

COMP7980 – Dynamic Web and Mobile Programming

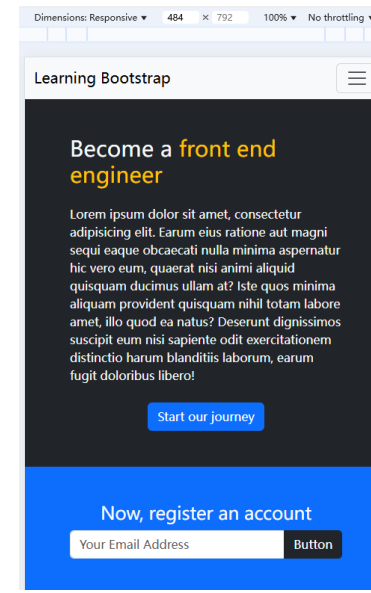
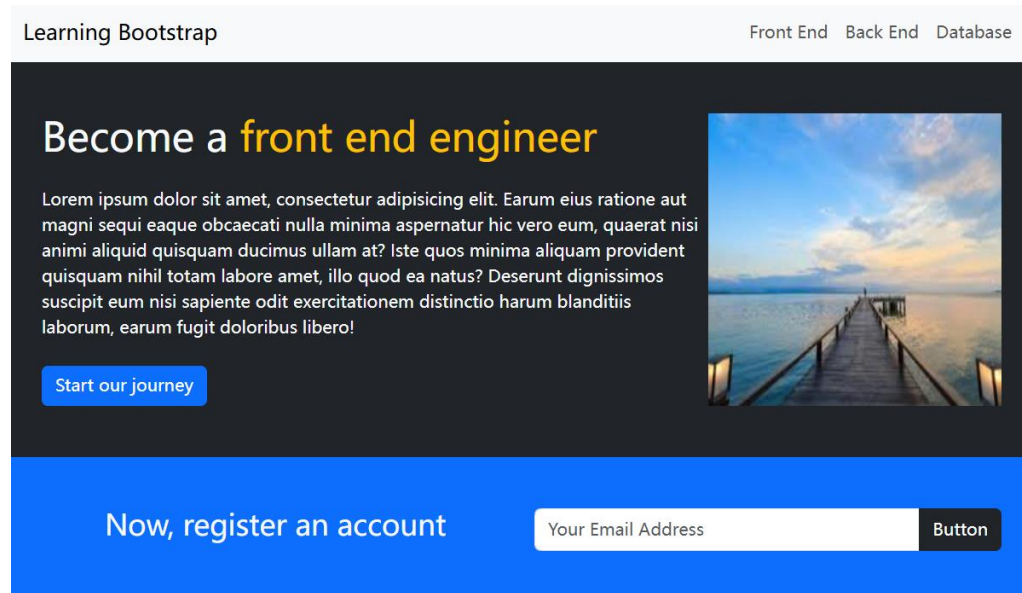
COMP7270 – Web and Mobile Programming

Demo: Bootstrap

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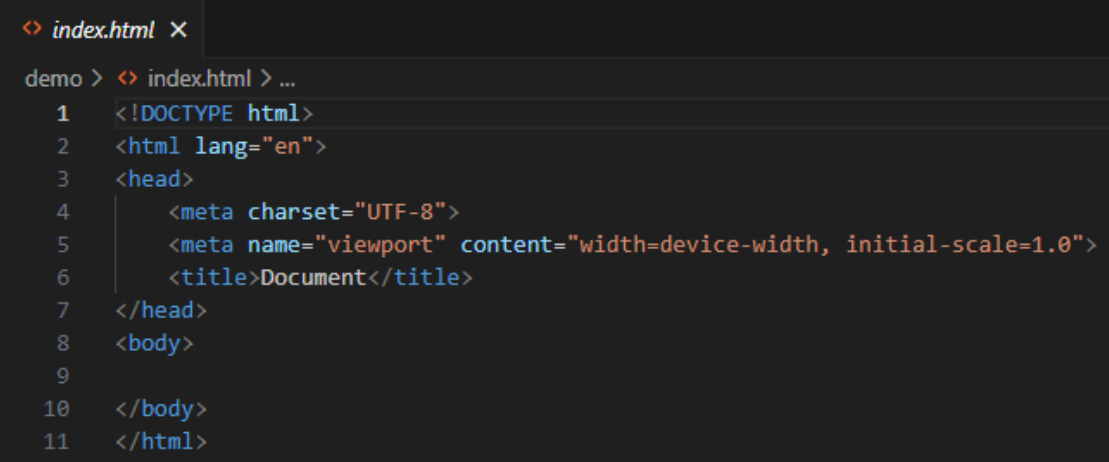
Content

