

SIT774 Web Technologies and Development

Workshop Week 4

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Key concepts

Introduction (4.1-4.2): Discover what Bootstrap is.
Configure your web page with Bootstrap (4.3-4.5):

Discover the fundamentals of Bootstrap.

Bootstrap with CSS (4.6-4.8): Practice making your web pages more colourful, attractive and meaningful.

Bootstrap layout (4.9-4.12): Explore different ways of organising the content of your web page and aiding navigation.

Wrap up (4.13): Reflect on what you have learned this week and make sure you finish all week 1 and week 2 tasks.

4.2 Bootstrap brief	Web Page
4.3 How to get and use Bootstrap	Web Page
4.4 Building responsive web pages	Web Page
4.5 Bootstrap grid system	Web Page
4.6 Typography	Web Page
4.7 Tables	Web Page
4.8 Images and buttons	Web Page
4.9 Highlighting information	Web Page
4.10 Button groups	Web Page
4.11 Progress bars	Web Page
4.12 JavaScript plugins	Web Page

Bootstrap is based on CSS and provides rich classes that can be used directly to configure web page styles easily and professionally.

Ontrack task 4.1P

Ontrack task 4.2C

Ontrack task 4.3D (**extra learning materials**)



4.2 Bootstrap/Responsive web design

What is Bootstrap?

- a free front-end framework for faster and easier web development
- is completely free to download and use
- includes HTML and CSS-based design templates for typography, forms, buttons, tables, navigation, modals, image carousels, and many others, as well as optional JavaScript plugins
- also gives you the ability to easily create responsive designs

What is Responsive Web Design?

Responsive web design is about creating websites which automatically adjust themselves to look good on all devices, from small phones to large desktops.

Why Use Bootstrap?

Advantages of Bootstrap:

- Open source and easy to use: anybody with basic knowledge of HTML and CSS can start using Bootstrap.
- Responsive design: Bootstrap's responsive CSS adjusts to various device sizes, from phones, tablets, to desktops.
- Mobile-first approach: in Bootstrap 3, mobile-first styles are part of the core framework.
- Browser support: Bootstrap is supported by all modern browsers (Chrome, Firefox, Internet Explorer, Safari, and Opera).
- Easy to customise.



4.3 Where to Get Bootstrap 5?

There are two ways to start using Bootstrap 5 on your own web site.

You can:

- Include Bootstrap 5 from a CDN
- Download Bootstrap 5 from getbootstrap.com

Downloading Bootstrap 5

If you want to download and host Bootstrap 5 yourself, go to <https://getbootstrap.com/>, and follow the instructions there.

Bootstrap 5 CDN

If you don't want to download and host Bootstrap 5 yourself, you can include it from a CDN (Content Delivery Network).

jsDelivr provides CDN support for Bootstrap's CSS and JavaScript:

MaxCDN:

```
<!-- Latest compiled and minified CSS -->
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet">

<!-- Latest compiled JavaScript -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.js"></script>
```

1. To use Bootstrap this way, you must add the following stylesheet `<link>` into the `<head>` section of your web pages.
2. Bootstrap also need access to some JavaScript library functions, including `jQuery` and `Popper`. You must add the `<script>` before the closing `</body>` tag

Note: Bootstrap uses `jQuery` for JavaScript plugins (like modals, tooltips, etc). However, if you just use the CSS part of Bootstrap, you don't need `jQuery`.



4.4 Create First Web Page With Bootstrap

1. Add the HTML5 doctype

Bootstrap uses HTML elements and CSS properties that require the HTML5 doctype.

Always include the HTML5 doctype at the beginning of the page, along with the lang attribute and the correct character set:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
  </head>
</html>
```

2. Bootstrap 5 is mobile-first

Bootstrap 5 is designed to be responsive to mobile devices. Mobile-first styles are part of the core framework.

To ensure proper rendering and touch zooming, add the following `<meta>` tag inside the `<head>` element:

```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

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.



Example of getting Bootstrap 5 CDN

2. **Include Bootstrap's CSS and JS.** Place the `<link>` tag in the `<head>` for our CSS, and the `<script>` tag for our JavaScript bundle (including Popper for positioning dropdowns, poppers, and tooltips) before the closing `</body>`. Learn more about our [CDN links](#).

```
<!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 href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>
<body>

<div class="container">
  <h1>My First Bootstrap Page</h1>
  <p>This part is inside a .container class.</p>
  <p>The .container class provides a responsive fixed width container.</p>
  <p>Resize the browser window to see that the container width will change at different breakpoints.</p>
</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

You can also include [Popper](#) and our JS separately. If you don't plan to use dropdowns, popovers, or tooltips, save some kilobytes by not including Popper.

```
<script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.11.8/dist/umd/popper.min.js" integrity="sha384-...
```

3. **Hello, world!** Open the page in your browser of choice to see your Bootstrapped page. Now you can start building with Bootstrap by creating your own [layout](#), adding dozens of [components](#), and utilizing [our official examples](#).

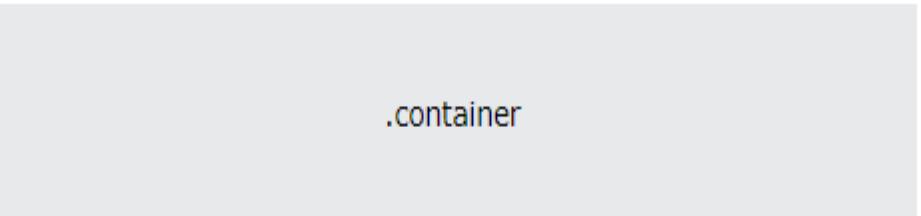
4.4 Container element

3. Containers

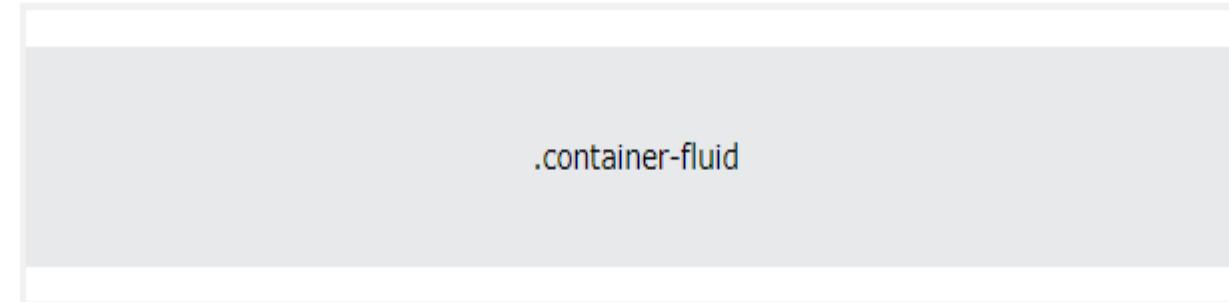
Bootstrap also requires a containing element to wrap site contents.

There are two container classes to choose from:

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



.container

A diagram illustrating a fixed-width container. It consists of a large white rectangular area representing the viewport, containing a smaller gray rectangular box labeled ".container" in the center. This gray box represents the content area within the fixed-width container.

.container-fluid

A diagram illustrating a full-width container. It consists of a large white rectangular area representing the viewport, containing a single, wide gray rectangular box labeled ".container-fluid" in the center. This gray box represents the content area within the full-width container, which spans the entire width of the viewport.

Add container

A responsive fixed width container

The following example shows the code for a basic Bootstrap page (with a **responsive fixed width** container):

```
<!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 href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body>

<div class="container">
  <h1>My First Bootstrap Page</h1>
  <p>This part is inside a .container class.</p>
  <p>The .container class provides a responsive fixed width container.</p>
  <p>Resize the browser window to see that the container width will change at different breakpoints.</p>
</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

My First Bootstrap Page

This part is inside a .container class.

The .container class provides a responsive fixed width container.



A full width container

The following example shows the code for a basic Bootstrap page (with a **full width** container):

```
<!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 href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet">
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.js"></script>
</head>
<body>

<div class="container-fluid">
  <h1>My First Bootstrap Page</h1>
  <p>This part is inside a .container-fluid class.</p>
  <p>The .container-fluid class provides a full width container, spanning the entire width of the viewport.</p>
</div>

</body>
</html>
```

My First Bootstrap Page

This part is inside a .container-fluid class.

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

4.5 Grid system

Bootstrap's grid system is built with flexbox and allows **up to 12 columns** across the page.

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														

Grid Classes

The Bootstrap 5 grid system has six classes:

- `.col-` (extra small devices - screen width less than 576px)
- `.col-sm-` (small devices - screen width equal to or greater than 576px)
- `.col-md-` (medium devices - screen width equal to or greater than 768px)
- `.col-lg-` (large devices - screen width equal to or greater than 992px)
- `.col-xl-` (xlarge devices - screen width equal to or greater than 1200px)
- `.col-xxl-` (xxlarge devices - screen width equal to or greater than 1400px)

The classes above can be combined to create more dynamic and flexible layouts.

