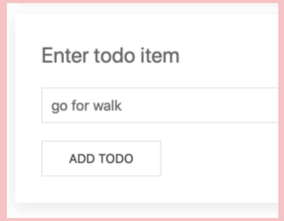
Svelte First Steps

Building your first Svelte Application

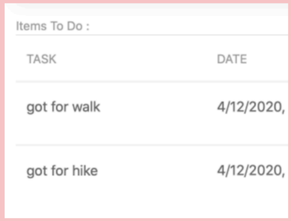
Todo Example - Recap

Lab-13a-Todo 1



Build a simple todo app in javascript.

Lab-13b-Todo 2



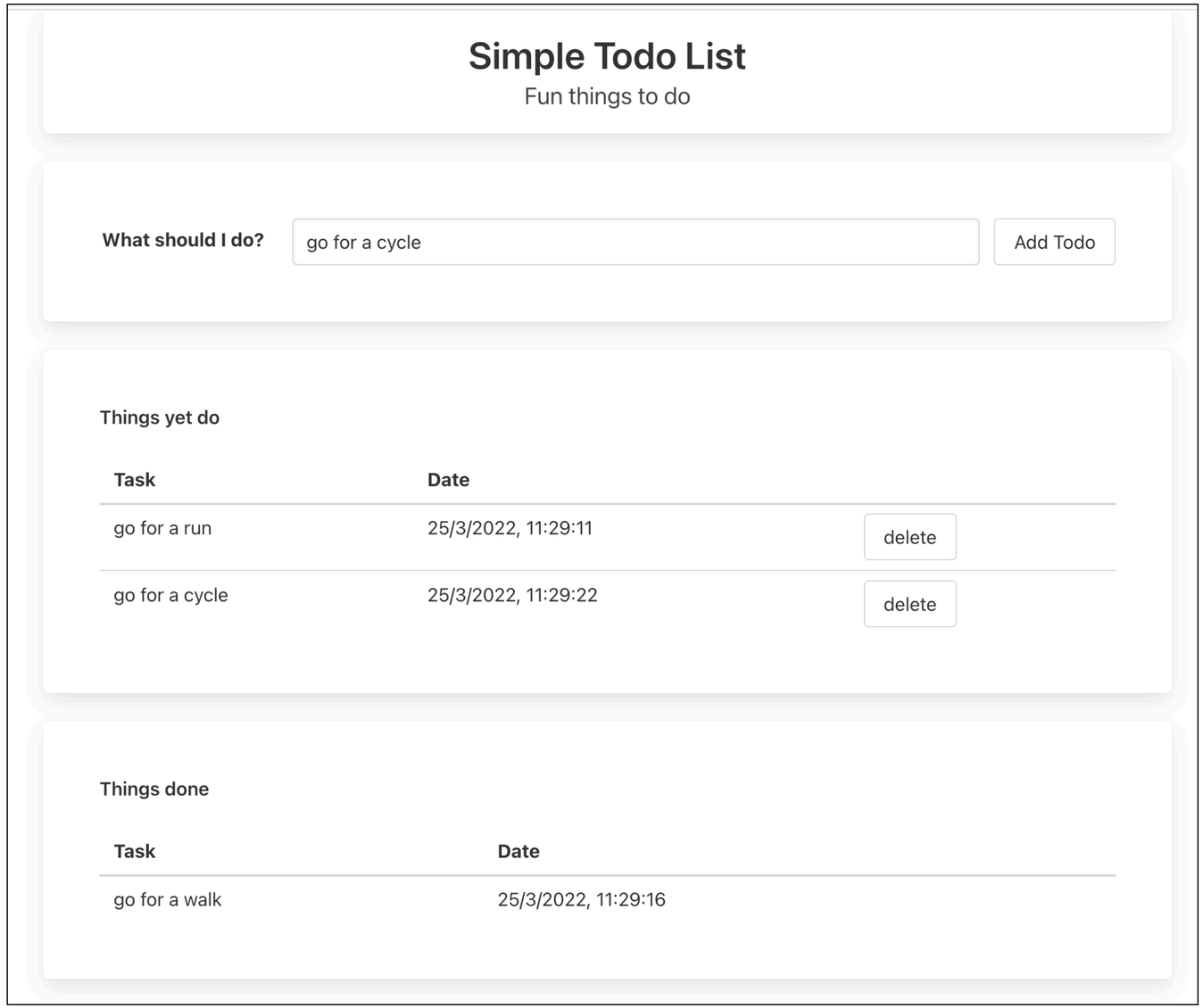
Evolve to Todo app further.