- Write a webpage using Bootstrap from scratch
 - Responsive
 - Neat



Build a Simple Webpage

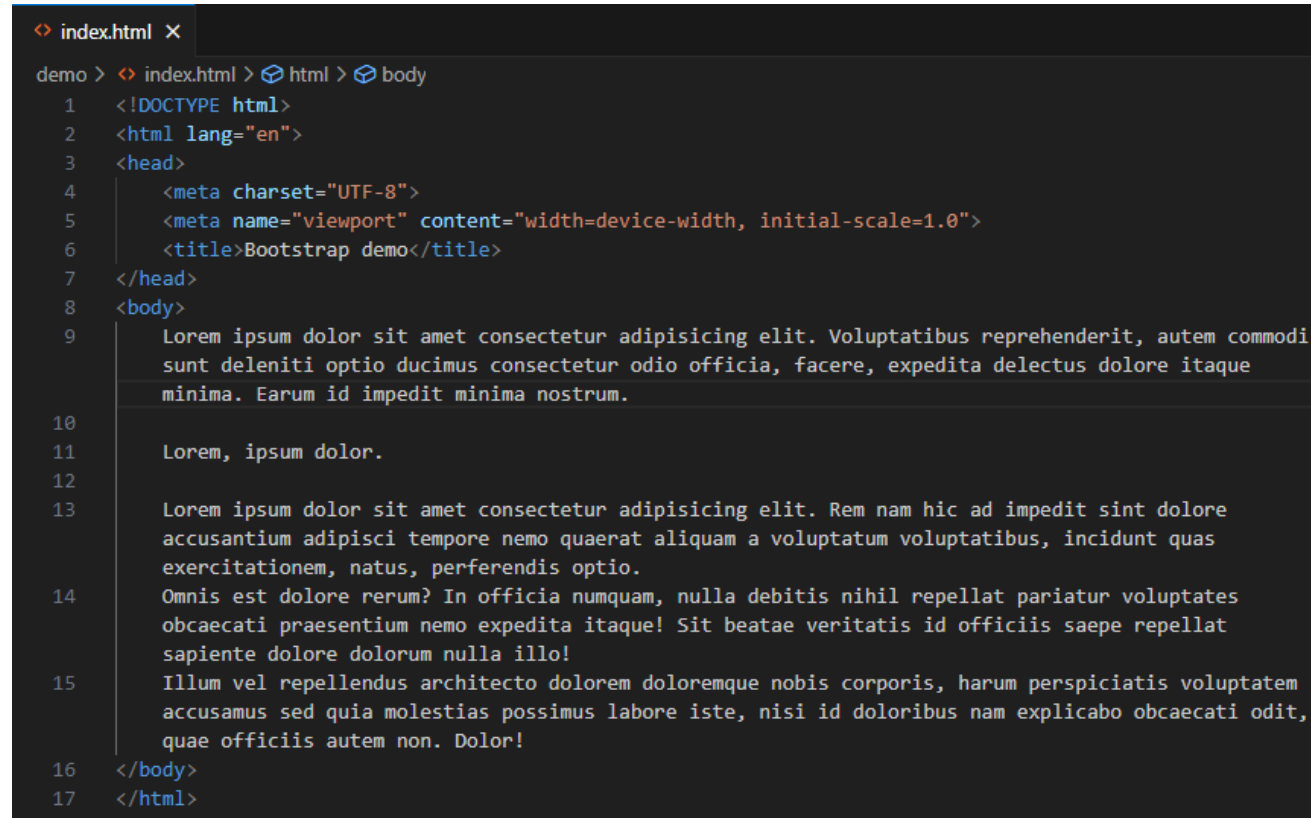
- Start VSCode app
- Create a new folder named 'demo'
- Create an empty file named 'index.html' in the folder 'demo'
- Type '!' and press return, then you can see the basic HTML structure as shown in the right figure
- Install Live Server extension and press Go Live to see the webpage
- We then change the title to 'Bootstrap demo'

A screenshot of the Visual Studio Code editor interface. The top bar shows a tab for 'index.html' with a close button. The editor area displays the following HTML code:

```
demo > <> index.html > ...  
1 <!DOCTYPE html>  
2 <html lang="en">  
3 <head>  
4   <meta charset="UTF-8">  
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">  
6   <title>Document</title>  
7 </head>  
8 <body>  
9  
10 </body>  
11 </html>
```

How can we generate some random texts?

- Type 'lorem' and press return or Tab
 - You may see the generated random texts
 - May use 'Alt + z' to automatically arrange the texts in multiple lines
- If we want to output less words, we can type 'lorem'+n, where n is the number of words (see the right figure)
- For long words, we can type 'lorem*x', where x is the time of duplication (see type 'lorem*3')



```
index.html x
demo > <> index.html > html > body
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <title>Bootstrap demo</title>
7 </head>
8 <body>
9   Lorem ipsum dolor sit amet consectetur adipisicing elit. Voluptatibus reprehenderit, autem commodi
  sunt deleniti optio ducimus consectetur odio officia, facere, expedita delectus dolore itaque
  minima. Earum id impedit minima nostrum.
10
11   Lorem, ipsum dolor.
12
13   Lorem ipsum dolor sit amet consectetur adipisicing elit. Rem nam hic ad impedit sint dolore
  accusantium adipisci tempore nemo quaerat aliquam a voluptatum voluptatibus, incidunt quas
  exercitationem, natus, perferendis optio.
14   Omnis est dolore rerum? In officia numquam, nulla debitis nihil repellat pariatur voluptates
  obcaecati praesentium nemo expedita itaque! Sit beatae veritatis id officiis saepe repellat
  sapiente dolore dolorum nulla illo!
15   Illum vel repellendus architecto dolorem doloremque nobis corporis, harum perspiciatis voluptatem
  accusamus sed quia molestias possimus labore iste, nisi id doloribus nam explicabo obcaecati odit,
  quae officiis autem non. Dolor!
16 </body>
17 </html>
```