Tip: Each class scales up, so if you want to set the same widths for `sm` and `md`, you only need to specify `sm`.

The following is a basic structure of a Bootstrap 5 grid:

```
<!-- Control the column width, and how they should appear on different devices -->
<div class="row">
  <div class="col-*-*"></div>
  <div class="col-*-*"></div>
</div>
<div class="row">
  <div class="col-*-*"></div>
  <div class="col-*-*"></div>
  <div class="col-*-*"></div>
</div>

<!-- Or let Bootstrap automatically handle the layout -->
<div class="row">
  <div class="col"></div>
  <div class="col"></div>
  <div class="col"></div>
</div>
```

First example: create a row (`<div class="row">`). Then, add the desired number of columns (tags with appropriate `.col-*-*` classes). The first star (*) represents the responsiveness: sm, md, lg, xl or xxl, while the second star represents a number, which should add up to 12 for each row.

Second example: instead of adding a number to each `col`, let bootstrap handle the layout, to create equal width columns: two `"col"` elements = 50% width to each col, while three cols = 33.33% width to each col. Four cols = 25% width, etc. You can also use `.col-sm|md|lg|xl|xxl` to make the columns responsive.



Examples of Grid system

```
<div class="row">
  <div class="col-xs-6 col-sm-3"> ... </div>
  <div class="col-xs-6 col-sm-9"> ... </div>
</div>
```

- A new **row** was created in the Bootstrap grid system. In Bootstrap, rows are used to group columns together.
- A **column** was created that takes up **6 out of 12 parts** of the grid when the **screen size is extra small (xs)** and **3 out of 12 parts** of the grid when the **screen size is small (sm)** or larger.
- Another **column** that takes up the remaining **6 out of 12 parts** of the grid when the **screen size is extra small (xs)** and **9 out of 12 parts** of the grid when **the screen size is small (sm)** or larger.

Responsive Columns

```
.col-sm-3 .col-sm-3 .col-sm-3 .col-sm-3
```

The following example shows how to create four equal-width columns starting at tablets and scaling to extra large desktops. **On mobile phones or screens that are less than 576px wide, the columns will automatically stack on top of each other:**

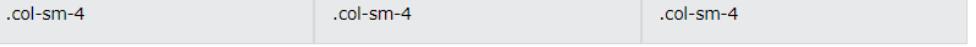
Example

```
<div class="row">
  <div class="col-sm-3">.col-sm-3</div>
  <div class="col-sm-3">.col-sm-3</div>
  <div class="col-sm-3">.col-sm-3</div>
  <div class="col-sm-3">.col-sm-3</div>
</div>
```



Columns

Three Equal Columns

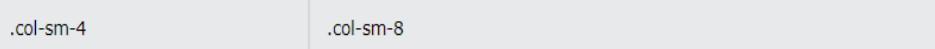


The following example shows how to get a three equal-width columns starting at tablets and scaling to large desktops. On mobile phones or screens that are less than 768px wide, the columns will automatically stack:

Example

```
<div class="row">
  <div class="col-sm-4">.col-sm-4</div>
  <div class="col-sm-4">.col-sm-4</div>
  <div class="col-sm-4">.col-sm-4</div>
</div>
```

Two Unequal Columns



The following example shows how to get two various-width columns starting at tablets and scaling to large desktops:

Example

```
<div class="row">
  <div class="col-sm-4">.col-sm-4</div>
  <div class="col-sm-8">.col-sm-8</div>
</div>
```

Bootstrap Grid System

A grid with **equal** column sizes. You can resize the browser window to see the effect.

use class ".col" use class ".col"
use class ".col" use class ".col" use class ".col"

A grid with **unequal** column sizes. You can resize the browser window to see the effect.

use class ".col-sm-10"
use class ".col-sm-2"
use class ".col-sm-4" use class ".col-sm-5" use class ".col-sm-3"

```
<div class="row">
  <div class="col" style="background-color:lavender;"> use class ".col"</div>
  <div class="col" style="background-color:lavenderblush;"> use class ".col"</div>
</div>
<div class="row">
  <div class="col" style="background-color:lightblue;"> use class ".col"</div>
  <div class="col" style="background-color:lightgreen;"> use class ".col"</div>
  <div class="col" style="background-color:cyan;"> use class ".col"</div>
</div>
<div class="row">
  <div class="col-sm-2" style="background-color:lavender;"> use class ".col-sm-2"</div>
  <div class="col-sm-10" style="background-color:lavenderblush;"> use class ".col-sm-10"</div>
</div>
<div class="row">
  <div class="col-sm-4" style="background-color:lightblue;"> use class ".col-sm-4"</div>
  <div class="col-sm-5" style="background-color:lightgreen;"> use class ".col-sm-5"</div>
  <div class="col-sm-3" style="background-color:cyan;"> use class ".col-sm-3"</div>
</div>
```

4.6 Typography

Bootstrap has specific typography and text classes, different from the browser's default.

Bootstrap changes the styles of some **HTML tags** a little bit different from browser's defaults.

These tags are:

- `<h1>` - `<h6>`
- `<small>`
- `<mark>`
- `<abbr>`
- `<blockquote>`
- `<dl>`
- `<code>`
- `<kbd>`
- `<pre>`

```
<p class="h1">h1 Bootstrap heading</p>
<p class="h2">h2 Bootstrap heading</p>
<p class="h3">h3 Bootstrap heading</p>
<p class="h4">h4 Bootstrap heading</p>
<p class="h5">h5 Bootstrap heading</p>
<p class="h6">h6 Bootstrap heading</p>

<title>Bootstrap Typography Example</title>
</head>

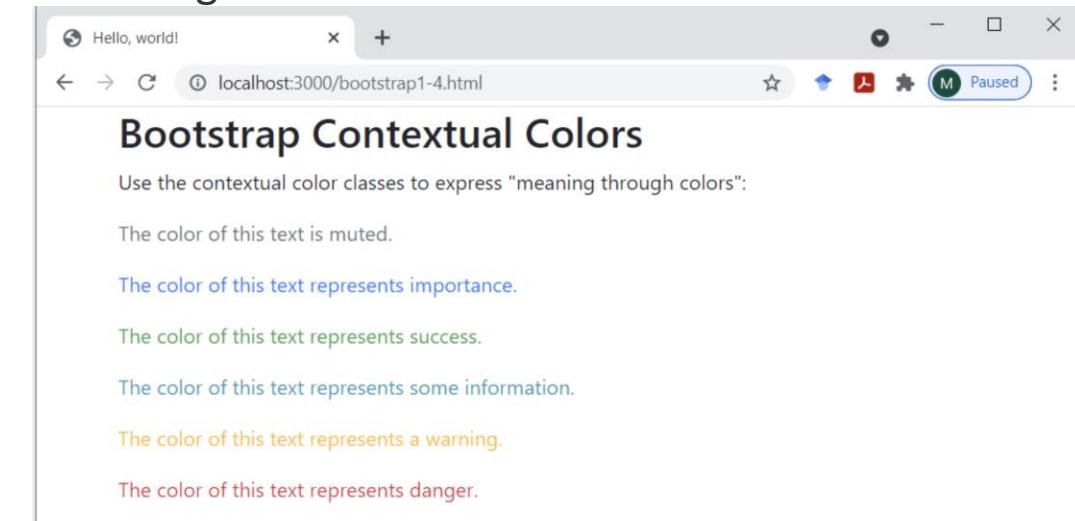
<body>
  <div class="container">
    <h2>Bootstrap Contextual Colors</h2>
    <p>Use the contextual color classes to express "meaning through colors":</p>
    <p class="text-muted">The color of this text is muted.</p>
    <p class="text-primary">The color of this text represents importance.</p>
    <p class="text-success">The color of this text represents success.</p>
    <p class="text-info">The color of this text represents some information.</p>
    <p class="text-warning">The color of this text represents a warning.</p>
    <p class="text-danger">The color of this text represents danger.</p>
  </div>

  <!-- Optional JavaScript -->
  <!-- Bootstrap Bundle with Popper -->
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.j
  </body>
</html>
```

Bootstrap provides **some contextual colour classes** that can be used to express “meaning through colours” in web pages.

These classes are:

- `.text-muted`
- `.text-primary`
- `.text-success`
- `.text-info`
- `.text-warning`
- `.text-danger`



Background colours and styling

Contextual Colors and Backgrounds

Bootstrap also has some contextual classes that can be used to provide "meaning through colors".

