100 XP

Exercise - Create a to-do list

10 minutes

In this exercise, you use everything you learned so far to add a basic to-do list page to your Blazor app.

Create the to-do list page

1. Create a new Blazor Web App project.

2. Add a *Todo.razor* file to the *Components/Pages* folder

   In Visual Studio and Visual Studio Code you can add the Razor file by right-clicking the *Components/Pages* folder in the **Solution Explorer** and selecting the appropriate option to add a new file.

   You can also create the Razor file using the .NET CLI with this command:

   .NET CLI

   ```
   dotnet new razorcomponent -n Todo -o Components/Pages
   ```

   The `-n|--name` option in the preceding command specifies the name of the new Razor component. The new component is created in the project's `Components/Pages` folder with the `-o|--output` option.

   Important

   Razor component file names should have a capitalized first letter so they can easily be distinguished from other HTML elements.

3. Open the `Todo` component and add an `@page` Razor directive to the top of the file with a relative URL of `/todo`, and set the render mode to `InteractiveServer` so the component can handle UI events.

   CSHTML

   ```
   @page "/todo"
   @rendermode InteractiveServer

   <h3>Todo</h3>

   @code {

   }
   ```

4. Apply the changes to the app and try browsing to "/todo" to see your new page.

Add the to-do page to the nav menu

The new to-do list page doesn't yet appear in the nav menu with the other existing pages. The nav menu is defined in the `NavMenu` component, which is part of the app's layout. Let's update the `NavMenu` component to add a link to the to-do list page.

1. Open *Components/Layout/NavMenu.razor*.

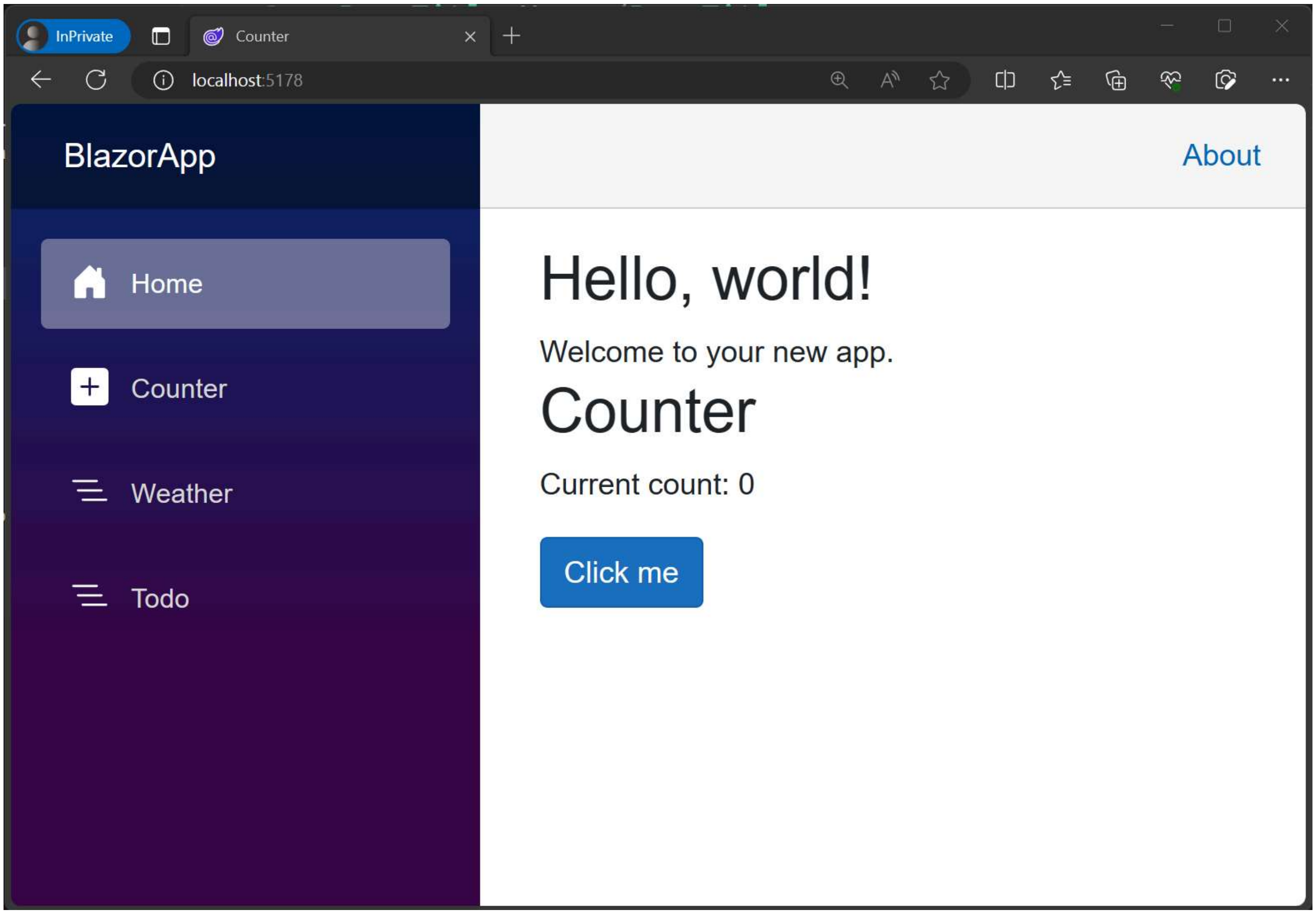
2. Find the `nav` element in the `NavMenu` component and add the following `div` element below the existing nav item for the weather page.