Include Bootstrap Library

- Go to Bootstrap's Documentation:
 - <https://getbootstrap.com/docs/5.3/getting-started/introduction/>
 - Copy <link> element after <title>
 - Copy <script> element to the end of <body> element

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap demo</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css"
    rel="stylesheet" integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh0JMhJY6hW
    +ALEwIH" crossorigin="anonymous">
</head>
<body>

  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"
    integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDz0xhy9GkcIdslK1eN7N6jIeHz"
    crossorigin="anonymous"></script>

</body>
</body>
</html>
```

Add the Navigation Bar

- Go to Navbar document:

- <https://getbootstrap.com/docs/5.3/components/navbar/>

- Find an example and copy the element <nav>

```
<nav class="navbar navbar-expand-lg bg-body-tertiary">
```

- Here, the class '.navbar-expand-lg' is used for responsiveness. The navbar will automatically collapse at the lg (large) breakpoint

Add the Navigation Bar

```
<nav class="navbar navbar-expand-lg bg-body-tertiary">
  <div class="container-fluid">
    <a class="navbar-brand" href="#">Navbar</a>
    <button class="navbar-toggler" type="button" data-bs-toggle="collapse"
      data-bs-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 me-auto mb-2 mb-lg-0">
        <li class="nav-item">
          <a class="nav-link active" aria-current="page" href="#">Home</a>
        </li>
        <li class="nav-item">
          <a class="nav-link" href="#">Link</a>
        </li>
        <li class="nav-item dropdown">
          <a class="nav-link dropdown-toggle" href="#" role="button" data-bs-toggle="dropdown"
            aria-expanded="false">
            Dropdown
          </a>
          <ul class="dropdown-menu">
            <li><a class="dropdown-item" href="#">Action</a></li>
            <li><a class="dropdown-item" href="#">Another action</a></li>
            <li><hr class="dropdown-divider"></li>
            <li><a class="dropdown-item" href="#">Something else here</a></li>
          </ul>
        </li>
        <li class="nav-item">
          <a class="nav-link disabled" aria-disabled="true">Disabled</a>
        </li>
      </ul>
      <form class="d-flex" role="search">
        <input class="form-control me-2" type="search" placeholder="Search" aria-label="Search">
        <button class="btn btn-outline-success" type="submit">Search</button>
      </form>
    </div>
  </div>
</nav>
```

Preview the Webpage

- Now, our webpage is shown as:



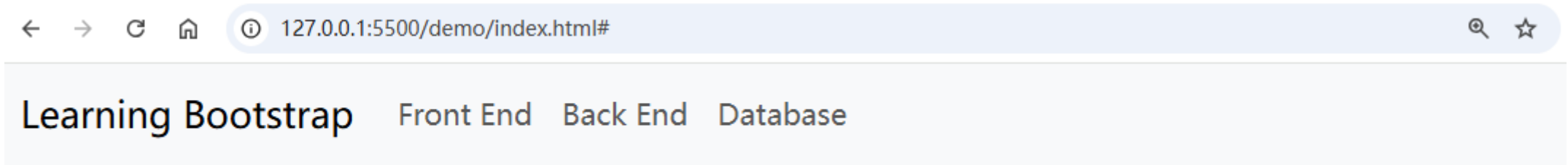
Customization

- Replace `Navbar` content with `Learning Bootstrap`
- Customization:
 - Remove the list item with content `Home`
 - Change `Link` to `Front End`
 - Remove the drop-down list item and `Disabled` item
 - Copy `Front End` list item twice and change their contents to `Back End` and `Database`
- Remove the `Search` input form

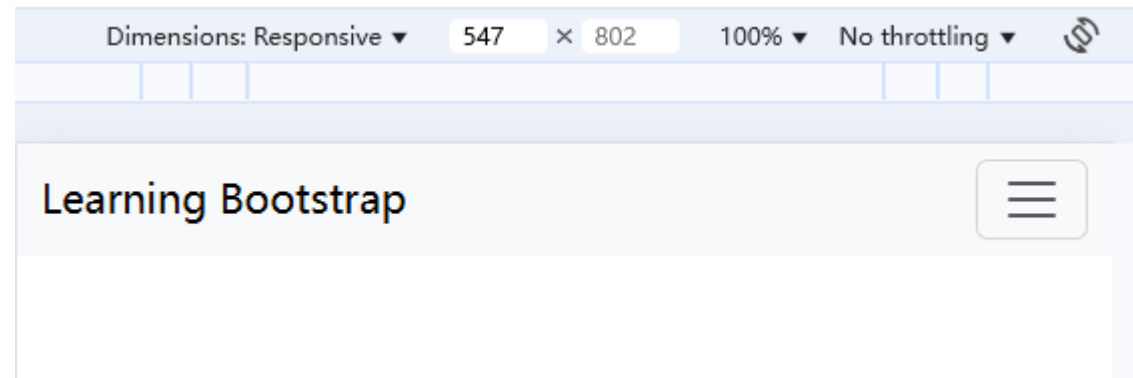
```
<div class="container-fluid">  
  <a class="navbar-brand" href="#">Learning Bootstrap</a>  
  <button class="navbar-toggler" type="button" data-bs-toggle="collapse"  
    data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent"  
    aria-expanded="false" aria-label="Toggle navigation">  
    <span class="navbar-toggler-icon"></span>  
  </button>  
  <div class="collapse navbar-collapse" id="navbarSupportedContent">  
    <ul class="navbar-nav me-auto mb-2 mb-lg-0">  
      <li class="nav-item">  
        <a class="nav-link" href="#">Front End</a>  
      </li>  
      <li class="nav-item">  
        <a class="nav-link" href="#">Back End</a>  
      </li>  
      <li class="nav-item">  
        <a class="nav-link" href="#">Database</a>  
      </li>  
    </ul>  
  </div>  
</div>
```

Preview the Webpage

- Full-sized screen:



- Responsive mode:



Click this, the contents will be shown

Change the Contents' Position

- Let's move the three texts to the right of the screen:
 - Change the `.me-auto` class with `.ms-auto` in the `` element
 - Here, 'e' stands for 'end', 's' stands for 'start'

Learning Bootstrap

Front End Back End Database

Where *property* is one of:

- `m` - for classes that set `margin`
- `p` - for classes that set `padding`

Where *sides* is one of:

- `t` - for classes that set `margin-top` or `padding-top`
- `b` - for classes that set `margin-bottom` or `padding-bottom`
- `s` - (start) for classes that set `margin-left` or `padding-left` in LTR, `margin-right` or `padding-right` in RTL
- `e` - (end) for classes that set `margin-right` or `padding-right` in LTR, `margin-left` or `padding-left` in RTL
- `x` - for classes that set both `*-left` and `*-right`
- `y` - for classes that set both `*-top` and `*-bottom`
- blank - for classes that set a `margin` or `padding` on all 4 sides of the element

Include the page with a container

- The `.container` class will leave some margins, which makes the webpage more beautiful
- Add the class `.container` to `<div class="container-fluid">` element:

```
<div class="container-fluid container">
```

- Let's preview the webpage:



Design the Layout

- Add a `<section></section>` element and `<div>` with `.container` class `<div class="container"></div>`
- Inside `<div class="container">`, let's arrange the following layout:



Write Basic HTML Script

- Basic Script:

```
<section>
  <div class="container">
    <div>
      <div>
        <h1>Become a front end engineer</h1>
        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Earum eius ratione aut
magni sequi eaque obcaecati nulla minima aspernatur hic vero eum, quaerat nisi animi aliquid quisquam ducimus ullam at?
Iste quos minima aliquam provident quisquam nihil totam labore amet, illo quod ea
natus? Deserunt dignissimos suscipit eum nisi sapiente odit exercitationem distinctio harum blanditiis laborum, earum fugit
doloribus libero!</p>
        <button>Start our journey</button>
      </div>
      
    </div>
  </div>
</section>
```

- 3 components: a h1, a paragraph, a button

Preview the Webpage



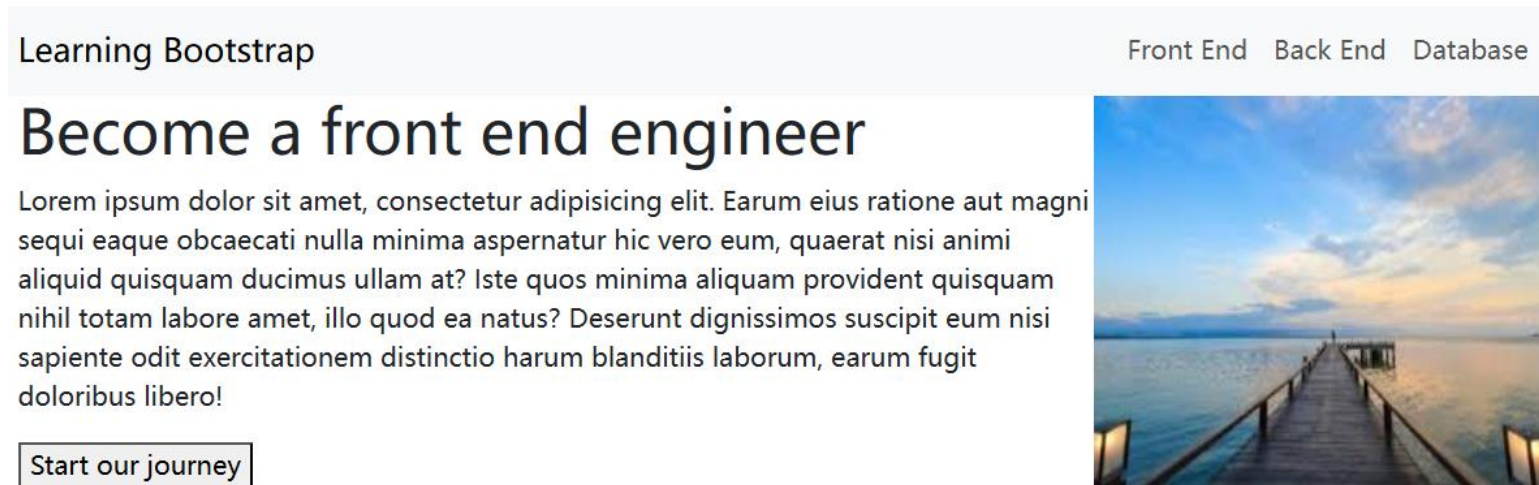
Make a Left-Right Layout

- Use class 'd-flex' to the <div> that is next to the container to make the texts and button to be left and the figure to be right