The classes for text colors are: `.text-muted`, `.text-primary`, `.text-success`, `.text-info`, `.text-warning`, and `.text-danger`:

Example

This text is muted.

This text is important.

This text indicates success.

This text represents some information.

This text represents a warning.

This text represents danger.

The classes for background colors are: `.bg-primary`, `.bg-success`, `.bg-info`, `.bg-warning`, and `.bg-danger`:

Example

This text is important.

This text indicates success.

This text represents some information.

This text represents a warning.

This text represents danger.



More Typography Classes

The Bootstrap classes below can be added to style HTML elements further:

Class	Description
.lead	Makes a paragraph stand out
.small	Indicates smaller text (set to 85% of the size of the parent)
.text-left	Indicates left-aligned text
.text-center	Indicates center-aligned text
.text-right	Indicates right-aligned text
.text-justify	Indicates justified text
.text nowrap	Indicates no wrap text
.text-lowercase	Indicates lowercased text
.text-uppercase	Indicates uppercased text
.text-capitalize	Indicates capitalized text
.initialism	Displays the text inside an <code><abbr></code> element in a slightly smaller font size
.list-unstyled	Removes the default list-style and left margin on list items (works on both <code></code> and <code></code>). This class only applies to immediate children list items (to remove the default list-style from any nested lists, apply this class to any nested lists as well)
.list-inline	Places all list items on a single line
.dl-horizontal	Lines up the terms (<code><dt></code>) and descriptions (<code><dd></code>) in <code><dl></code> elements side-by-side. Starts off like default <code><dl></code> s, but when the browser window expands, it will line up side-by-side
.pre-scrollable	Makes a <code><pre></code> element scrollable



4.7 Bootstrap tables(W3schools)

Basic Table

A basic Bootstrap 5 table has a light padding and horizontal dividers.

The `.table` class adds basic styling to a table:

Example

Firstname	Lastname	Email
John	Doe	john@example.com
Mary	Moe	mary@example.com
July	Dooley	july@example.com

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet">
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.js"></script>
  </head>
  <body>
    <div class="container mt-3">
      <h2>Basic Table</h2>
      <p>The .table class adds basic styling (light padding and horizontal dividers) to a table:</p>
      <table class="table">
        <thead>
          <tr>
            <th>Firstname</th>
            <th>Lastname</th>
            <th>Email</th>
          </tr>
        </thead>
        <tbody>
          <tr>
            <td>John</td>
            <td>Doe</td>
            <td>john@example.com</td>
          </tr>
          <tr>
            <td>Mary</td>
            <td>Moe</td>
            <td>mary@example.com</td>
          </tr>
          <tr>
            <td>July</td>
            <td>Dooley</td>
            <td>july@example.com</td>
          </tr>
        </tbody>
      </table>
    </div>
  </body>
</html>
```

Striped Rows

The `.table-striped` class adds zebra-stripes to a table:

Example

Firstname	Lastname	Email
John	Doe	john@example.com
Mary	Moe	mary@example.com
July	Dooley	july@example.com

```
<div class="container mt-3">
  <h2>Striped Rows</h2>
  <p>The .table-striped class adds zebra-stripes to a table:</p>
  <table class="table table-striped">
    <thead>
      <tr>
        <th>Firstname</th>
        <th>Lastname</th>
        <th>Email</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <td>John</td>
        <td>Doe</td>
        <td>john@example.com</td>
      </tr>
      <tr>
        <td>Mary</td>
        <td>Moe</td>
        <td>mary@example.com</td>
      </tr>
      <tr>
        <td>July</td>
        <td>Dooley</td>
        <td>july@example.com</td>
      </tr>
    </tbody>
  </table>
</div>
```

Bordered Table

The `.table-bordered` class adds borders on all sides of the table and cells:

Example

Firstname	Lastname	Email
John	Doe	john@example.com
Mary	Moe	mary@example.com
July	Dooley	july@example.com

```
<div class="container mt-3">
  <h2>Bordered Table</h2>
  <p>The .table-bordered class adds borders on all sides of the table and the cells:</p>
  <table class="table table-bordered">
    <thead>
      <tr>
        <th>Firstname</th>
        <th>Lastname</th>
        <th>Email</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <td>John</td>
        <td>Doe</td>
        <td>john@example.com</td>
      </tr>
      <tr>
        <td>Mary</td>
        <td>Moe</td>
        <td>mary@example.com</td>
      </tr>
      <tr>
        <td>July</td>
        <td>Dooley</td>
        <td>july@example.com</td>
      </tr>
    </tbody>
  </table>
</div>
```



Bootstrap tables(w3schools)

Hover Rows

The `.table-hover` class adds a hover effect (grey background color) on table rows:

Example

Firstname	Lastname	Email
John	Doe	john@example.com
Mary	Moe	mary@example.com
July	Dooley	july@example.com

```
<div class="container mt-3">
<h2>Hover Rows</h2>
<p>The .table-hover class enables a hover state (grey background on mouse over) on table rows:</p>
<table class="table table-hover">
<thead>
<tr>
<th>Firstname</th>
<th>Lastname</th>
<th>Email</th>
</tr>
</thead>
<tbody>
```

Black/Dark Table

The `.table-dark` class adds a black background to the table:

Example

Firstname	Lastname	Email
John	Doe	john@example.com
Mary	Moe	mary@example.com
July	Dooley	july@example.com

```
<div class="container mt-3">
<h2>Black/Dark Table</h2>
<p>The .table-dark class adds a black background to the table:</p>
<table class="table table-dark">
<thead>
<tr>
<th>Firstname</th>
<th>Lastname</th>
<th>Email</th>
</tr>
</thead>
<tbody>
```

Dark Striped Table

Combine `.table-dark` and `.table-striped` to create a dark, striped table;

Hoverable Dark Table

The `.table-hover` class adds a hover effect (grey background color) on table rows

Borderless Table

The `.table-borderless` class removes borders from the table

Contextual Classes

Contextual classes can be used to color the whole table (`<table>`), the table rows (`<tr>`) or table cells (`<td>`).



4.8 Image

Bootstrap images

Bootstrap provides the following classes for shaping images:

- **.img-fluid**

This class enables images to be resized based on the size of the screen (mobile device, tablet, large screen).

- **.rounded / .rounded-lg / .rounded-sm**

This class adds rounded corners to an image (large and small).

- **.rounded-circle**

This class shapes the image to a circle.

- **.img-thumbnail**

This class shapes the image to a thumbnail (adds a border around the image)

Image Shapes

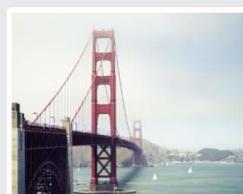
Rounded Corners:



Circle:



Thumbnail:



Rounded Corners: The **.rounded** class adds rounded corners to an image:

```

```

Circle: The **.rounded-circle** class shapes the image to a circle:

```

```

Thumbnail: The **.img-thumbnail** class shapes the image to a thumbnail (bordered):

```

```

```
<div class="container">
  <h2>Images Style Classes</h2>
  <p> Various classes applied to images:</p>
  <div class="row">
    <div class="col-md-4 col-sm-6 col-xs-12">
      
      <p class="text-center font-weight-bold">img-fluid rounded-lg</p>
    </div>
    <div class="col-md-4 col-sm-6 col-xs-12">
      
      <p class="text-center font-weight-bold">img-fluid rounded-circle</p>
    </div>
    <div class="col-md-4 col-sm-6 col-xs-12">
      
      <p class="text-center font-weight-bold">img-fluid img-thumbnail</p>
    </div>
  </div>
</div>
```

4.8 Button

Bootstrap Buttons

Bootstrap provides the following classes for creating various buttons easily. Each class also defines a colour for the button.

- `.btn`
- `.btn-default`
- `.btn-primary`
- `.btn-success`
- `.btn-info`
- `.btn-warning`
- `.btn-danger`
- `.btn-link`

