Lab: Working with the Responsive Grid System

Estimated Time: 1 Hour

About the lab:

In this exercise, you will create a simple web page that includes Bootstrap's Responsive grid system. Your aim is to understand how Bootstrap's grid classes create responsive layouts.

Objective:

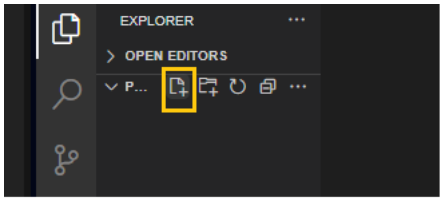
This practice exercise aims to enhance your understanding of Bootstrap's grid system by creating a basic web page. By the end of this exercise, you should be able to:

1. Implement Bootstrap's grid classes to structure content within a web page
2. Create responsive layouts that adapt to different screen sizes and devices
3. Summarize the concept of columns, rows, and breakpoints in Bootstrap's grid system
4. Apply the knowledge gained to design and develop web pages with responsive layouts using Bootstrap

Task 1: Getting started

Step 1: Create a new HTML file

- Create a new HTML file and name it "ResponsiveGrid.html"



Step 2: Set up the HTML structure

- Copy and paste the following HTML code into your HTML file:

```
<!DOCTYPE html>
<html>
<head>
    <!-- Your head content goes here -->
</head>
<body>
    <!-- Your body content goes here -->
</body>
</html>
```

Task 2: Head Section

You have created the HTML structure. Let's start adding the header section to our webpage.

1. Inside the `<head>` section of your HTML document, add the `<meta>` tags to set the character encoding and configure the viewport for responsive design. This is essential for mobile compatibility.
2. Set the title of your web page using the `<title>` element.
3. Include links to Bootstrap's CSS styles.

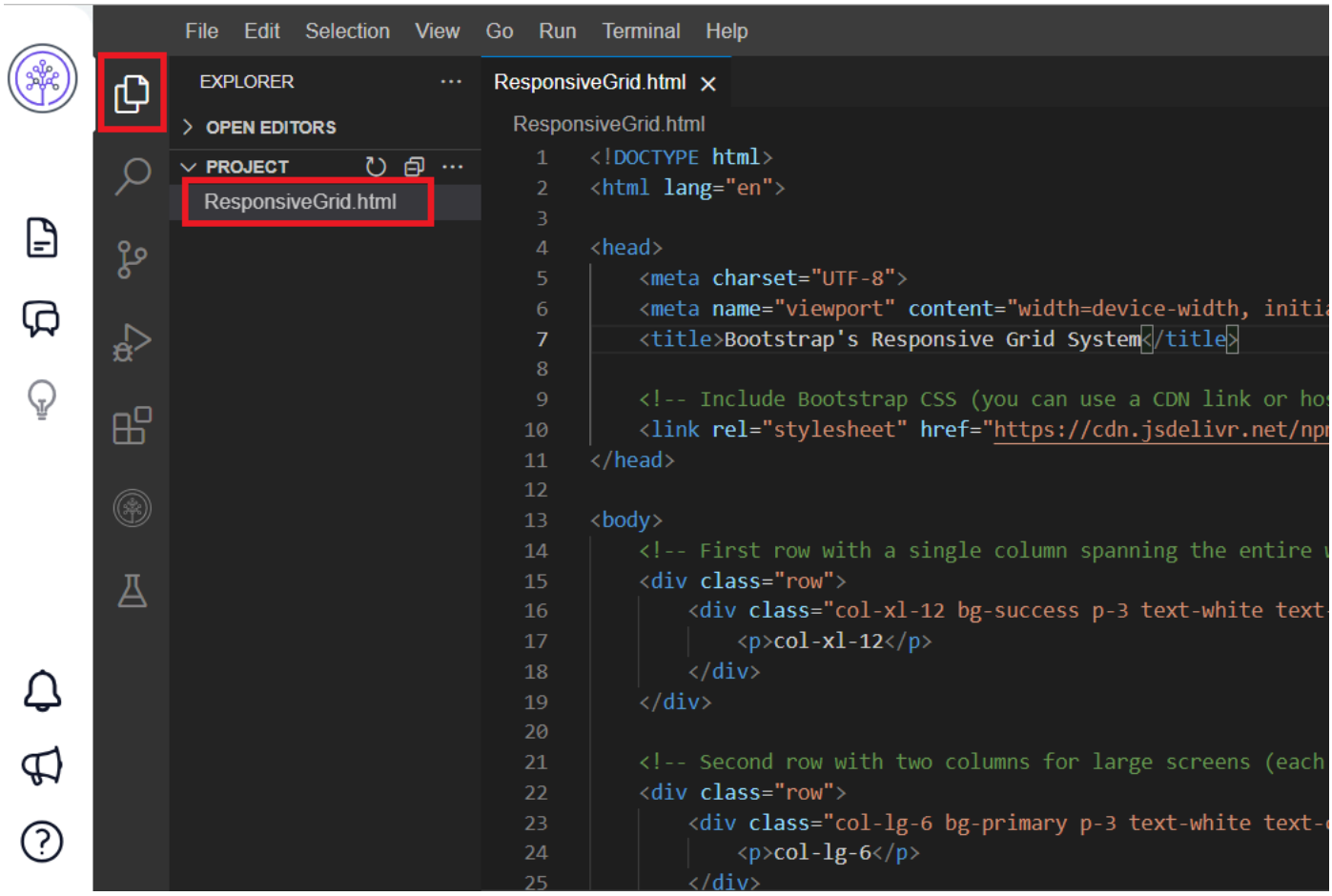
You may refer to the below solution code for the same:

```
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Bootstrap's Responsive Grid System</title>
   <!--  Bootstrap CSS  -->
   <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/a
</head>
```