```
<section>
  <div class="container">
    <div class="d-flex">
      <div>
        <h1>Become a front end engineer</h1>
        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Earum eius ratione aut
magni sequi eaque obcaecati nulla minima aspernatur hic vero eum, quaerat nisi animi aliquid quisquam ducimus ullam at?
Iste quos minima aliquam provident quisquam nihil totam labore amet, illo quod ea
natus? Deserunt dignissimos suscipit eum nisi sapiente odit exercitationem distinctio harum blanditiis laborum, earum fugit
doloribus libero!</p>
        <button>Start our journey</button>
      </div>
      
    </div>
  </div>
</section>
```


Make a Left-Right Layout

- See <https://getbootstrap.com/docs/5.3/utilities/flex/#enable-flex-behaviors> for more details
- After adding the class, we can see the page:



Highlight the Keywords

- Let's highlight the words 'font end engineer'
- Change the <h1> element contents to

```
<h1>Become a <span class="text-warning">font end engineer</span></h1>
```

- We have mentioned that the class '.text-warning' makes the texts to be yellow

Learning Bootstrap

Front End Back End Database

Become a front end engineer

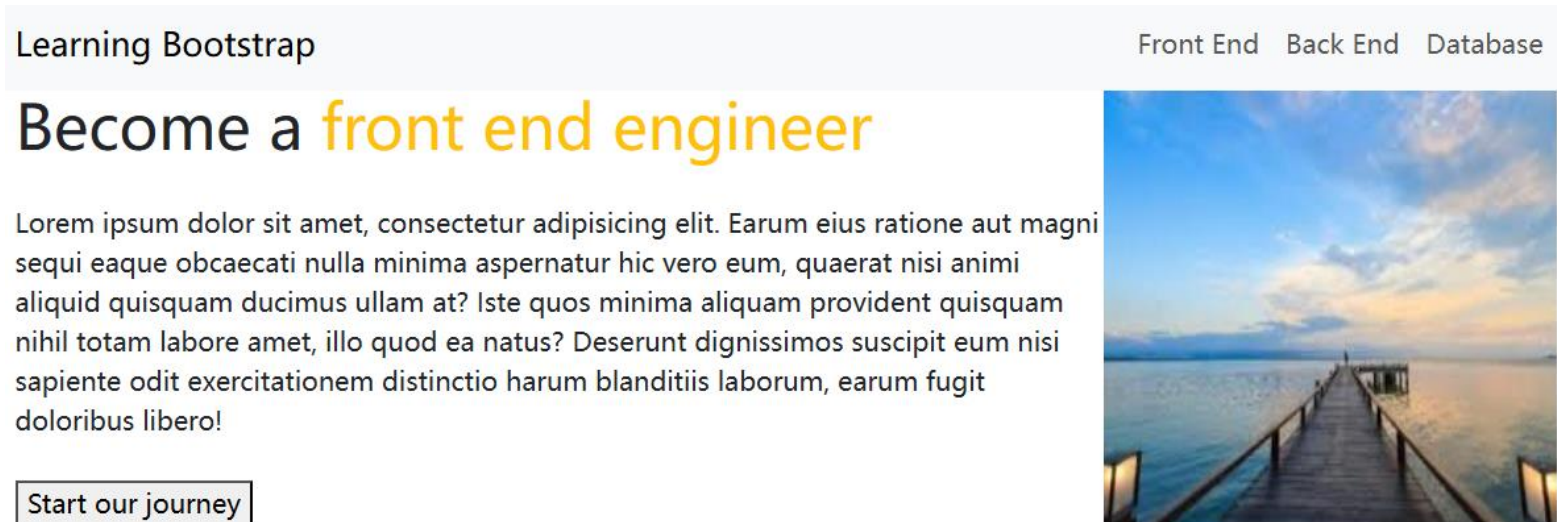
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Earum eius ratione aut magni sequi eaque obcaecati nulla minima aspernatur hic vero eum, quaerat nisi animi aliquid quisquam ducimus ullam at? Iste quos minima aliquam provident quisquam nihil totam labore amet, illo quod ea natus? Deserunt dignissimos suscipit eum nisi sapiente odit exercitationem distinctio harum blanditiis laborum, earum fugit doloribus libero!

Start our journey



Add some margins

- We want to add some space between the heading and the paragraph
- We can add a class '.my-4' in <p> element
- Preview the page, now it is better



Change the Button Style

- Check the document of a button:
 - <https://getbootstrap.com/docs/5.3/components/buttons/#base-class>
 - We can add a primary button:
<button type="button" class="btn btn-primary">Primary</button>
Change the word 'Primary' to 'Start our journey'
 - Add a class '.btn-lg' to make the button bigger