```
<button type="button" class="btn">Basic</button>
<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>
```

Button Sizes

Use the `.btn-lg` class for large buttons or `.btn-sm` class for small buttons:

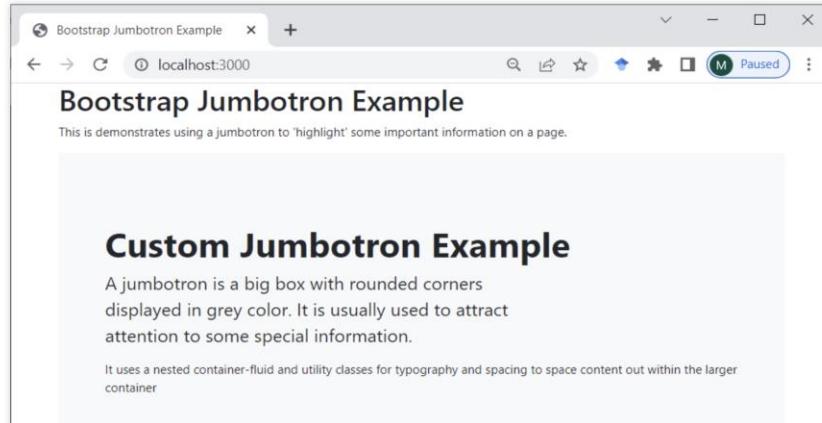
Large Default Small

The screenshot shows a browser window with the title "Bootstrap Button Style Example". The page content is titled "Button Classes" and contains the text "Various classes applied to a button:". Below this text is a horizontal row of ten buttons, each labeled with a class name: Basic, Primary, Secondary, Success, Danger, Warning, Info, Light, Dark, and Link. The "Primary" button is highlighted with a blue background, while the others have different colors: Secondary (grey), Success (green), Danger (red), Warning (yellow), Info (teal), Light (light blue), Dark (black), and Link (white).



4.9 Highlighting information

A **jumbotron** is created by using a `<div>` element with style classes being applied to give it emphasis.



Borders

Within the Bootstrap Utilities, the “`.border`” class allows for controlling the outline border of an element - all borders (`.border`) or selectively (i.e., `.border-top`, `.border-bottom`, `.border-left` and `.border-right`).

For example, to add a horizontal line under the header with could use `.border-bottom`:

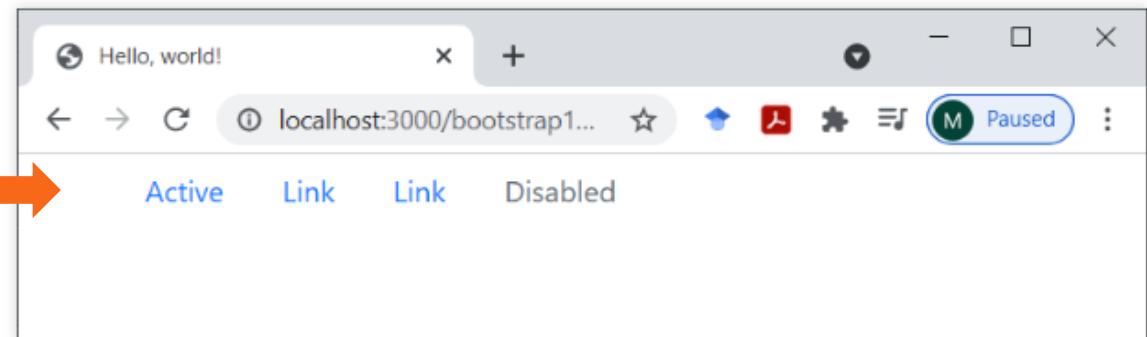
```
<h1 class="border-bottom">Bootstrap Jumbotron Example</h1>
```

Navigation Sections:

In Bootstrap, the “`.nav`” class allows for control of these page navigation mechanisms.

```
<nav class="nav">
  <a class="nav-link active" href="#">Active</a>
  <a class="nav-link" href="#">Link</a>
  <a class="nav-link" href="#">Link</a>
  <a class="nav-link disabled" href="#" tabindex="-1" aria-disabled="true">Disabled</a>
</nav>
```

Both code fragments result the displays of a navigation menu like that shown in the figure below:



4.10 Button group

1. To create a button group, use a `<div>` element with class `.btn-group`, then add the buttons in this `<div>` element. All buttons will be grouped on a single line. You can use class `.btn-group-lg|sm|xs` to size all buttons in the group.
2. Buttons can also be grouped vertically with Bootstrap by using the class “`.btn-group-vertical`”, instead of “`.btn-group`”.
3. Button groups can also be nested to create **dropdown menus**.
4. Button group can be used to create a **navigation** group by adding hyperlinks to each button.

Bootstrap Jumbotron Example

Button Groups - Different Sizes

Large Buttons:

Holden Ford BMW

Default Buttons:

Holden Ford BMW

Small Buttons:

Holden Ford BMW

Bootstrap Jumbotron Example

Button Groups - Different Types

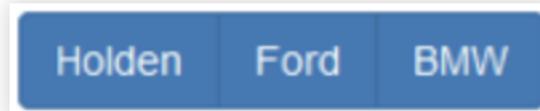
Button group with 'Pull-down' Button:

1 2 Dropdown ▾

Dropdown link

Dropdown link

Each button is hyperlinked.



4.12 JavaScript plugins-Carousel

A component that cycles through elements like a carousel (slideshow)

Plugins can be included on your site all at once by simply using “*bootstrap.js*” or “*bootstrap.min.js*” at the end of your body section of your web pages, like:

```
<!-- Optional JavaScript -- ADDED TO END OF YOUR BODY SECTION -->
<!-- Bootstrap Bundle with Popper -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.js"
```

Step 1. Create a `<div>` element with the attributes *id*, *class*, and *data-ride* as follows:

```
<div id="newCarousel" class="carousel slide" data-bs-ride="carousel">

</div>
```

Step 2. Add the **indicator** part into the carousel `<div>` element, like this:

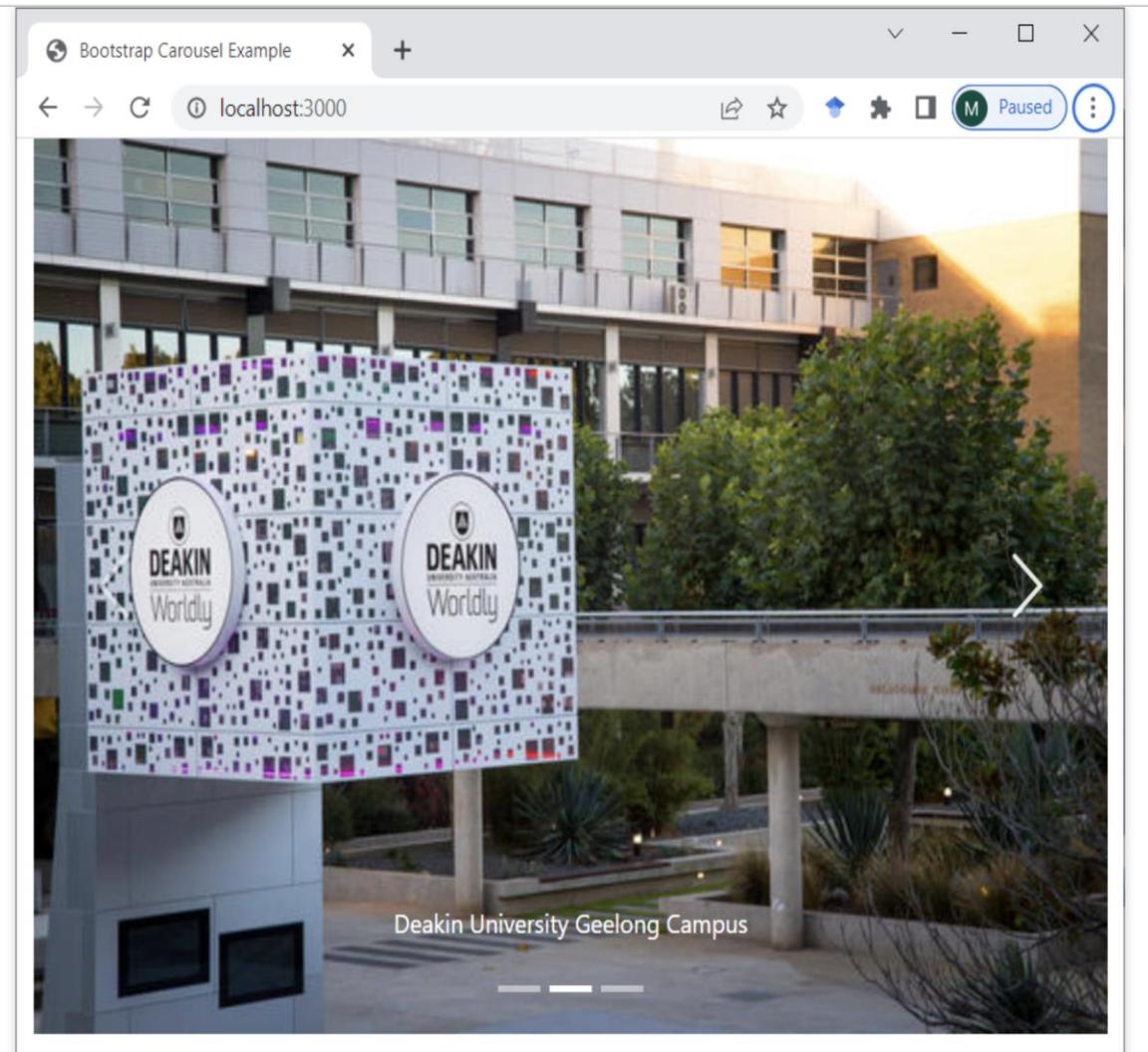
```
<div id="newCarousel" class="carousel slide" data-bs-ride="carousel">
    <!-- Indicators -->
    <div class="carousel-indicators">
        <button type="button" data-bs-target="#newCarousel" data-bs-slide-to="0" class="active"></button>
        <button type="button" data-bs-target="#newCarousel" data-bs-slide-to="1"></button>
        <button type="button" data-bs-target="#newCarousel" data-bs-slide-to="2"></button>
    </div>
</div>
```



4.12 JavaScript plugins-Carousel con't

Step 3. Add the **carousel inner** part into the carousel `<div>` element.