   razor

   ```razor
   <div class="nav-item px-3">
       <NavLink class="nav-link" href="todo">
           <span class="bi bi-list-nested-nav-menu" aria-hidden="true"></span> Todo
       </NavLink>
   </div>
   ```

   The `NavLink` component is a built-in Blazor component that renders an anchor tag. If the current browser address matches the `href` for the `NavLink`, it also renders an `active` CSS class that you can use for styling the link.

   After applying this change, you should now see the Todo page show up in the nav menu.



Hello, world!

Welcome to your new app.

Counter

Current count: 0

Build a list of to-do items

1. Create a new `TodoItem.cs` file at the root of the project (the same level as `Program.cs`) and add the following C# class to it.

C#

```
public class TodoItem
{
    public string? Title { get; set; }
    public bool IsDone { get; set; } = false;
}
```

2. In *Todo.razor* add a field for the list of to-do items in the `@code` block.

razor

```
@code {
    private List<TodoItem> todos = new();
}
```

3. Render an unordered list of all the to-dos using a `foreach` loop.

razor

```
<ul>
    @foreach (var todo in todos)
    {
        <li>@todo.Title</li>
    }
</ul>
```

You don't see anything rendered for the to-do list yet, because the list is empty. You need a way to add some to-do items.

Add to-do items

Let's add some UI elements for adding to-do items to our list.

1. In *Todo.razor* add an `input` tag and a `button` below the unordered list.

razor

```
<input />
<button>Add todo</button>
```

2. Create a `newTodo` string field and bind it to the `input` using the `@bind` directive attribute.

razor

```
<input @bind="newTodo" />
<button>Add todo</button>

@code {
    private List<TodoItem> todos = new();
    string newTodo = "";
}
```

3. Add a `@onclick` handler to the `button` that adds a new `TodoItem` to the `todos` list based on the value of `newTodo` and then resets the value of `newTodo` to an empty string.

razor

```razor
<input @bind="newTodo" />
<button @onclick="AddTodo">Add todo</button>

@code {
    private List<TodoItem> todos = new();
    string newTodo = "";

    void AddTodo()
    {
        if (!string.IsNullOrWhiteSpace(newTodo))
        {
            todos.Add(new TodoItem { Title = newTodo });
            newTodo = string.Empty;
        }
    }
}
```

4. Check that you can now add to-do items and they show up in the list. The `input` value should also reset after adding each to-do item.

Add checkboxes and count incomplete to-do items

You need a way to mark to-do items as completed, to edit existing to-do items, and to count how many to-do items are yet to be done.