```
<button type="button" class="btn btn-primary btn-lg">Start our journey</button>
```

Preview the Webpage

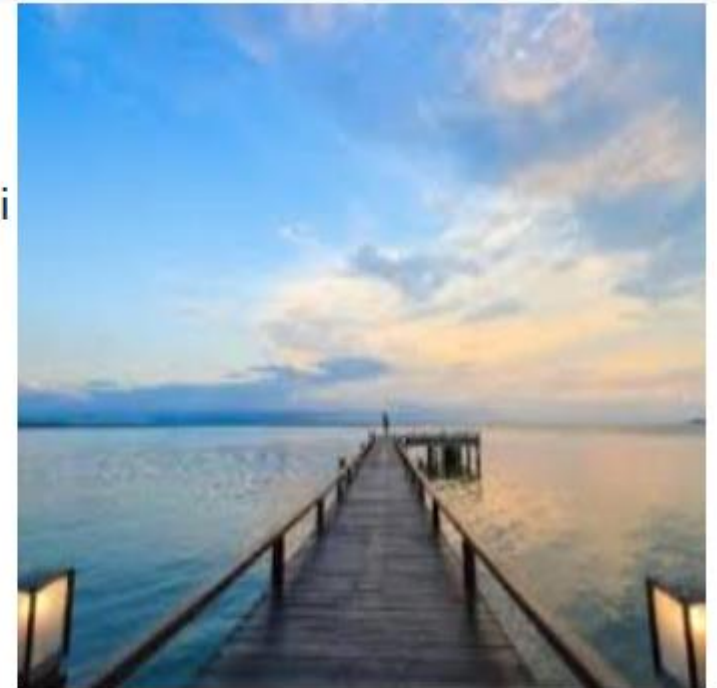
Learning Bootstrap

Front End Back End Database

Become a front end engineer

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Earum eius ratione aut magni sequi eaque obcaecati nulla minima aspernatur hic vero eum, quaerat nisi animi aliquid quisquam ducimus ullam at? Iste quos minima aliquam provident quisquam nihil totam labore amet, illo quod ea natus? Deserunt dignissimos suscipit eum nisi sapiente odit exercitationem distinctio harum blanditiis laborum, earum fugit doloribus libero!

Start our journey



Add Spaces to the Main Content

- We notice that the heading 'Become a front end engineer' is too close to the Navbar
- We can add some paddings to the section:
 - Add a class 'p-5' to <section> element

```
<section class="p-5">
```



Make the Background Black

- Some programmer likes the dark background
- We can add two classes to <section> element: 'bg-dark', 'text-light'

```
<section class="p-5 bg-dark text-light">
```

- Preview:



More Responsiveness

- When we reduce the width to some scale, the figure is better to be disappear
- Use Bootstrap Grid System
 - Add two classes to element: 'd-none' 'd-md-block'