```
<div id="newCarousel" class="carousel slide" data-bs-ride="carousel">
  <!-- Indicators -->
  <div class="carousel-indicators">
    <button type="button" data-bs-target="#newCarousel" data-bs-slide-to="0" class="active"></button>
    <button type="button" data-bs-target="#newCarousel" data-bs-slide-to="1"></button>
    <button type="button" data-bs-target="#newCarousel" data-bs-slide-to="2"></button>
  </div>
  <!-- Wrapper for slides -->
  <div class="carousel-inner">
    <div class="carousel-item active">
      
    </div>
    <div class="carousel-item">
      
    </div>
    <div class="carousel-item">
      
    </div>
  </div>
</div>
```



Step 4. Add the **left and right controls** part into the carousel `<div>` element.

```
  </div>
</div>
<!-- Left and right controls -->
<button class="carousel-control-prev" type="button" data-bs-target="#newCarousel" data-bs-slide-to="0">
  <span class="carousel-control-prev-icon" aria-hidden="true"></span>
  <span class="visually-hidden">Previous</span>
</button>
<button class="carousel-control-next" type="button" data-bs-target="#newCarousel" data-bs-slide-to="1">
  <span class="carousel-control-next-icon"></span>
  <span class="visually-hidden">Next</span>
</button>
```

Ontrack 4.1P Bootstrap Content Page Task

Tasks

In this task, you are required to create a web page that is similar to the one below **using the current version of Bootstrap v5.3.3**. You are welcome to find and use your own content, this is shown as a reference.

The page is composed of 7 sections:

1. A navigation area with relative hyperlinks to key sections in the webpage using the Bootstrap navbar
2. A heading section using a div block that holds a container for the webpage main title and description (hero block)
3. An introductory section with some text providing an overview of the page.
4. A section with an example table with various table styling applied
5. A section with three images in a row (on screens > 576px)
6. A section with two images with some associated text and styling, spread across separate rows
7. A simple summary & footer section.

The detailed requirements are as follows:

1. Create navigation links above the Title/Banner, using the Bootstrap nav component (Refer to [Bootstrap 5.3 Navs & Tabs](#) for further information on using this bootstrap component). The nav items should hold relative links to the sections within the webpage and should be styled `bg-dark text-white`.
2. Use a div block to hold a container that includes the page title and a brief description (Refer to [Bootstrap 5.3 Background](#) for further information on applying a colour to a div block).
3. The first content section should hold some *welcoming* text.
4. The second section should contain a table with a *light* header row and the table have stripped columns. Also implement a *hover* effect for this table. (Refer to [Bootstrap 5.3 Tables](#) for further information on formatting tables.)
5. The third content section should contain *three images* with *gutter spacing* between them. Consider using a *row* with four *columns* to hold each of these pictures; along with making the *images fluid* to resize automatically (Refer to [Bootstrap 5.3 Image](#) and [Bootstrap 5.3 Columns](#) to review the controls of images and column layout).
6. The fourth content section should contain *two rows*, with each row containing an *image & associated text*. Format the images using the *rounded shapes*. Consider using a *row* with two *columns*, with each column holding a picture and text, respectively. Use column widths appropriately and make the *images fluid* to resize automatically. (Refer to [Bootstrap 5.3 Image](#).)
7. Each of the content sections should have at the end, aligned to the right a *link* to take the user back to the *Top* of the page (i.e., the *Introduction* section).
8. The last section should be a *footer* containing some information and should be styled *dark*.

The screenshot shows a web browser window displaying a Bootstrap-based content page. The page has a blue header with the logo 'dKin Caps' and navigation links for 'Introduction', 'Data', 'Pictures', 'Stories', and 'Summary'. The main content area starts with a 'dKin Caps' title and a subtitle: 'A young and inspiring organisation whose primary purpose is to bring you the highest quality headwear available.' Below this is an 'Introduction' section with text about bootstrap components. It features a table with data and a section with three images. Further down is a section with two images and associated text. The page concludes with a summary/footer section. Each section contains a link to the top of the page.

Introduction

This is the simple page that shows a number of bootstrap components and the styles they provide to enhance plain HTML content – while also supporting a responsive display (screen resizing).

Firstly, at the top of the page, within a `<header>...</header>` section, it is common to have the **navigation** and some form of **banner / heading** content. Here we have a list using the Bootstrap `<nav>...</nav>` component in a container with five links to different parts of the webpage, with a blue (`bg-primary`) background and white (`text-white`) text. While a second `container-fluid` with a light blue (`bg-primary-subtle`) holds the **banner** details in a centred column of width 8 (`col-sm-8 mx-auto text-center py-5`) and comprising a title of the page and leading sentence.