Lab-14-Todo 1

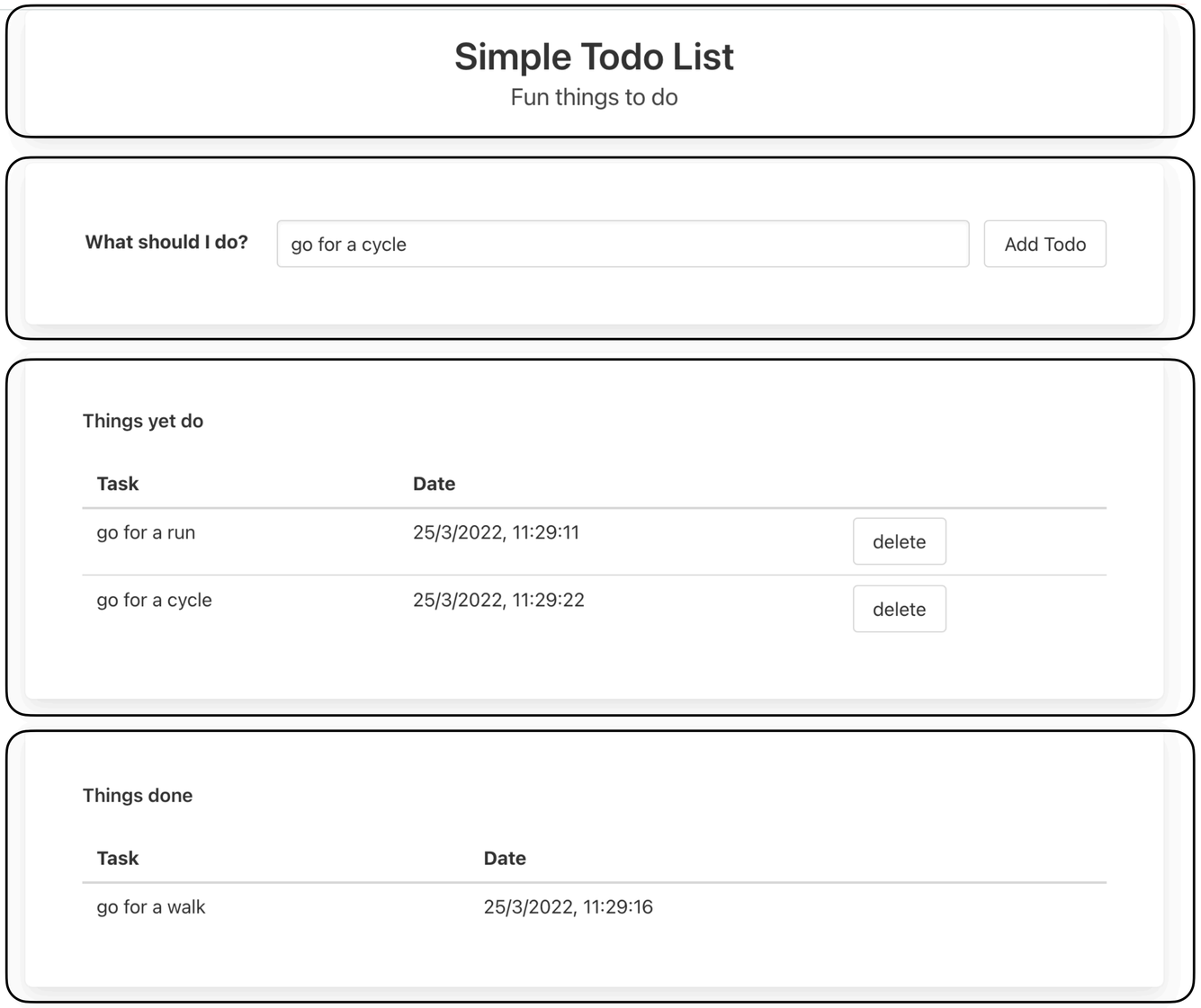
Create a first Svelte app.

Lab-15-Todo 2

Explore Svelte components in the Todo app.