```

```


Preview the Webpage

- Full-sized screen:

Learning Bootstrap

Front End Back End Database

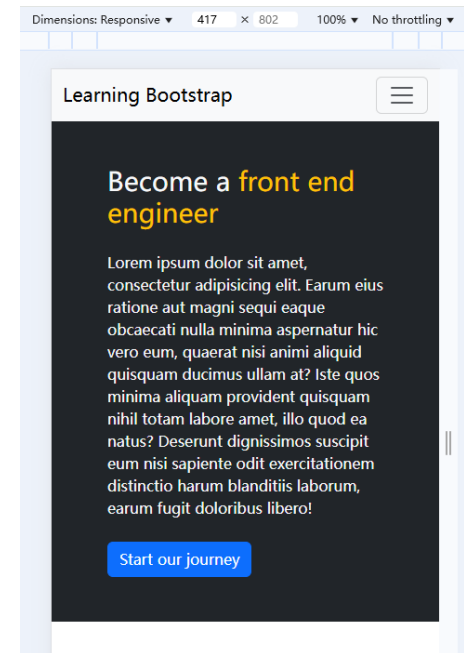
Become a **front end engineer**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Earum eius ratione aut magni sequi eaque obcaecati nulla minima aspernatur hic vero eum, quaerat nisi animi aliquid quisquam ducimus ullam at? Iste quos minima aliquam provident quisquam nihil totam labore amet, illo quod ea natus? Deserunt dignissimos suscipit eum nisi sapiente odit exercitationem distinctio harum blanditiis laborum, earum fugit doloribus libero!

Start our journey



- Smaller screen:



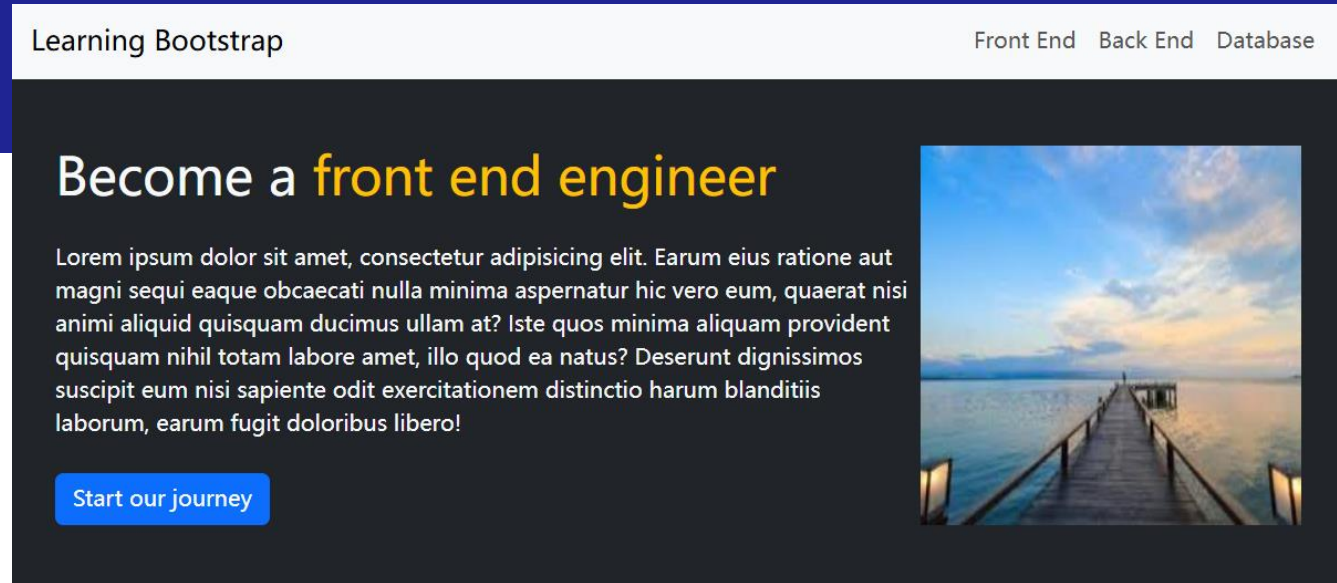
Responsiveness for the Button

- We find that when the screen is small, the button is not centered
- Goal: button centered for small screen sizes; button in left for medium or larger screen sizes
- Include the button element with <div> with classes '.text-center', '.text-md-start'

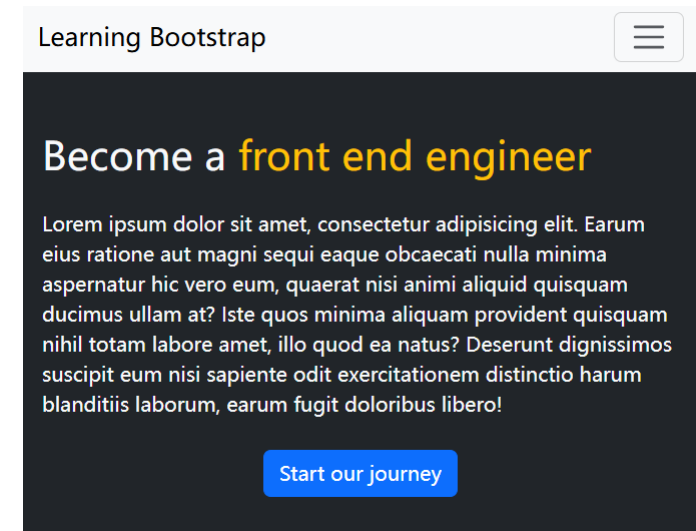
```
<div class="col text-center text-md-start">  
  <button type="button" class="btn btn-primary btn-lg">Start our journey</button>  
</div>
```

Preview the Webpage

- Full-sized screen:

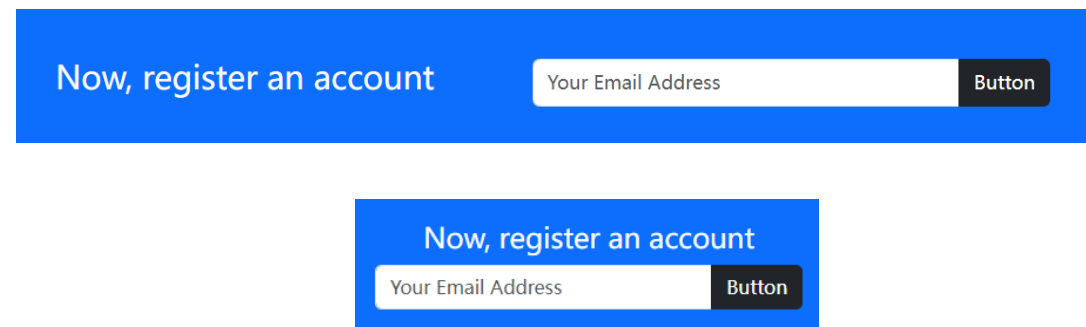


- Smaller screen:



Add a Registration Input

- We would like to add a registration input as shown in the figure:
 - For full-sized screens, the text and the input box are put horizontally
 - For smaller screens, the text and the input box are put vertically



The figure displays two UI mockups for a registration form, both set against a blue background. The top mockup represents a full-sized screen with a horizontal layout. It features the text 'Now, register an account' in white on the left, followed by a white input field containing the placeholder text 'Your Email Address', and a dark grey button labeled 'Button' on the right. The bottom mockup represents a smaller screen with a vertical layout. It also features the text 'Now, register an account' in white, but the input field and the 'Button' are stacked vertically below the text.

Build the Basic Structure

- Add the following code:

```
<section class="p-5 bg-primary text-light">
  <div class="container">
    <h3>Now, register an account</h3>
    <div class="input-group">
      <input type="text" class="form-control" placeholder="Your Email Address">
      <button type="button">Button</button>
    </div>
  </div>
</section>
```



Improve the Button Style

- Add the Bootstrap class `‘.btn’`, `‘.btn-dark’`:

```
<button class="btn btn-dark" type="button">Button</button>
```

Documentation of Button



[Link](#)

HTML

```
<button type="button" class="btn btn-primary">Primary</button>
<button type="button" class="btn btn-secondary">Secondary</button>
<button type="button" class="btn btn-success">Success</button>
<button type="button" class="btn btn-danger">Danger</button>
<button type="button" class="btn btn-warning">Warning</button>
<button type="button" class="btn btn-info">Info</button>
<button type="button" class="btn btn-light">Light</button>
<button type="button" class="btn btn-dark">Dark</button>

<button type="button" class="btn btn-link">Link</button>
```

Preview

Now, register an account

Button

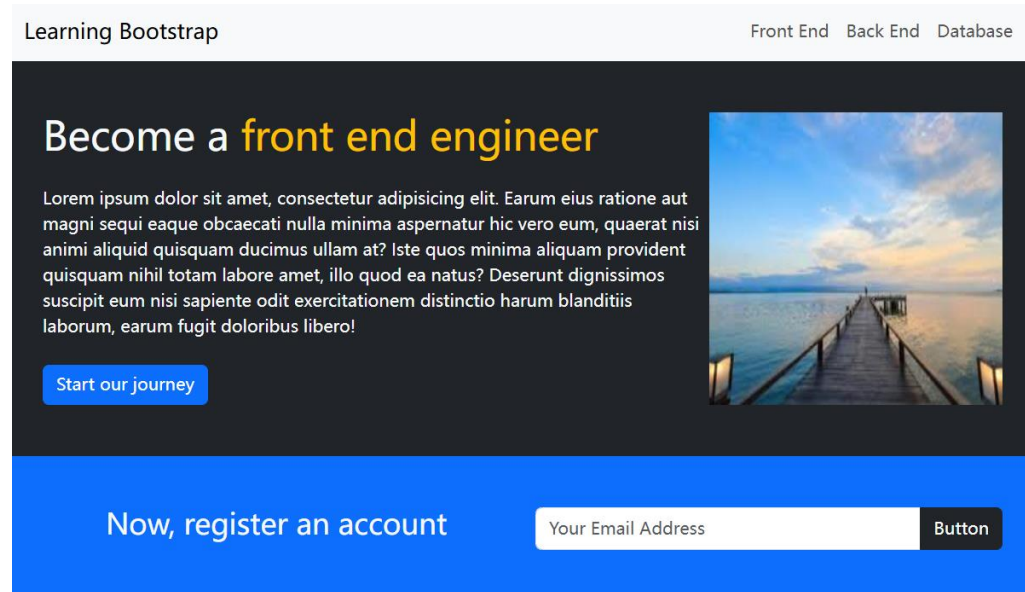
Apply the Bootstrap Grid System

- Add a <div> with class '.row': create a row
- Make <h3> and <div class='input-group'> as columns
- Change 'Button' to 'Register'

```
<section class="p-5 bg-primary text-light">
  <div class="container">
    <div class="row">
      <div class="col-12 text-center col-md">
        <h3>Now, register an account</h3>
      </div>
      <div class="col-12 col-md">
        <div class="input-group">
          <input type="text" class="form-control" placeholder="Your Email Address">
          <button class="btn btn-dark" type="button">Register</button>
        </div>
      </div>
    </div>
  </div>
</section>
```

Preview the Webpage

- Full-sized screen:



- Smaller screen:

