
      </li>  
    </ul>  
  </div>  
</nav>
```

BOOTSTRAP NAVIGATION BAR

AKTIVITAS LAB 3

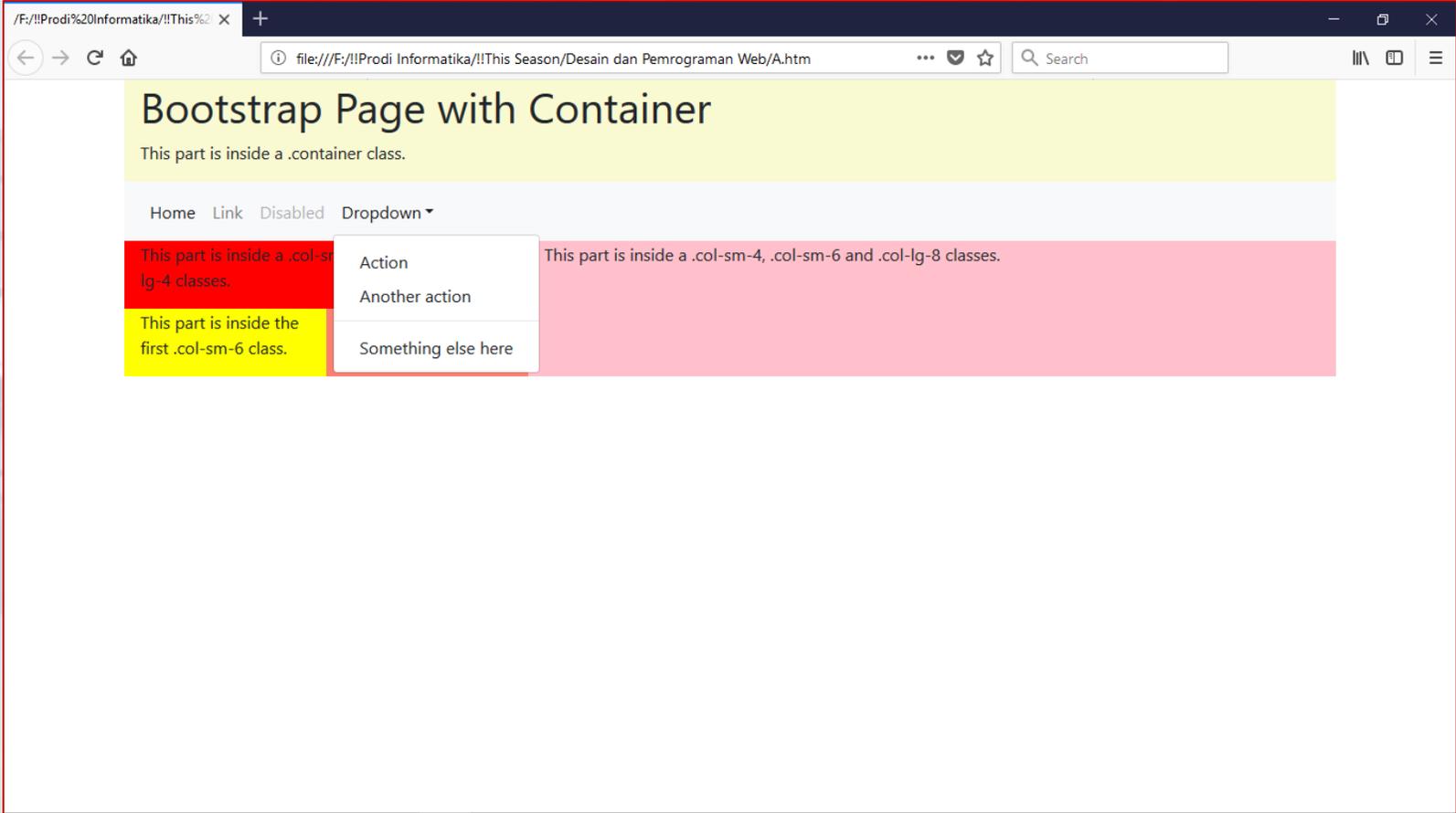


5. Tambahkan satu menu *dropdown* seperti berikut:

```
<nav class="row navbar navbar-expand-lg navbar-light bg-light">
  ...
  <div class="collapse navbar-collapse" id="navbarSupportedContent">
    <ul class="navbar-nav">
      ...
      <li class="nav-item">
        <a class="nav-link disabled" href="#">Disabled</a>
      </li>
      <li class="nav-item dropdown">
        <a class="nav-link dropdown-toggle" href="#" id="navbarDropdown"
role="button" data-toggle="dropdown" aria-haspopup="true" aria-
expanded="false">Dropdown</a>
        <div class="dropdown-menu" aria-labelledby="navbarDropdown">
          <a class="dropdown-item" href="#">Action</a>
          <a class="dropdown-item" href="#">Another action</a>
          <div class="dropdown-divider"></div>
          <a class="dropdown-item" href="#">Something else here</a>
        </div>
      </li>
    </ul>
  </div>
</nav>
```

BOOTSTRAP NAVIGATION BAR

AKTIVITAS LAB 3



The screenshot shows a web browser window with the following content:

- Page Title:** Bootstrap Page with Container
- Text:** This part is inside a .container class.
- Navigation Bar:** Home Link Disabled Dropdown
- Dropdown Menu:** Action, Another action, Something else here
- Text (Left):** This part is inside a .col-sm-4 and .col-lg-4 classes.
- Text (Right):** This part is inside a .col-sm-4, .col-sm-6 and .col-lg-8 classes.

6. Tambahkan satu kotak pencarian seperti berikut:

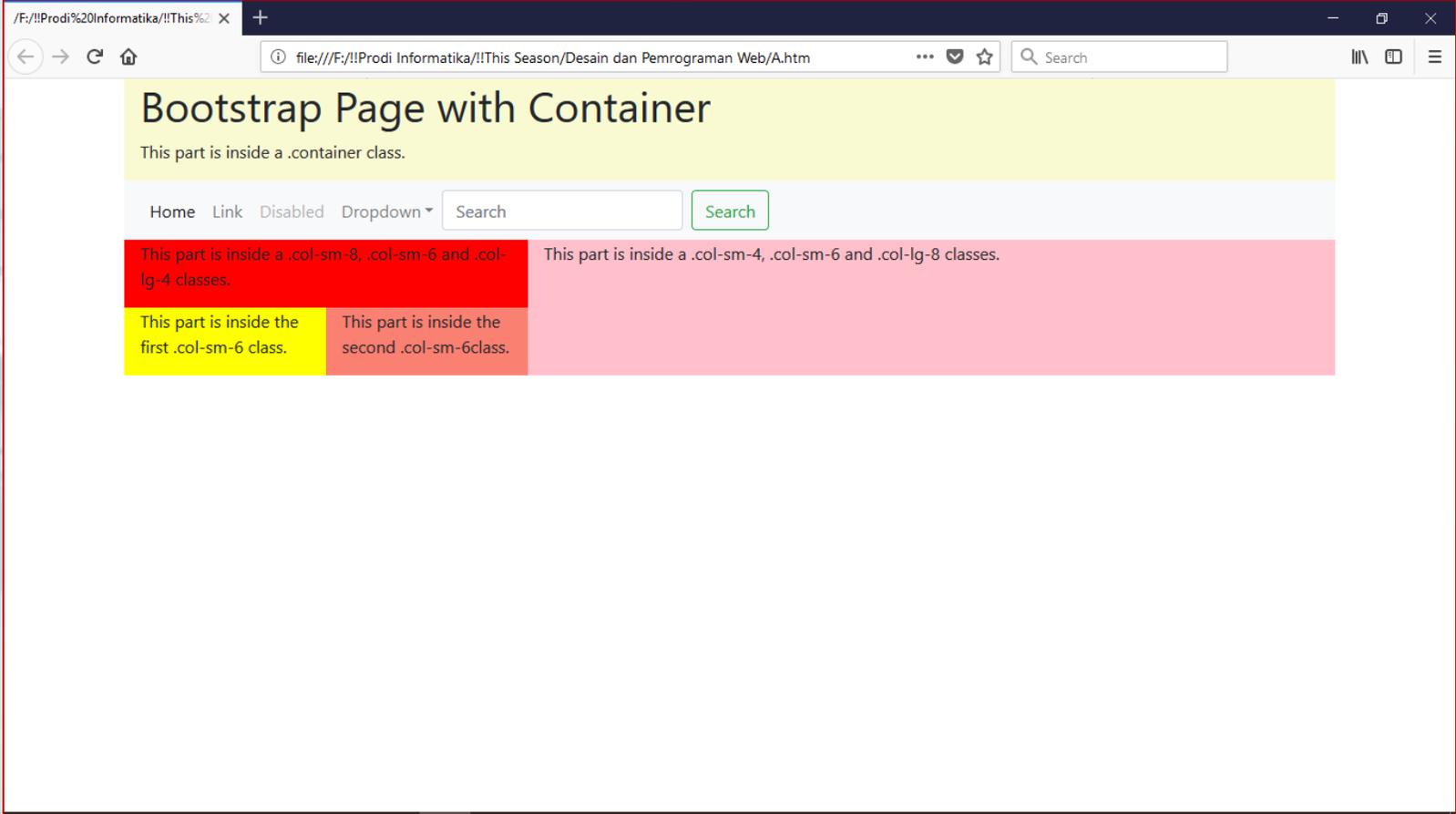