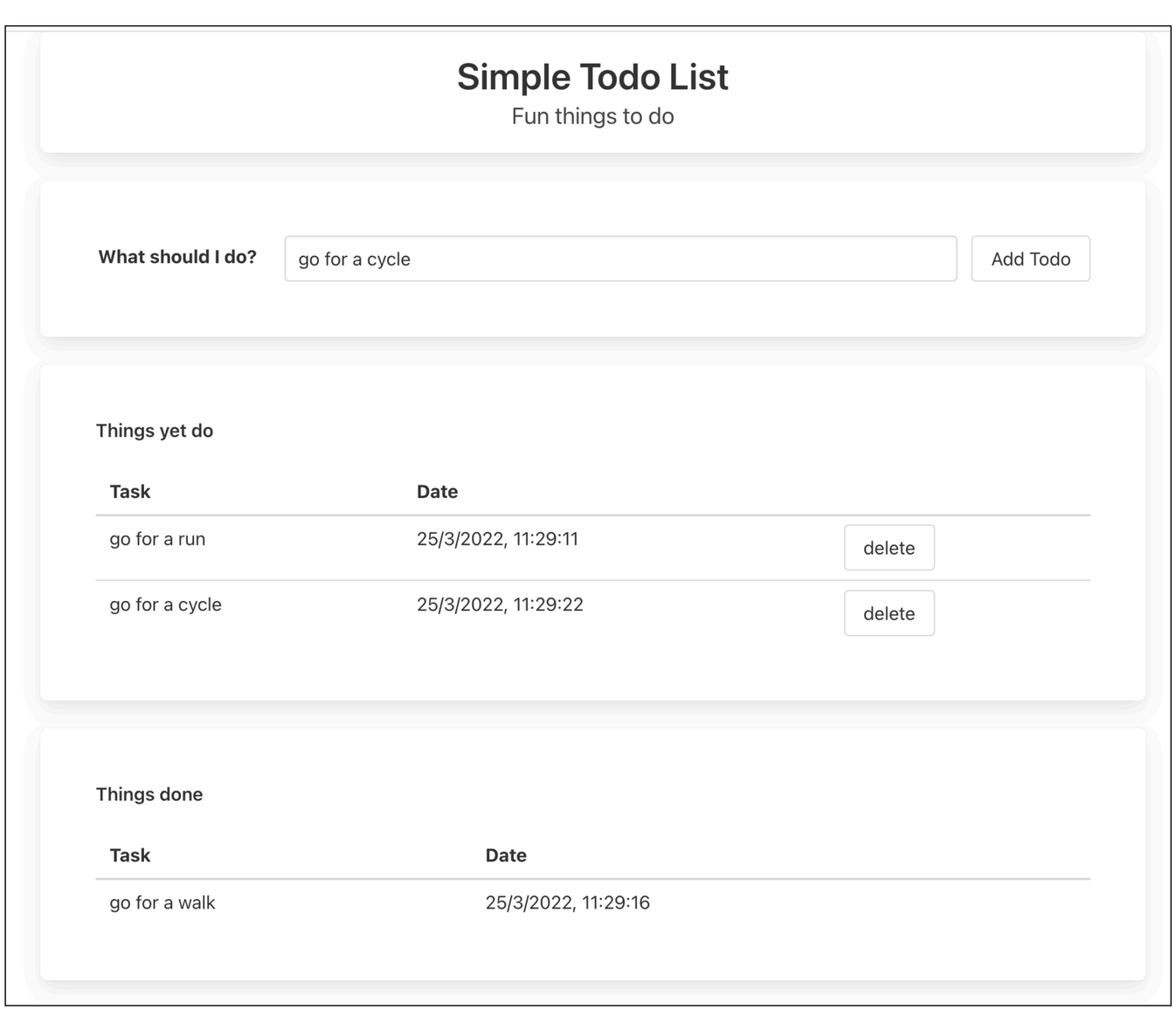
Todo UX




```
<div class="box has-text-centered">
  <div class="title"> Simple Todo List</div>
  <div class="subtitle">Fun things to do</div>
</div>
<div class="section box">
  <div class="field is-horizontal">
    <div class="field-label is-normal">
      <label class="label">What should I do?</label>
    </div>
    <div class="field-body">
      <div class="field">
        <p class="control">
          <input id="todo-id" class="input" type="text" placeholder
        </p>
      </div>
      <button onClick="addTodo()" class="button">Add Todo</button>
    </div>
  </div>
</div>
<div class="section box">
  <div class="title is-6">Things yet do</div>
  <table id="todo-table" class="table is-fullwidth">
    <thead>
      <th>Task</th>
      <th>Date</th>
      <th></th>
    </thead>
    <tbody>
      <tr></tr>
    </tbody>
  </table>
</div>
<div class="section box">
  <div class="title is-6">Things done</div>
  <table id="done-table" class="table is-fullwidth">
    <thead>
      <th>Task</th>
      <th>Date</th>
      <th></th>
    </thead>
    <tbody>
      <tr></tr>
    </tbody>
  </table>
</div>
```