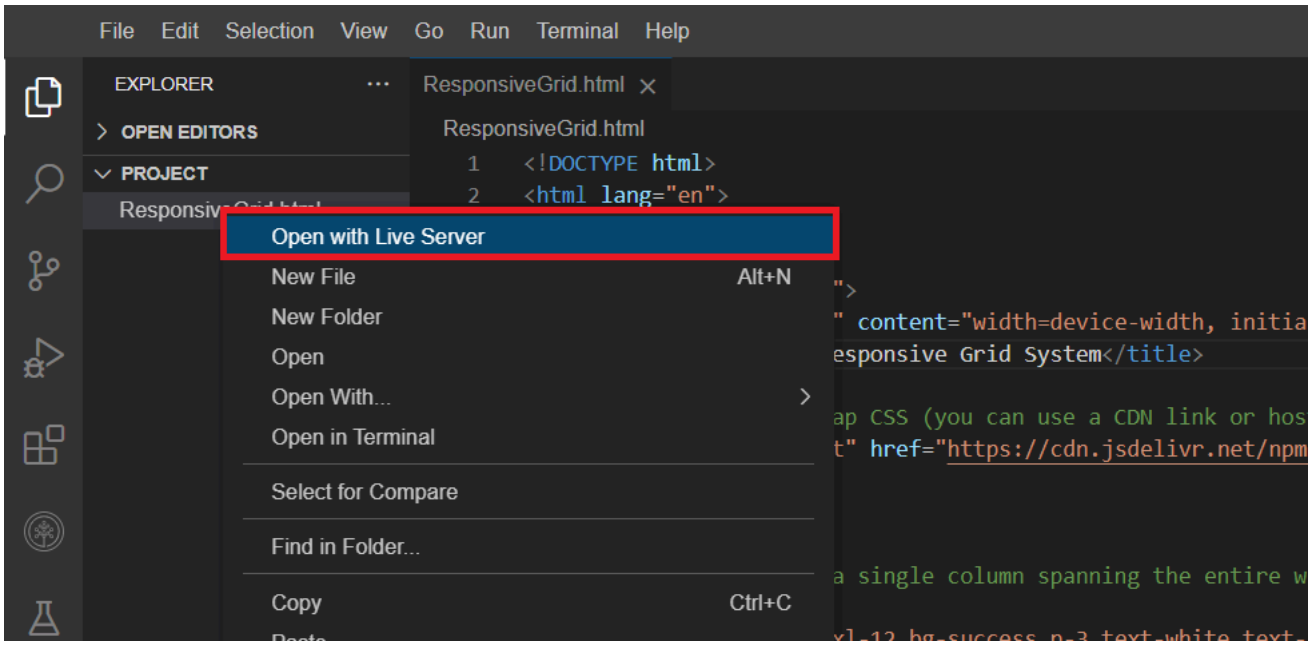
Preview your HTML file

To preview your file, use the built-in Live Server extension by following the instructions below.

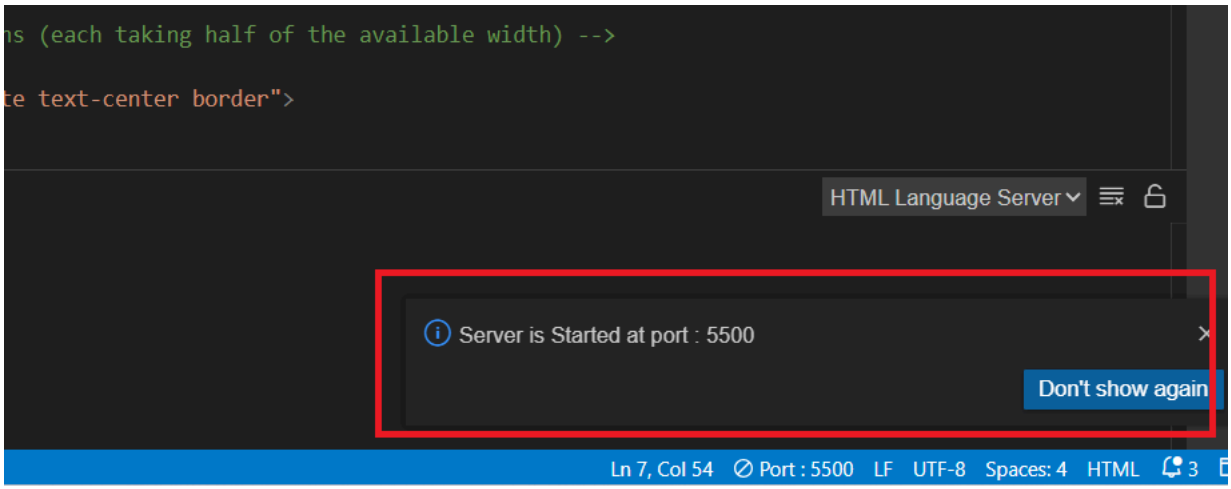
1. Open the file explorer and navigate to your file.