```
<nav class="row navbar navbar-expand-lg navbar-light bg-light">
  ...
  <div class="collapse navbar-collapse" id="navbarSupportedContent">
    <ul class="navbar-nav">
      ...
    </ul>

    <form class="form-inline my-2 my-lg-0">
      <input class="form-control mr-sm-2" type="search" placeholder="Search" aria-
label="Search">
      <button class="btn btn-outline-success my-2 my-sm-0"
type="submit">Search</button>
    </form>

  </div>
</nav>
```

BOOTSTRAP NAVIGATION BAR

AKTIVITAS LAB 3



The screenshot shows a web browser window with the following content:

- Address Bar:** file:///F:/!!Prodi Informatika/!!This Season/Desain dan Pemrograman Web/A.htm
- Title:** Bootstrap Page with Container
- Text:** This part is inside a .container class.
- Navigation Bar:** Home Link Disabled Dropdown Search Search
- Content Blocks:**
 - Red Block:** This part is inside a .col-sm-8, .col-sm-6 and .col-lg-4 classes.
 - Yellow Block:** This part is inside the first .col-sm-6 class.
 - Orange Block:** This part is inside the second .col-sm-6 class.
 - Pink Block:** This part is inside a .col-sm-4, .col-sm-6 and .col-lg-8 classes.

7. Posisikan kotak pencarian pada sisi kanan dengan menambahkan kelas **auto-mr** pada tag **** seperti berikut:

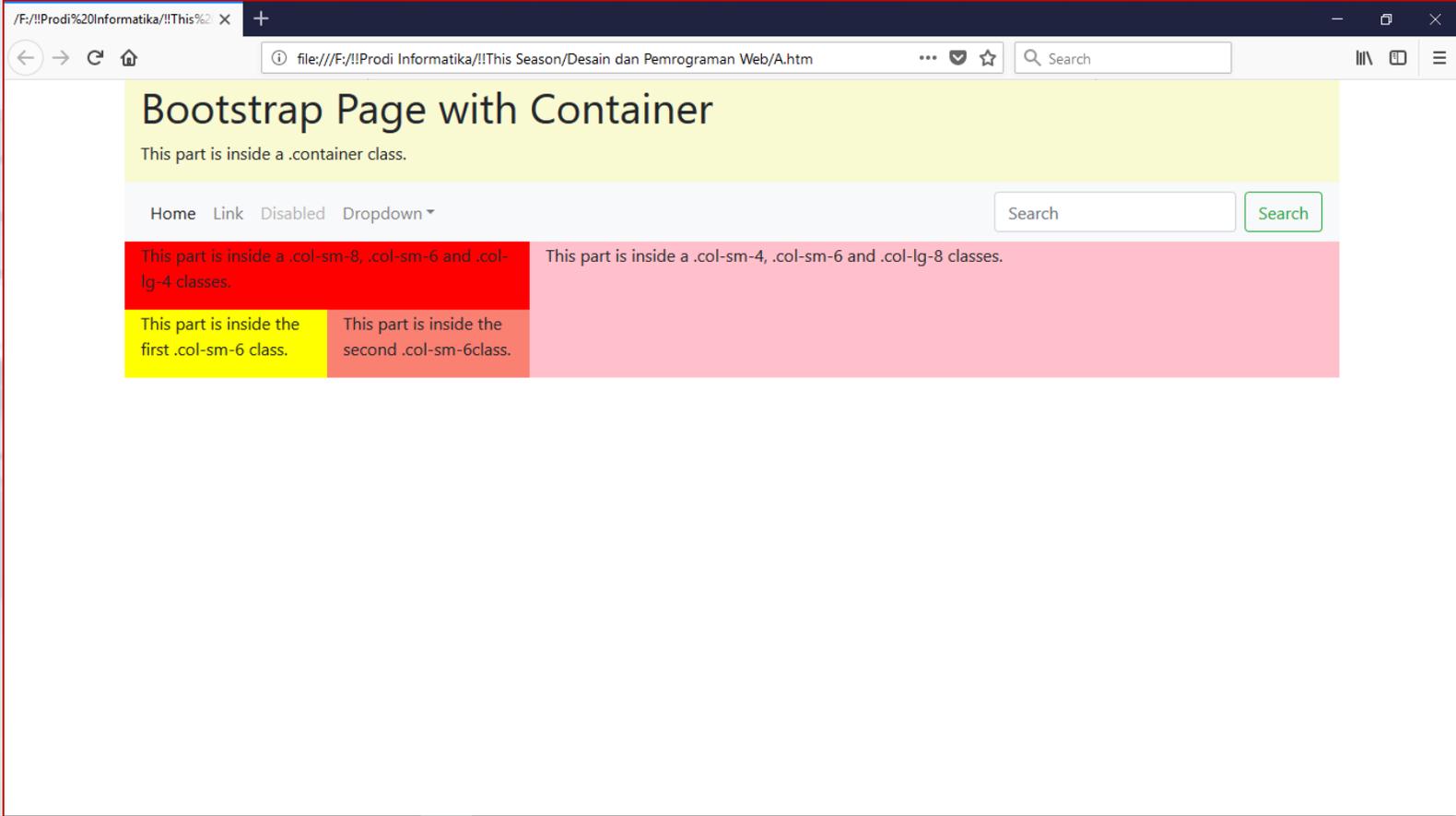
```