1. Update the contents of the `li` element to render an `input` of type `checkbox` that is bound to `todo.IsDone` and a text `input` that is bound to `todo.Title`.

razor

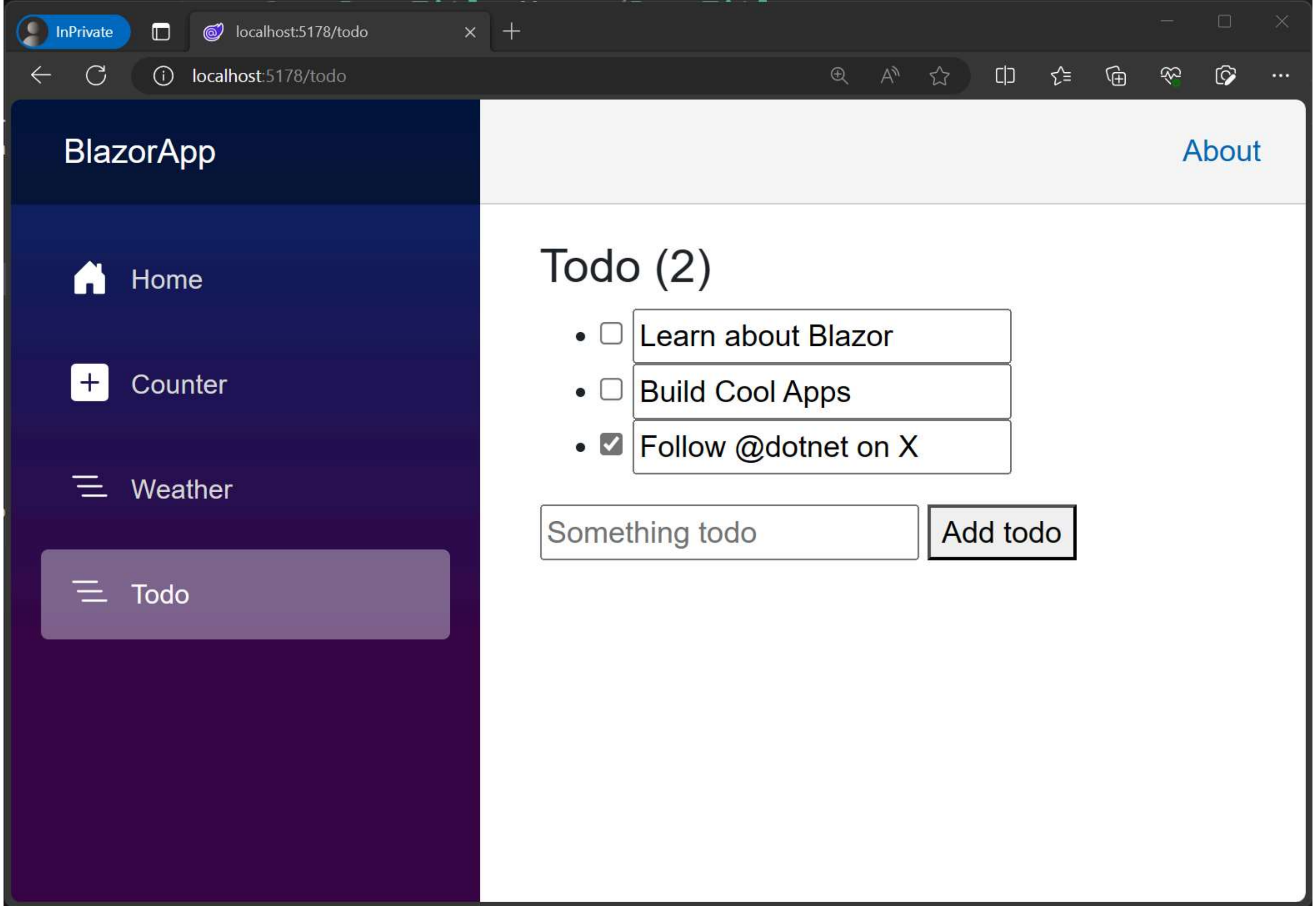
```razor
<ul>
    @foreach (var todo in todos)
    {
        <li>
            <input type="checkbox" @bind="todo.IsDone" />
            <input @bind="todo.Title" />
        </li>
    }
</ul>
```

2. Update the `<h3>` header to show a count of the number of todo items that aren't complete (`IsDone` is `false`).

razor

```razor
<h3>Todo (@todos.Count(todo => !todo.IsDone))</h3>
```

3. After applying the changes to the app, try adding items, editing items, and marking todo items done to test the component.



Todo (2)

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- ☐ Build Cool Apps
- ☑ Follow @dotnet on X

Your Blazor to-do list is now done ✅.

Next unit: Knowledge check

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