Next is the `<body>...</body>` section that holds the **content** of the page. The content includes the following sections: Introduction (this), Data, Pictures, Stories and a Summary. The table content is formatted, while the pictures and stories of ice creams applies differing **responsive** layouts.

The final section is a `<footer>...</footer>`.

Note that each section has a *hyperlink* to the *Top* of the document for navigation.

[Top](#)

Hat Usage Data

In this section of the page, we have a nice table with some data from a survey conducted in 2013 as published in the paper '[A study on Hat User Habits and Their Perception of the Product Form](#)'. The table below is styled with the bootstrap classes `table` `table-striped-columns` `table-hover`, and the `table-primary` applied to the table header `thead`. Some rows in the table also use the `colspan` control. Note, the table also includes a caption and is constrained to 10 columns on wider screens and all 12 columns on small screens (i.e., `col-md-10 col-12 mx-auto`).

Item	Male	Female	Total
Do you usually wear a hat? (Often wearing a hat)			
Yes	11	10	21
No	21	12	33
How often do you clean your hat? (frequency of hat washing)			
Whenever it gets dirty	11	10	21
Once a week	21	12	33
About once a month	21	12	33
Never	21	12	33

Hat Usage Behavior Data (54 respondents, 2013)

Task4.1.1 Navigation, Banner, Introduction & Table

Ontrack 4.1P: Task Requirement 1-4

The screenshot shows a web browser window with the URL localhost:3000/Task4-1P.html. The page has a header with a logo and the text "dKin Caps". Below the header is a banner with the text "dKin Caps" and "A young and inspiring organisation whose primary purpose is to bring you the highest quality headwear available.". The main content area contains several sections: "Introduction", "Hat Usage Data", and a "Table" section with two tables. The "Introduction" section includes a paragraph about bootstrap components and responsive display. The "Hat Usage Data" section includes a table with survey results. The "Table" section contains two tables showing hat usage behavior data. A "Top" link is located at the bottom right of the page.

An example of how the webpage may look, is shown below in the sequence of 3 screenshots. The first screenshot shows the **header section** and start of the body section, showing the **navigation bar**, the **page banner (title)**, **introductionary section with some welcoming text** and **the table section**.

Hints:

1. Navigation bar

- At the top of the page, within a `<header>...</header>` section, it is common to have the **navigation** and some form of **banner / heading** content. Here we have a list using the Bootstrap `<nav>...</nav>` component in a container with five links to different parts of the webpage, with a block (`bg-primary`) background and white (`text-white`) text. While a second `container-fluid` with a light blue (`bg-primary-subtle`) holds the **banner** details in a centred column of width 8 (`col-sm-8 mx-auto text-center py-5`) and comprising a title of the page and leading sentence.

2. Page banner

- Next is the `<main>...</main>` section that holds the **content** of the page. The content includes the following sections: Introduction (this), Data, Pictures, Stories and a Summary. The table content is formatted, while the pictures and stories of ice creams applies differing responsive layouts.
- The final section is a `<footer>...</footer>`.
- Note that each section has a *hyperlink* to the [Top](#) of the document for navigation.

4. Table

- The table is styled with the bootstrap classes `table-striped-columns` `table-hover`, and the `table-primary` applied to the table header `thead`.
- Some rows in the table also use the `colspan` control, and it also includes a `caption`.
- Note, the table is constrained to 10 columns on wider screens and all 12 columns on small screens (i.e., `col-md-10 col-12 mx-auto`).

Task4.1.1 Navigation, Banner, Introduction & Table



Ontrack 4.1P

Task Requirement 5

The screenshot shows a web page titled "Hat Usage Data". It contains two tables and three images.

Table 1: Do you usually wear a hat? (Often wearing a hat)

Item	Male	Female	Total
Yes	11	10	21
No	21	12	33

Table 2: How often do you clean your hat? (frequency of hat washing)

Whenever it gets dirty	11	10	21
Once a week	21	12	33
About once a month	21	12	33
Never	21	12	33

Hat Usage Behavior Data (54 respondents, 2013)

Pictures of Hats (Responsive Layout)

Below are some nice pictures of hats and caps, license-free images downloaded from the website [Unsplash](#). These images are placed in a single bootstrap `row g-2` (where the `g-2` adds a gutter size 2 between the images) composed of columns using a combined `col-sm-4 col-12`. The `col-sm-4` forces 3 images to be in a row on all screen sizes **except** very small ones (<576px) where the `col-12` forces the images to use all 12 column grid units and stack each image on top of each other. Each image has the class `img-fluid` applied to it, allowing it resize to the size of the column.

Task4.1.2 Table and Images

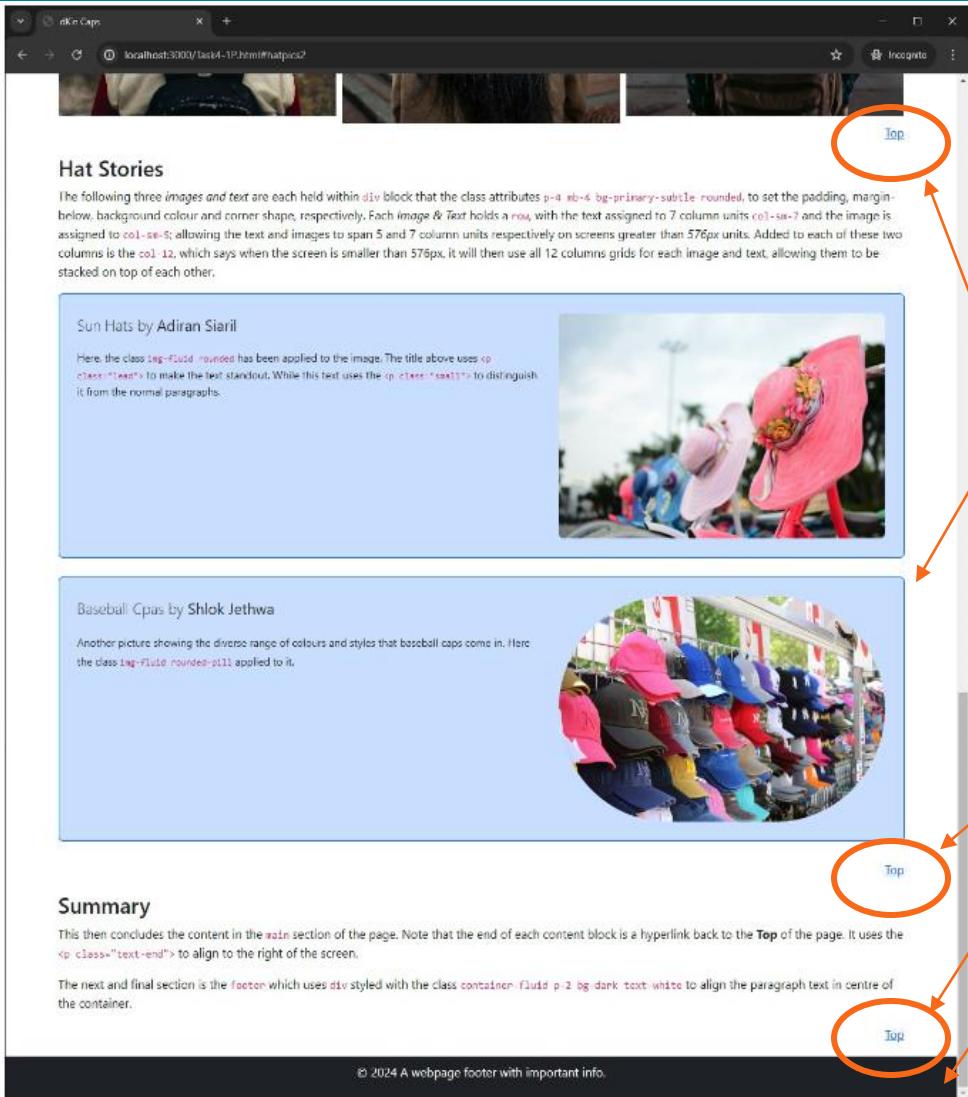