Include Javascript

```
    </div>
    <div class="section box">
      <div class="title is-6">Things yet do</div>
      <table id="todo-table" class="table is-fullwidth">
        <thead>
          <th>Task</th>
          <th>Date</th>
          <th></th>
        </thead>
        <tbody>
          <tr></tr>
        </tbody>
      </table>
    </div>
    <div class="section box">
      <div class="title is-6">Things done</div>
      <table id="done-table" class="table is-fullwidth">
        <thead>
          <th>Task</th>
          <th>Date</th>
          <th></th>
        </thead>
        <tbody>
          <tr></tr>
        </tbody>
      </table>
    </div>
  </div>
  <script src="todo.js" type="text/javascript"></script>
</body>
</html>
```

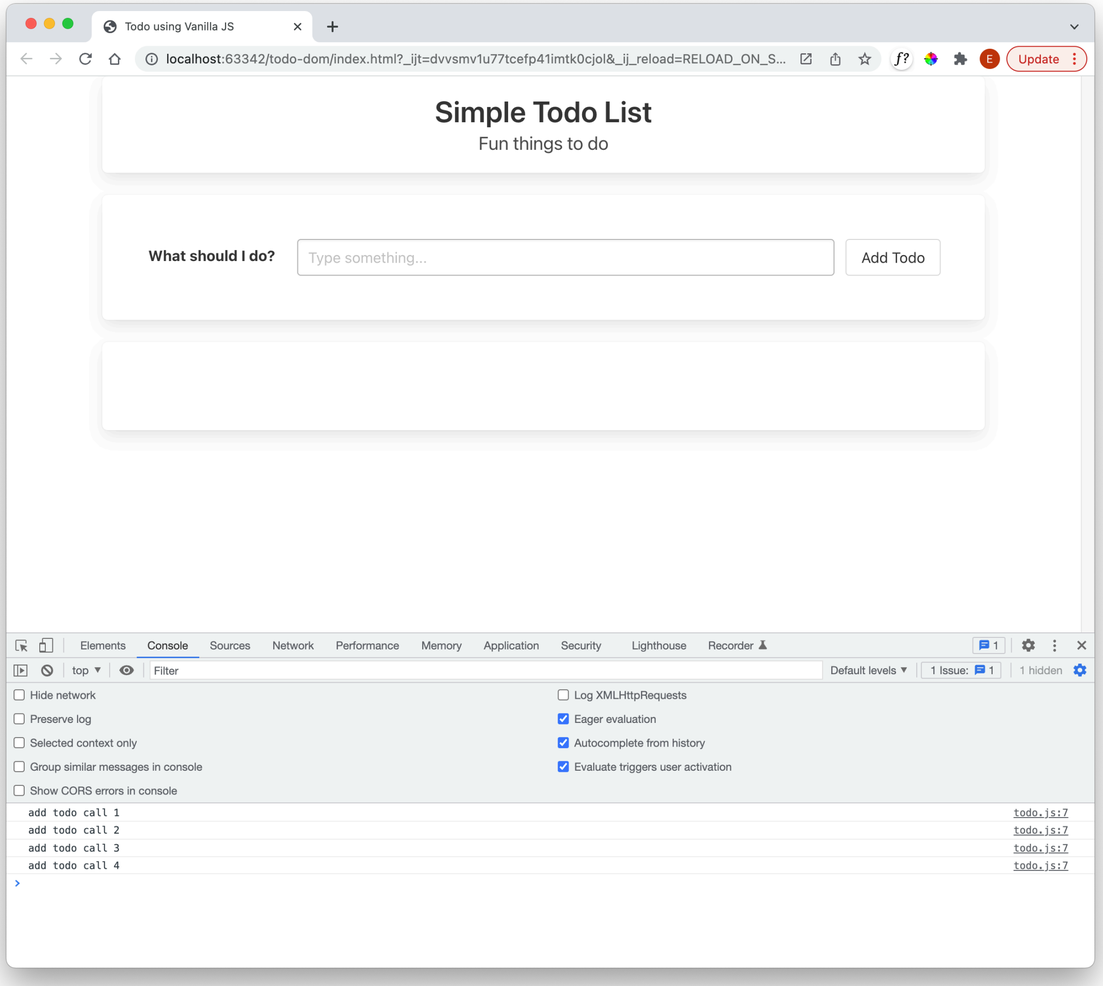


Incorporate Javascript into page

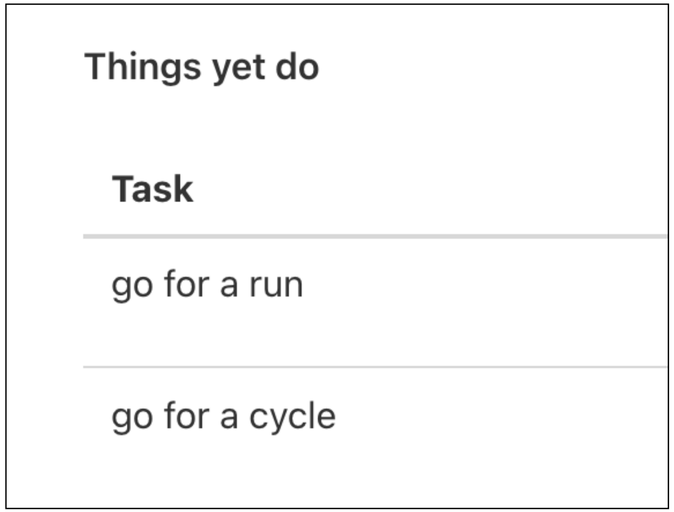
onClick

```
<div class="uk-width-1-2@m uk-card uk-card-default uk-padding">
  <fieldset class="uk-fieldset">
    <legend class="uk-legend">Enter todo item</legend>
    <div class="uk-margin">
      <input id="todo-id" class="uk-input" type="text" placeholder="Todo">
    </div>
  </fieldset>
  <button onClick="addTodo()" id="add-btn"
          class="uk-button uk-button-default">Add Todo</button>
</div>
```

```
let count = 0;

function addTodo() {
  count++;
  console.log(`add todo call ${count}`)
}
```



- onClick attribute establishes link from <button> to javascript function




```
<table id="todo-table" class="table">
  <caption> Items To Do :</caption>
  <thead>
    <tr>
      <th>Task</th>
    </tr>
  </thead>
  <tbody>
    <tr></tr>
  </tbody>
</table>
```

- Retrieve text from input field
- Create new row & insert text element

```
function addTodo() {
  count++;
  const todoText = document.getElementById("todo-id").value;
  console.log(`add todo call ${count}: ${todoText}`)

  const table = document.getElementById("todo-table");
  const row = table.insertRow(-1);
  const textCell = row.insertCell(0);
  textCell.innerText = todoText;
}
```

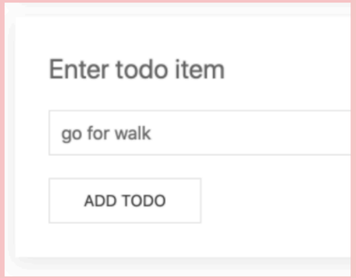
Retrieve Table DOM Object

DOM Interaction

- Rosetta Stone approach

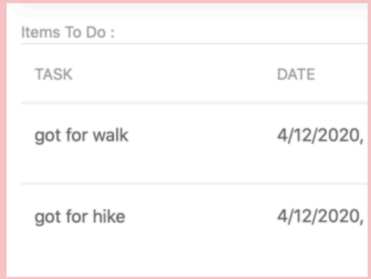
- Develop the same application(s) in Svelte

Lab-13a-Todo 1



Build a simple todo app in javascript.

Lab-13b-Todo 2



Evolve to Todo app further.

Lab-14-Todo 1

Create a first Svelte app.

Lab-15-Todo 2

Explore Svelte components in the Todo app.