<nav class="row navbar navbar-expand-lg navbar-light bg-light">
  ...
  <div class="collapse navbar-collapse" id="navbarSupportedContent">
    <ul class="navbar-nav mr-auto">
      ...
    </ul>

    <form class="form-inline my-2 my-lg-0">
      <input class="form-control mr-sm-2" type="search" placeholder="Search" aria-
label="Search">
      <button class="btn btn-outline-success my-2 my-sm-0"
type="submit">Search</button>
    </form>

  </div>
</nav>
```

BOOTSTRAP NAVIGATION BAR

AKTIVITAS LAB 3



The screenshot shows a web browser window with the following content:

- Address Bar:** file:///F:/!!Prodi Informatika/!!This Season/Desain dan Pemrograman Web/A.htm
- Title:** Bootstrap Page with Container
- Text:** This part is inside a .container class.
- Navigation Bar:** Home Link Disabled Dropdown Search Search
- Grid Structure:**
 - Red Box:** This part is inside a .col-sm-8, .col-sm-6 and .col-lg-4 classes.
 - Yellow Box:** This part is inside the first .col-sm-6 class.
 - Pink Box:** This part is inside the second .col-sm-6 class.
 - Light Pink Box:** This part is inside a .col-sm-4, .col-sm-6 and .col-lg-8 classes.

BOOTSTRAP CLASSES REFERENCE

CSS FRAMEWORK

- Untuk mempelajari *Bootstrap classes* lainnya silahkan untuk mengakses:

https://www.w3schools.com/bootstrap/bootstrap_ref_all_classes.asp