Next are the **three images** arranged such that each image is held within a **4-column allocation on large screen displays**, and **12 column** for small screen displays.

Hint:

5. Image with gutter spacing

- These images are placed in a `div` block with a single bootstrap **class attribute `row g-2`** (where the `g-2` adds a gutter size 2 between the images)
- Each image is held within a single `div` block composed of columns using a combined **class: `col-sm-4 col-12`**
 - The `col-sm-4` forces 3 images to be in a row on all screen sizes **except** very small ones (<576px).
 - The `col-12` forces the images to use all 12 column grid units and stack each image on top of each other.
- Each image has a **class attribute: `img-fluid`** applied to it, allowing it **resize to the size of the column**.

Ontrack 4.1P Task Requirement 6-8



This is the part of the page with the image and stories, each highlighted in a **div** block with a **background class: bg-primary-subtle**.

Hint:

6. Image with associated text

- The images and text in the left side are each held within **div** block that the **class attributes p-4 mb-4 bg-primary-subtle rounded**, to set the **padding, margin-bottom, background colour and corner shape**, respectively.
- Each Image & Text holds a **row**, with the text assigned to 7 column units **col-sm-7** and the image assigned to **col-sm-5**; allowing the text and images to span 5 and 7 column units respectively on screens greater than 576px units. Added to each of these two columns is the **col-12**, which says when the screen is smaller than 576px, it will then use all 12 column grids for each image and text, allowing them to be stacked on top of each other.

7. Anchor link

Note that the end of each content block is a **hyperlink back to the Top of the page**. It uses the **<p class="text-end">** to align to the right of the screen.

8. Footer Section

- Use a **div** styled with the class **container-fluid p-2 bg-dark text-white** to align the paragraph text in the center of the container.



Ontrack 4.1P Task Requirement con't

- Bootstrap allows the content of the page to **rearrange** dynamically as the size of the screen changes. In this case the images and text of the web page should swap into a **vertical layout** when the screen is **smaller than 576px**.
- The screenshots show the various parts of the web page on a **small (narrow)screen**: the **table taking the full width**, and the **images stacked one on top of the other**.

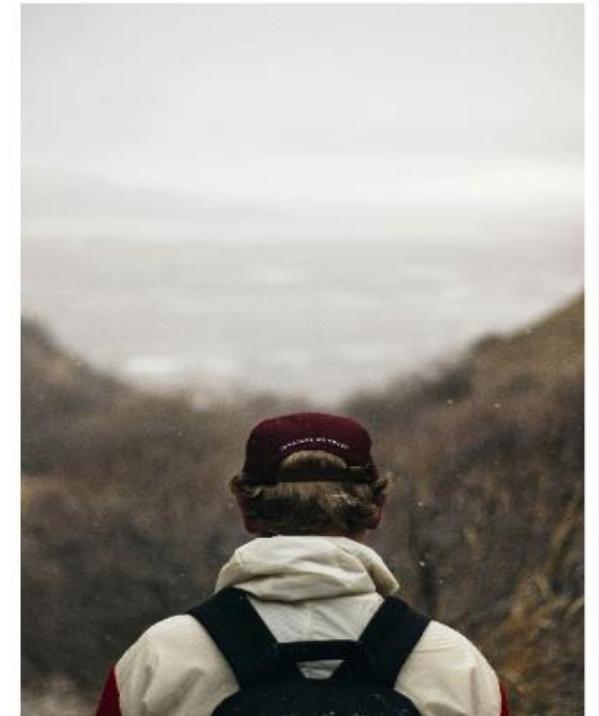
Item	Male	Female	Total
Do you usually wear a hat? (Often wearing a hat)			
Yes	11	10	21
No	21	12	33
How often do you clean your hat? (frequency of hat washing)			
Whenever it gets dirty	11	10	21
Once a week	21	12	33
About once a month	21	12	33
Never	21	12	33

Hat Usage Behavior Data (54 respondents, 2013)

[Top](#)

Pictures of Hats (Responsive Layout)

Below are some nice pictures of hats and caps, license-free images downloaded from the website [Unsplash](#). These images are placed in a single bootstrap `row g-2` (where the `g-2` adds a gutter size 2 between the images) composed of columns using a combined `col-sm-4 col-12`. The `col-sm-4` forces 3 images to be in a row on all screens sizes **except** very small ones (`<576px`) where the `col-12` forces the images to use all 12 column grid units and stack each image on top of each other. Each image has the class `img-fluid` applied to it, allowing it resize to the size of the column.



Hat Stories

The following three images and text are each held within `div` block that the class attributes `p-4 nb-4 bg-primary-subtle rounded`, to set the padding, margin-bottom, background colour and corner shape, respectively. Each `Image & Text` holds a `row`, with the text assigned to 7 column units `col-sm-7` and the image is assigned to `col-sm-5`; allowing the text and images to span 5 and 7 column units respectively on screens greater than `576px` units. Added to each of these two columns is the `col-12`, which says when the screen is smaller than `576px`, it will then use all 12 columns grids for each image and text, allowing them to be stacked on top of each other.

Sun Hats by Adiran Siaril

Here, the class `img-fluid rounded` has been applied to the image. The title above uses `<p class="lead">` to make the text standout. While this text uses the `cp class="small">` to distinguish it from the normal paragraphs.



Baseball Caps by Shlok Jethwa

Another picture showing the diverse range of colours and styles that baseball caps come in. Here the class `img-fluid rounded-pill` applied to it.



Task4.1.4 Responsive Layout

NOTE: You may need to add margins/spacing around some sections to improve the layout review [Bootstrap 5.3 Margins & Spacing](#) for further details.

Ontrack 4.1P Submission

What will you submit?

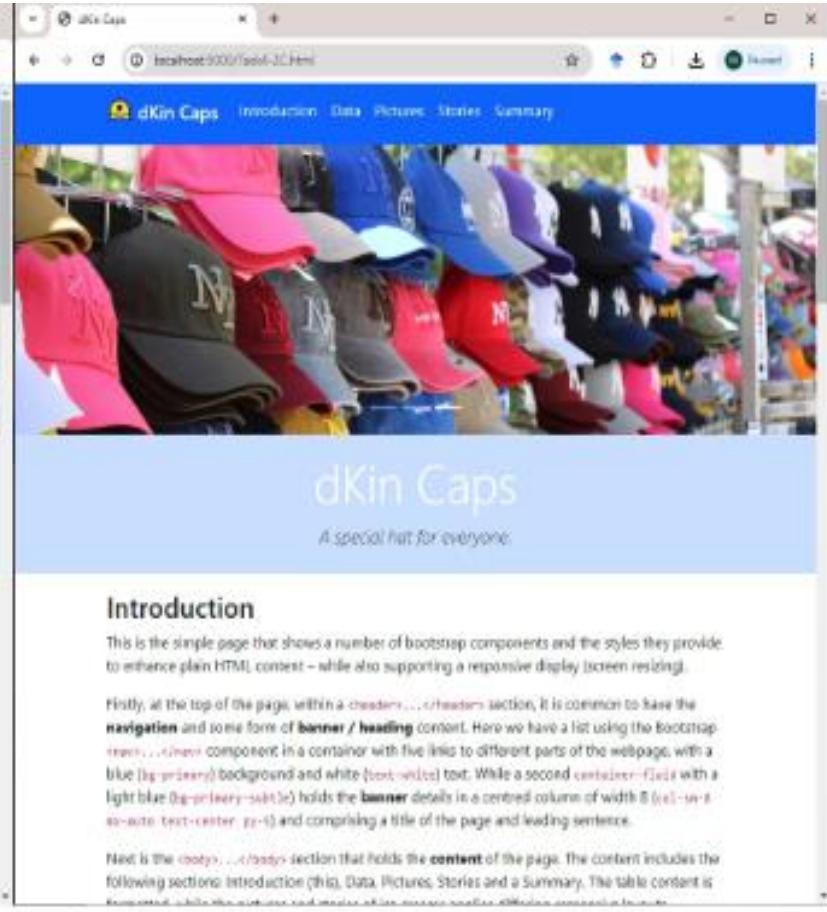
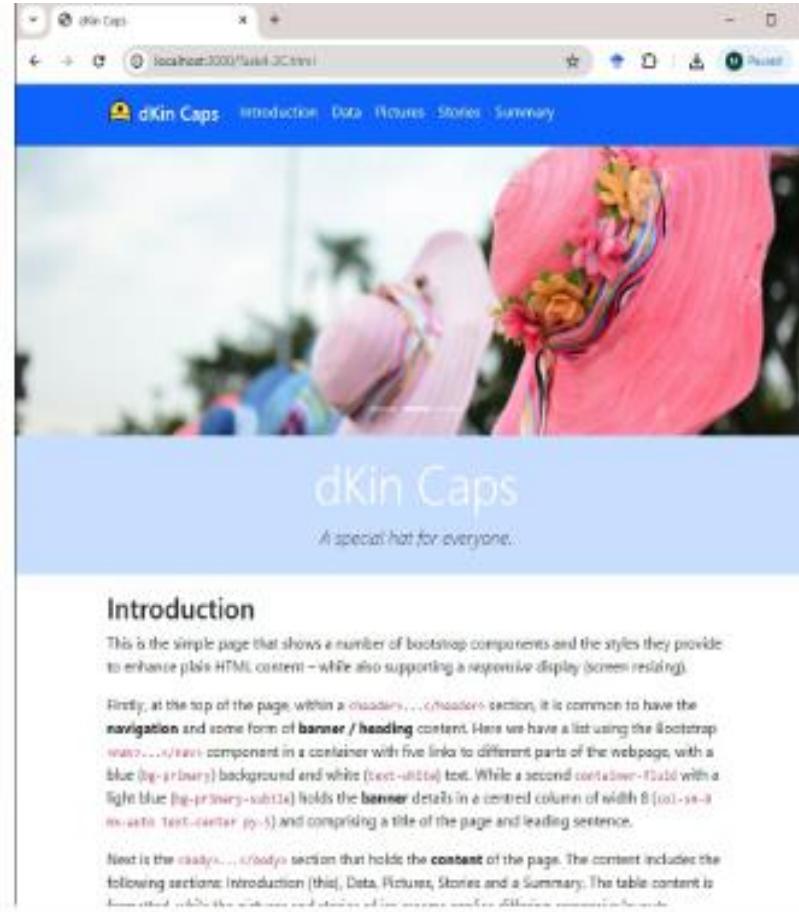
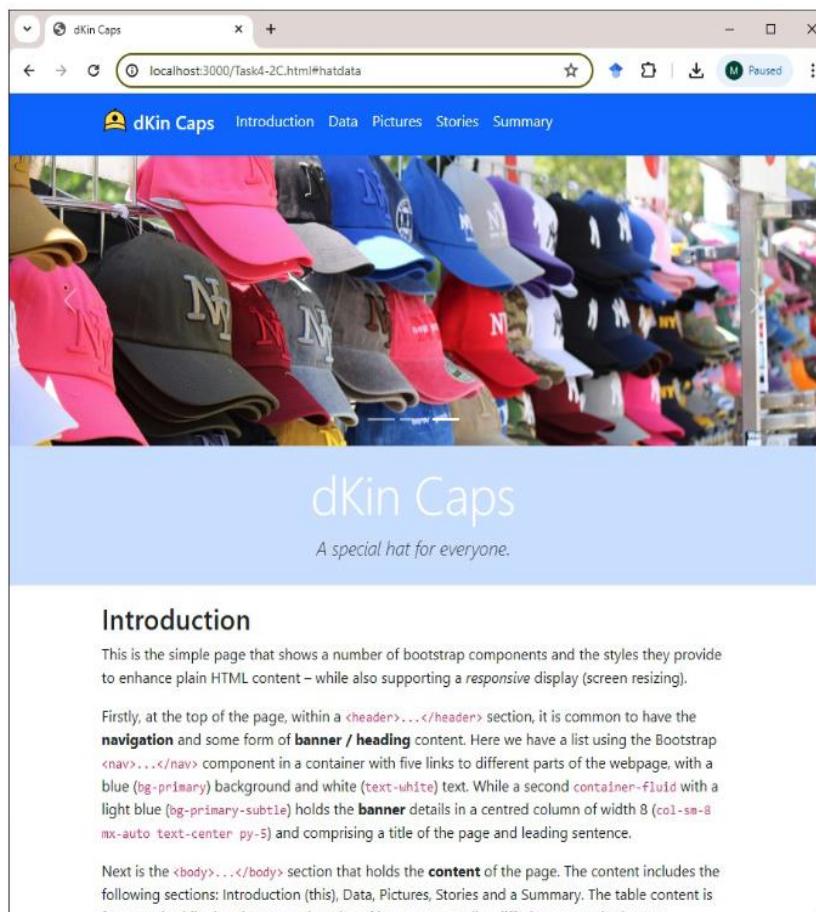
You should submit:

- The `HTML` file with the bootstrap styled content.
- Screen-shot of the web page top.
- Screen-shot of the web page middle.
- Screen-shot of the web page bottom.
- Screen-shot of the web page with screen-size reduced to show *responsive* page and resized and stacked **thumbnail images**.
- Screen-shot of the web page with screen-size reduced to show *responsive* page and resized and stacked **images with text**.