Create Svelte App

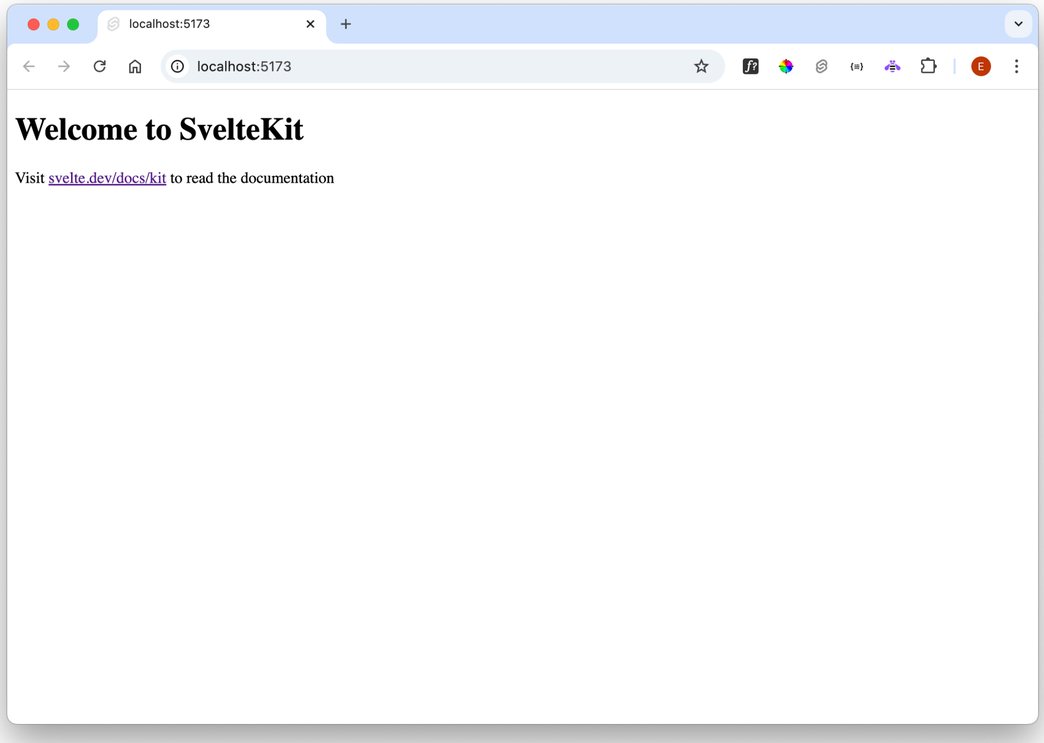
```
npx sv create todo-svelte
```

```
┌  Welcome to the Svelte CLI! (v0.6.21)
│
◆  Which template would you like?
│  ● SvelteKit minimal (barebones scaffolding for your new app)
│  ○ SvelteKit demo
│  ○ Svelte library
◆  Add type checking with Typescript?
│  ○ Yes, using Typescript syntax
```