2. Right click your file & click Open with Live Server.

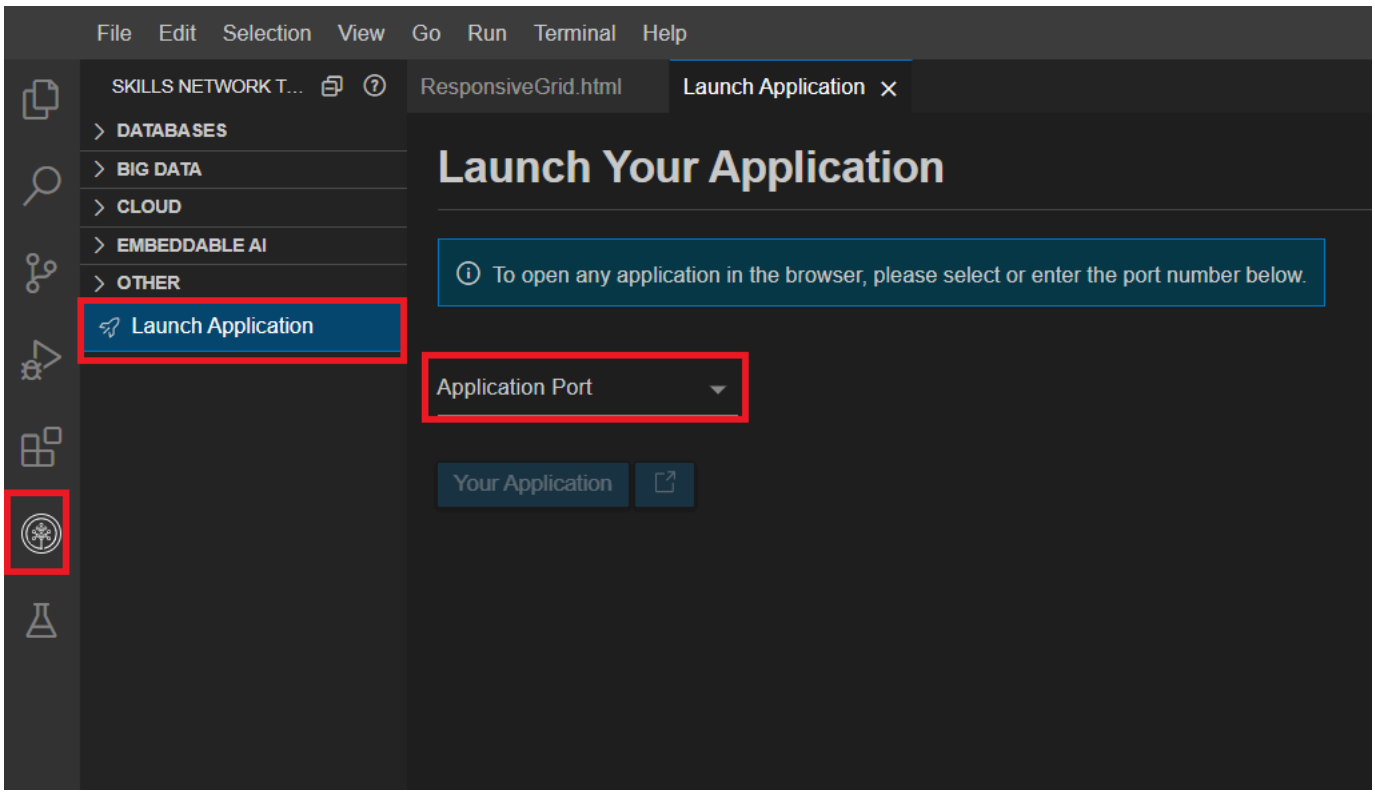


3. This should show a notification showing the server has started on port 5500.

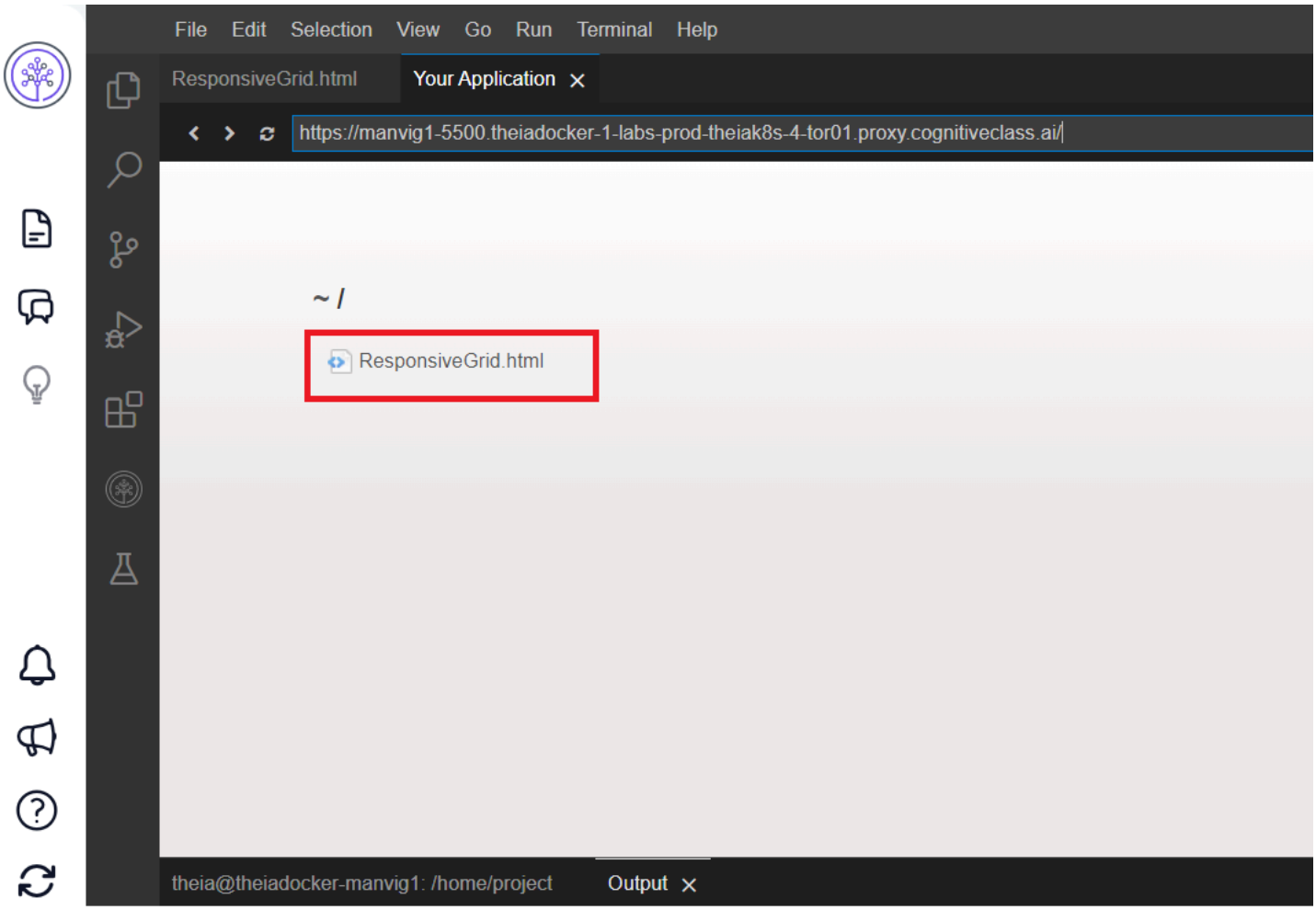


4. Click below to launch the application or the Skills Network button on the left to open the "Skills Network Toolbox". Click "Other" then "Launch Application". From there, enter the port number as 5500 and launch your application.

Preview HTML



5. Click the file name to view its preview.



Task 3: Creating a Bootstrap Grid

Now that we have created the HTML structure and added a headers section. It's time to add Bootstrap Grid.

Step 1: Add rows and columns

- Add your first row to the `<body>` tag. Create a `<div>` with a class of `row`.
- Within this row, add multiple columns using the appropriate Bootstrap classes (`col-xl-12`, `col-lg-6`, `col-md-4`, `col-sm-3`, and so on). Customize the number of columns and their classes as needed.
- Place content inside each column. Add text, images, or HTML elements to these columns.

You may refer to the below solution code for the same:

```
<div class="row">
  <div class="col-xl-12">
        <p>col-xl-12</p>
  </div>
</div>
```

Your output should look similar to this:

col-xl-12 

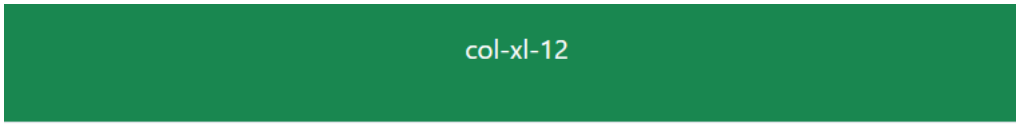
Step 2: Customize appearance

- Experiment with different background colors, text styles, and borders to make each column visually distinct.
- You can add custom CSS styles or use Bootstrap utility classes for styling.