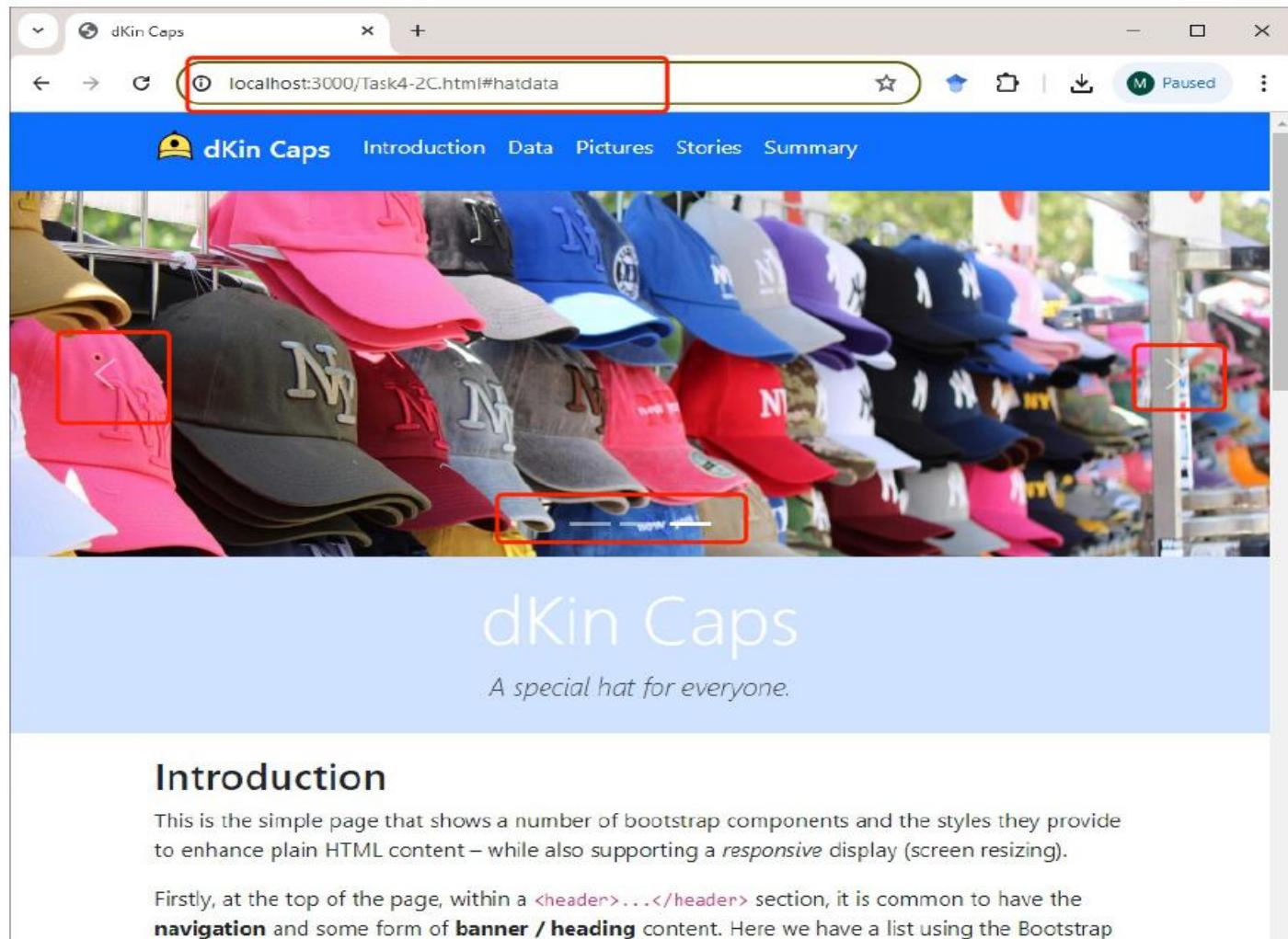


Ontrack 4.2C: Bootstrap Image Carousel

In this task improve the web page you created in Task 4.1 by **including a Bootstrap Carousel component**. Your page should display similar to the one below - but you are welcome to be **creative** and explore the other features possible.



Detailed Requirements and Hints



The screenshot shows a web browser window with the URL `localhost:3000/Task4-2C.html#hatdata` in the address bar. The page has a blue header with the logo 'dKin Caps' and navigation links: Introduction, Data, Pictures, Stories, Summary. Below the header is a hero carousel displaying a collection of baseball caps. The carousel includes navigation arrows and a set of three white dashed indicators at the bottom. The main content area features the heading 'dKin Caps' and the tagline 'A special hat for everyone.' Below this is a section titled 'Introduction' with text about the page's purpose and a note about responsive design.

Introduction

This is the simple page that shows a number of bootstrap components and the styles they provide to enhance plain HTML content – while also supporting a *responsive* display (screen resizing).

Firstly, at the top of the page, within a `<header>...</header>` section, it is common to have the **navigation** and some form of **banner / heading** content. Here we have a list using the Bootstrap

1. Add a 'Hero' carousel component below the Navbar. The carousel should display (slideshow) *three* images.
2. Make the carousel span the full width of the screen and have a maximum height of 300px, whilst maintaining the appropriate scaling (images are cropped dynamically to size of screen). NOTE: This will need the application of some CSS styling rules.
3. Each slide (image) of the carousel should have *controls* to allow moving forward/backwards between slides.
4. Transition between slides should **cross fade** between images.
5. The indicators should also have indicators visible/usable (the three white dashes in the screenshots above).
6. The Navbar should also be made **sticky** to the header section of the document. That is it remains **visible** while the window is scrolled down until the *main* section is entered.

Hint: Review the **Bootstrap 5.3 Carousel** component on it's use.
<https://getbootstrap.com/docs/5.3/components/carousel/>



Ontrack4.3D: Advanced Bootstrap Components

In this task, you are required to improve the web page you created in Task 4.2. The improved web page will need to have the following features should be added:

1. Fix '**navbar**' on the previous examples, such that it collapses to a **drop-down icon** (i.e., *hamburger icon*) when the screen is small.
2. Add some '**card**' components to the page - with some useful information (possibly including images).
3. Add a '**collapse**' component to the page - to hide/show additional information.
4. Add an '**offcanvas**' component to the page - to provide explanation of features/details within the page.
5. Add some '**tooltip**' components to the page - to provide explanation of features/details within the page.
6. Review the presentation of your website and improve the layout and/or configuration of the content to make it appealing and user friendly. Note (in your code) where you have made changes and why.

Hints:

Review the respective components on the bootstrap website([Ontrack 4.3 task sheet provide links](#)):

- [Bootstrap 5.3 Navbar](#)
- [Bootstrap 5.3 Cards](#)
- [Bootstrap 5.3 Collapse](#)
- [Bootstrap 5.3 Offcanvas](#)
- [Bootstrap 5.3 Tooltips](#)

You should submit:

1. Screenshots of the web page showing some of the various features, both active and inactive, as well as for **larger screens and small screens** showing the **responsive output**. These screenshots should be combined into a **single document**, and the PDF of that document uploaded.
2. The HTML file for your webpage.



Examples:

A screenshot of a web browser showing a navigation bar with the title "Ice Cream". A dropdown menu is open under the "Menu" button, listing options: Home, Sales Data, Pictures, Stories & Text, Summary, Deakin University, HTML Tutorial, and Ice cream. The background of the page is a blurred image of a field.

Add Navbar Menu

A screenshot of a web page titled "Ice Cream Pictures with Cards". It features a large image of a hand holding a soft-serve ice cream cone in front of a field of flowers. Below the image is the caption "Ice Cream and Flowers" and the text "A perfect combination."

Add Card

A screenshot of a web page featuring a button labeled "click me to see food safety concerns (button with collapse)". Below the button is a tooltip containing text about food safety concerns related to ice cream production.

Add Button with collapse

A screenshot of a web page titled "Ice cream - offcanvas". An off-canvas sidebar is visible on the right side of the screen, containing a large amount of text about the composition and history of ice cream. The main content area shows a hand holding a red cup of ice cream.

Add Offcanvas

Default tooltip

Placeholder text to demonstrate some [inline links](#) with tooltips.

Add tooltip

This top tooltip is themed via CSS variables.

Custom tooltip



Good luck with your Week 4 Ontrack tasks!