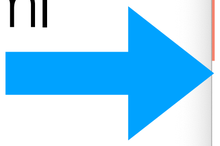
```
cd todo-svelte
npm run dev
```

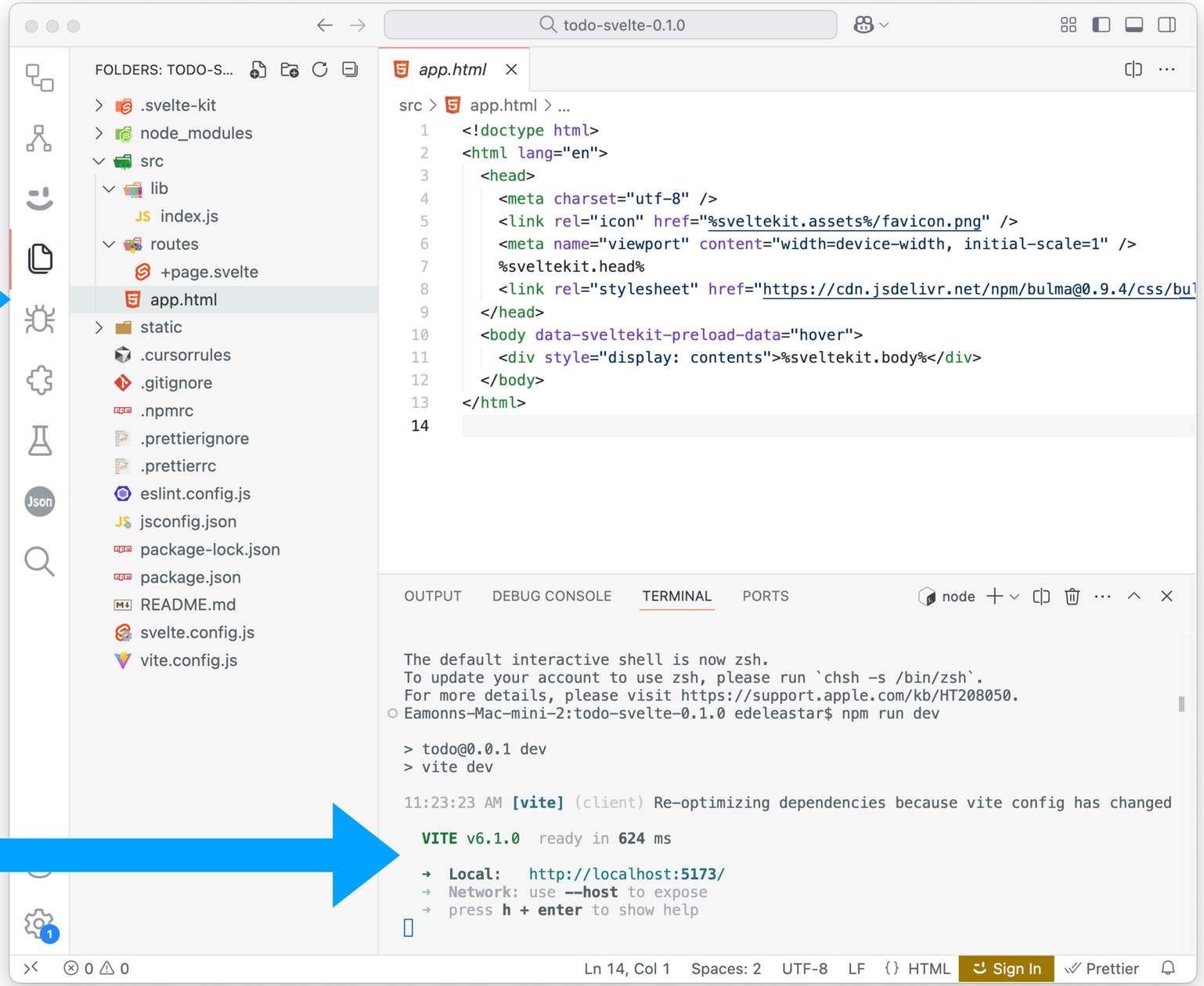
```
> todo@0.0.1 dev
> vite dev

17:10:27 [vite] (client) Forced re-optimization of dependencies

  VITE v6.1.0  ready in 1184 ms

  ➜  Local:   http://localhost:5173/
  ➜  Network: use --host to expose
  ➜  press h + enter to show help
```

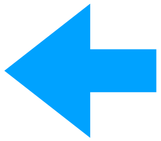
http://localhost:5173



App.html







+page.svelte

Application Home Page

Svelte application launched (on front end)

App.html

Bulma CSS framework

Entire Front End Application ‘bundled’ into this Javascript file

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <link rel="icon" href="%sveltekit.assets%/favicon.png" />
    <meta name="viewport" content="width=device-width, initial-scale=1" />
    %sveltekit.head%
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bulma@0.9.4/css/bulma.min.css" />
  </head>
  <body data-sveltekit-preload-data="hover">
    <div style="display: contents">%sveltekit.body%</div>
  </body>
</html>
```

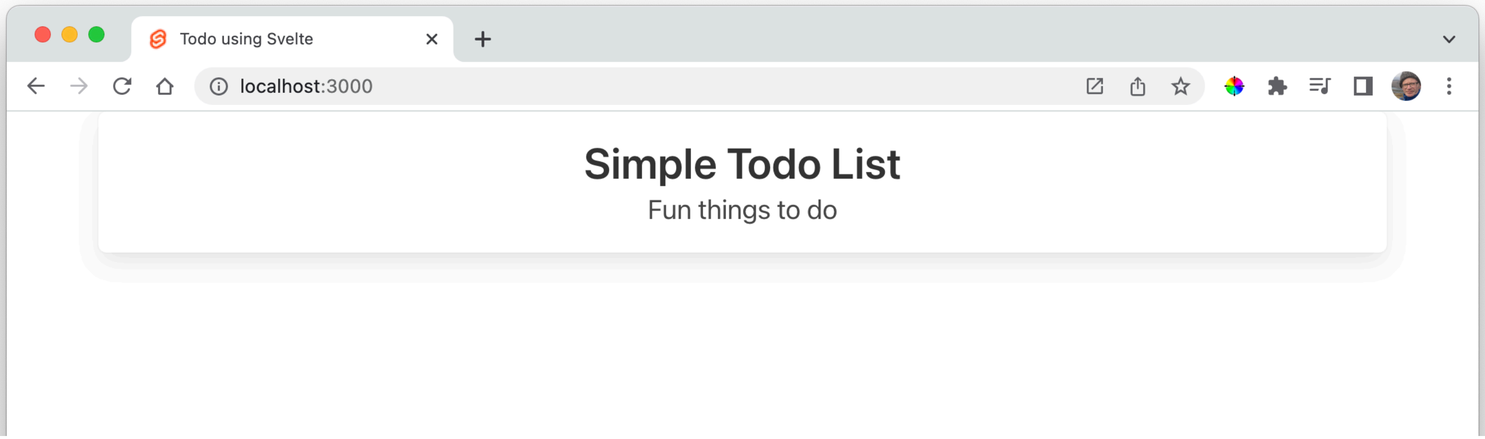
+routes/+page.svelte

Component Code (empty)

Component UI

Running Application

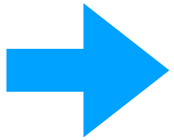
```svelte
<script>
</script>