You may refer to the below solution code for the same:

```
<div class="col-xl-12 bg-success p-3 text-white text-center border">
    <p>col-xl-12</p>
</div>
```

Your output should look similar to this:



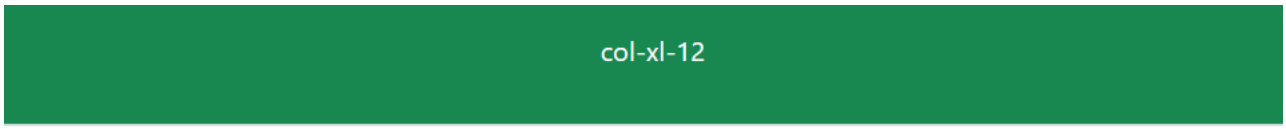
Step 3: Test responsiveness

- Open the "index.html" file in a web browser.
- Resize the browser window to see how the grid layout responds to different screen sizes.
- Observe how the columns rearrange or stack on top of each other as the screen size changes.
- Ensure your content remains readable and visually appealing on various devices and screen sizes.

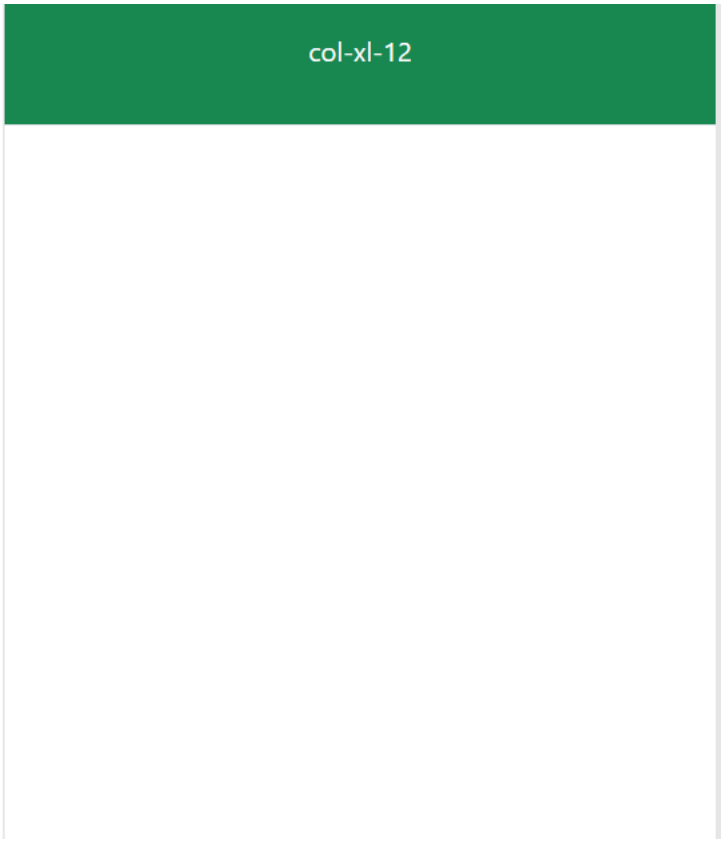
Your output should look similar to this:
Laptop view



Tablet view



Mobile view



Step 4: Build more rows and columns

- Continue to add more rows and columns to create a more complex layout.
- Experiment with different column classes and styles to enhance your design.

You may refer to the below solution code for the same:

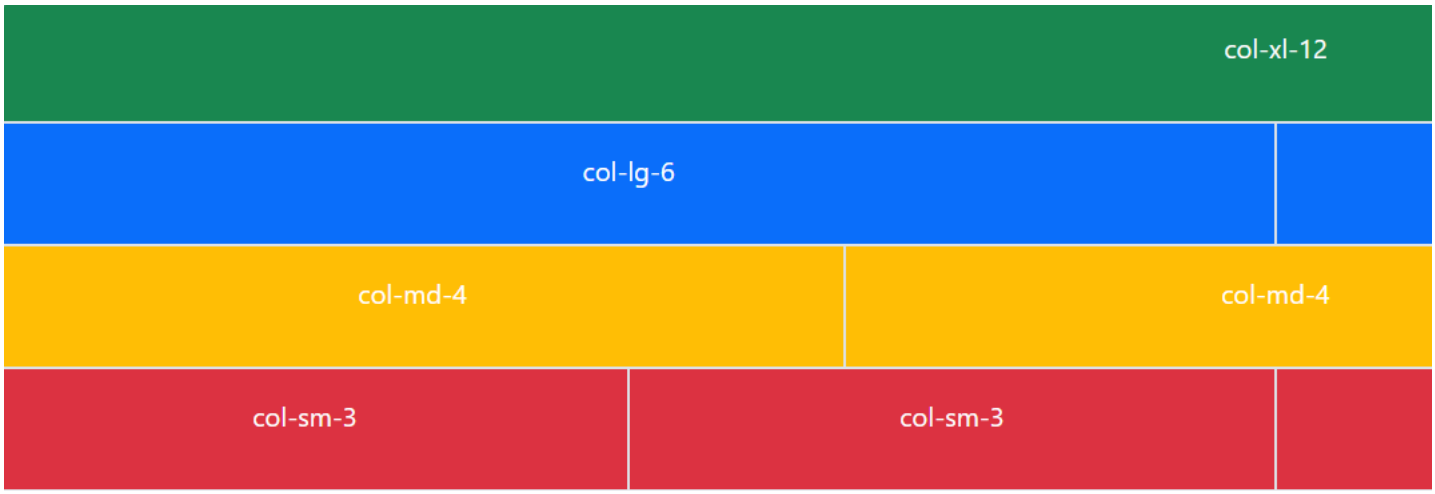
```
<body>
    <!-- First row with a single column spanning the entire width for extra-large screens -->
    <div class="row">
        <div class="col-xl-12 bg-success p-3 text-white text-center border">
            <p>col-xl-12</p>
```

```
        </div>
    </div>
    <!-- Second row with two columns for large screens (each taking half of the available width) -->
    <div class="row">
        <div class="col-lg-6 bg-primary p-3 text-white text-center border">
            <p>col-lg-6</p>
        </div>
        <div class="col-lg-6 bg-primary p-3 text-white text-center border">
            <p>col-lg-6</p>
        </div>
    </div>
    <!-- Third row with three columns for medium screens (each taking one-third of the available width) -->
    <div class="row">
        <div class="col-md-4 bg-warning p-3 text-white text-center border">
            <p>col-md-4 </p>
        </div>
        <div class="col-md-4 bg-warning p-3 text-white text-center border">
            <p>col-md-4 </p>
        </div>
        <div class="col-md-4 bg-warning p-3 text-white text-center border">
            <p>col-md-4 </p>
        </div>
    </div>
    <!-- Fourth row with four columns for small screens (each taking one-fourth of the available width) -->
    <div class="row">
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
    </div>
</body>
```

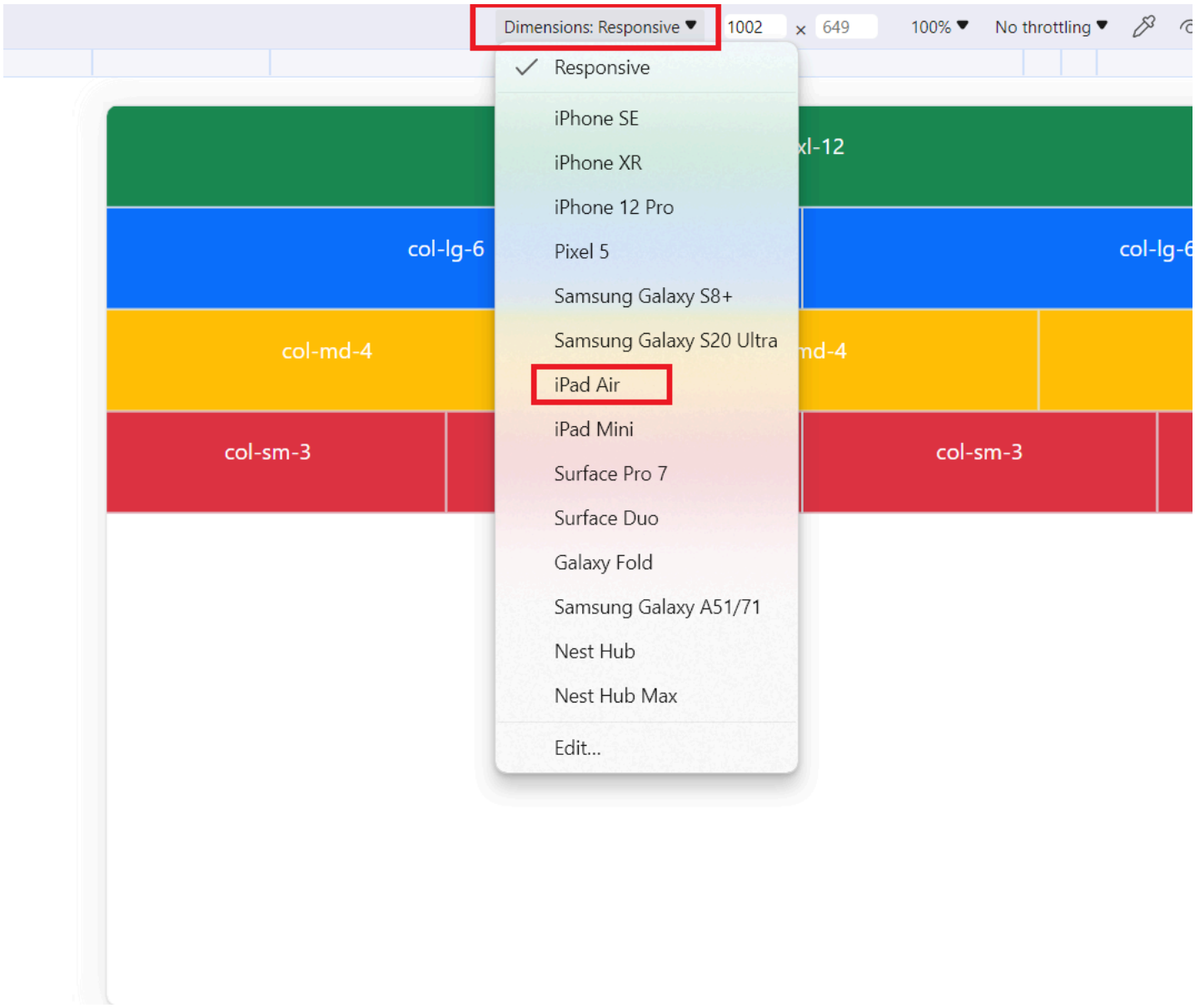
NOTE: Launch the application on port 5500 to preview the output. If the application is already running, kindly reload the "Your Application" page.

Inorder to check responsiveness for different screens sizes, kindly follow the given steps below:

1. Right-click on the webpage and select "Inspect" from the context menu.

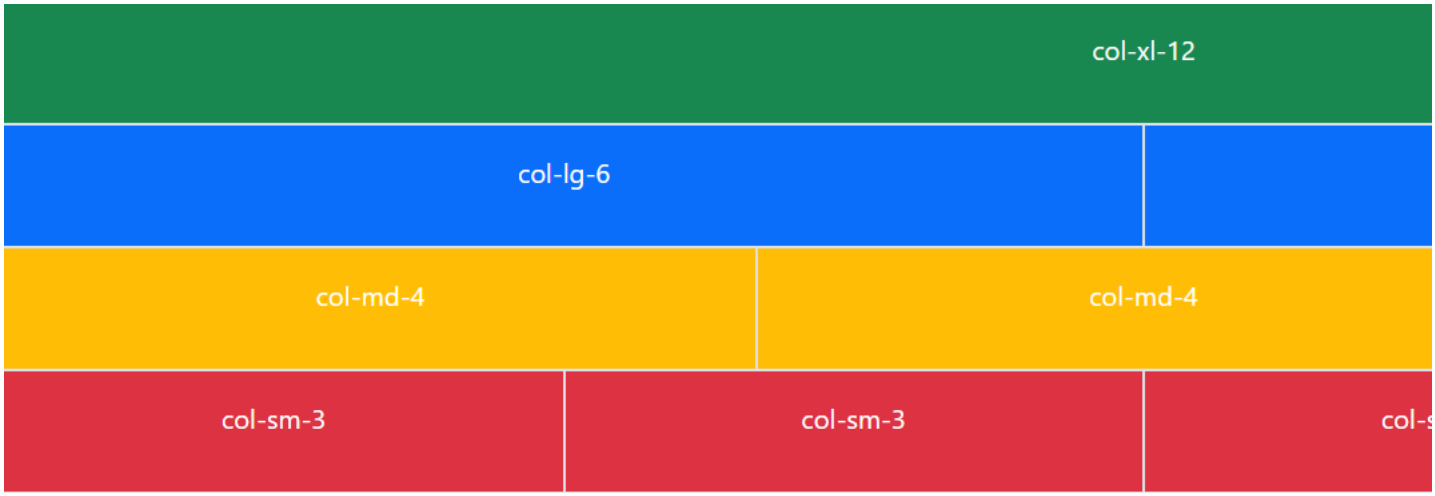


2. Click on the mobile device icon (as shown in the screenshot below) in the upper-left corner of the developer tools panel. This will activate the mobile/tablet view.
3. You can choose from various device presets from the Dimensions: Responsive drop-down menu. This allows you to simulate how your webpage looks on different devices and screen sizes.

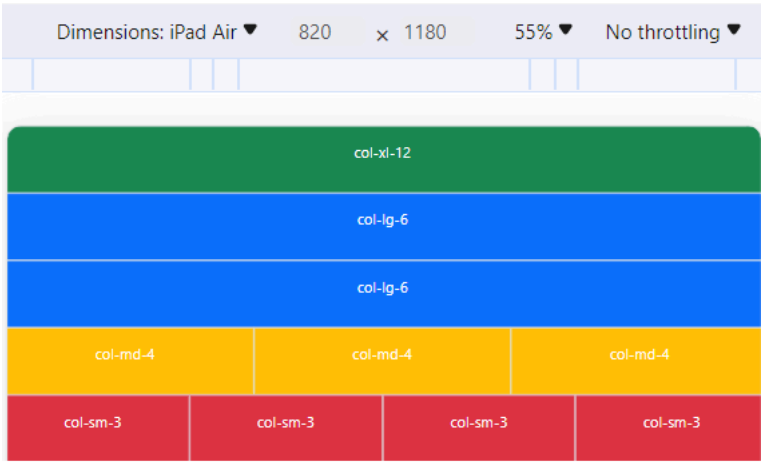


Your output should look similar to this:

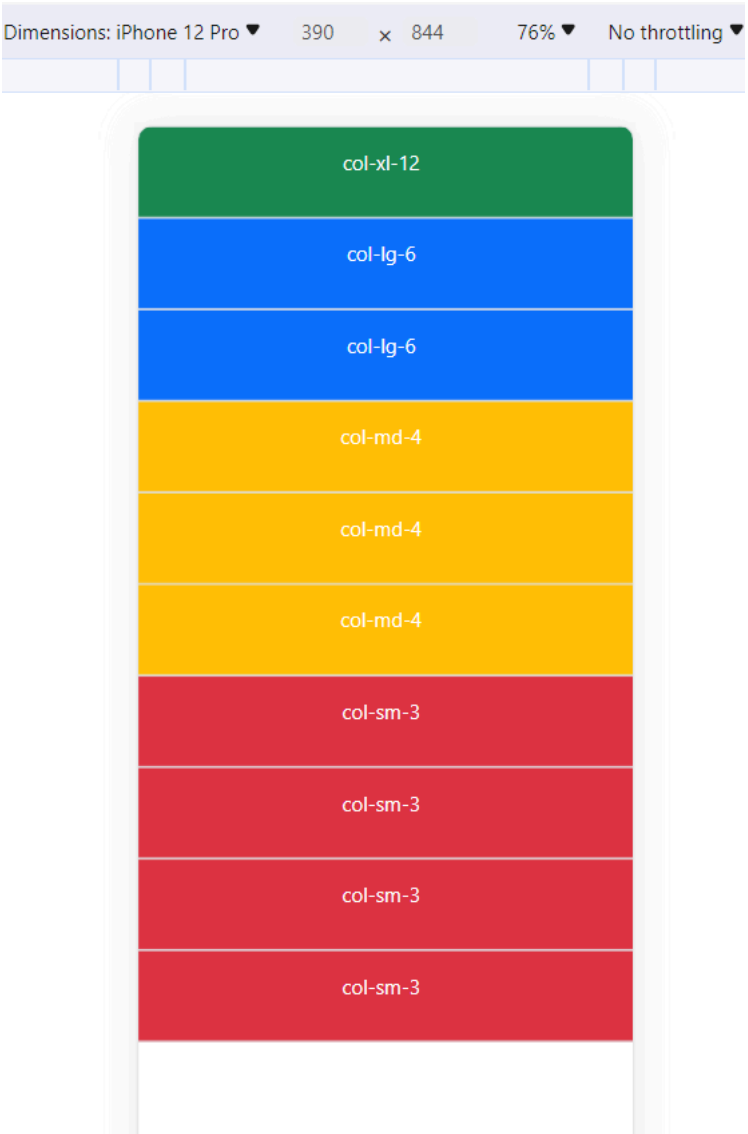
Laptop view



Tablet view



Mobile view



▼ Complete solution code

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Responsive Grid Example</title>
    <!-- Bootstrap CSS -->
   <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/a
</head>
<body>
    <!-- First row with a single column spanning the entire width for extra-large screens -->
    <div class="row">
        <div class="col-xl-12 bg-success p-3 text-white text-center border">
```

```
            <p>col-xl-12</p>
        </div>
    </div>
    <!-- Second row with two columns for large screens (each taking half of the available width) -->
    <div class="row">
        <div class="col-lg-6 bg-primary p-3 text-white text-center border">
            <p>col-lg-6</p>
        </div>
        <div class="col-lg-6 bg-primary p-3 text-white text-center border">
            <p>col-lg-6</p>
        </div>
    </div>
    <!-- Third row with three columns for medium screens (each taking one-third of the available width) -->
    <div class="row">
        <div class="col-md-4 bg-warning p-3 text-white text-center border">
            <p>col-md-4 </p>
        </div>
        <div class="col-md-4 bg-warning p-3 text-white text-center border">
            <p>col-md-4 </p>
        </div>
        <div class="col-md-4 bg-warning p-3 text-white text-center border">
            <p>col-md-4 </p>
        </div>
    </div>
    <!-- Fourth row with four columns for small screens (each taking one-fourth of the available width) -->
    <div class="row">
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
        <div class="col-sm-3 bg-danger p-3 text-white text-center border">
            <p>col-sm-3</p>
        </div>
    </div>
</body>
</html>
```

Congratulations! You have successfully created a web page with Bootstrap's Responsive grid system!

Author(s)

Manvi Gupta
Rajashree Patil

Changelog

Date	Version	Changed by	Change Description
2023-09-18	0.2	mary Stenberg	QA pass with edits
2023-09-13	0.1	Manvi, Rajashree	Initial version created