<div class="container">
  <div class="box has-text-centered">
    <div class="title"> Simple Todo List</div>
    <div class="subtitle">Fun things to do</div>
  </div>
</div>
```



Incorporating Form UX

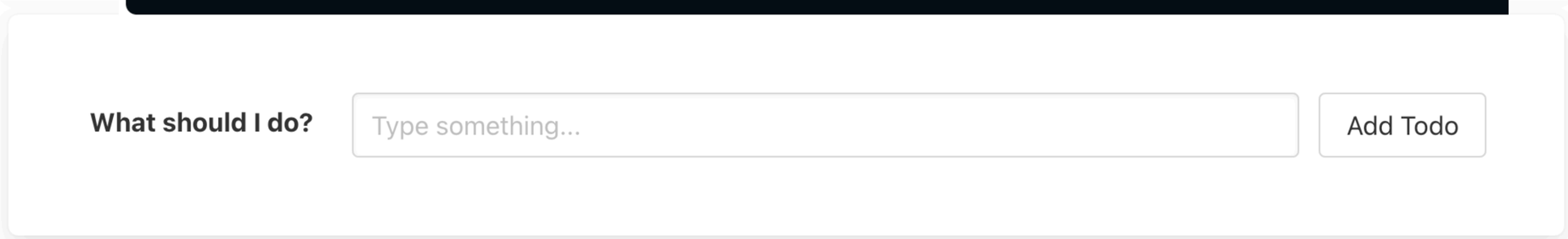
routes/+.page.svelte

Additional Form elements



```
<div class="section box">
  <div class="field is-horizontal">
    <div class="field-label is-normal">
      <label for="todo" class="label">What should I do?</label>
    </div>
    <div class="field-body">
      <div class="field">
        <p class="control">
          <input id="todo" class="input" type="text" placeholder="Type something...">
        </p>
      </div>
      <button class="button">Add Todo</button>
    </div>
  </div>
</div>
```

Form unresponsive (yet)



Component Logic

Simple Variable + function

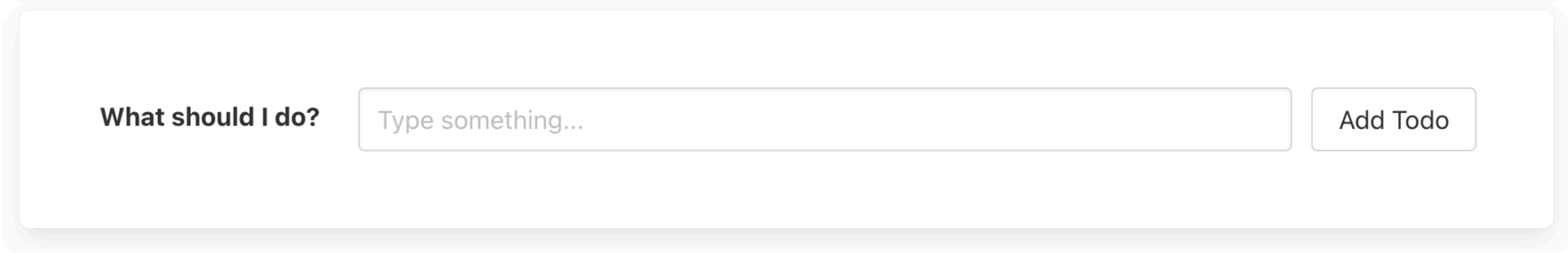
```
<script>
  let todoText;
  function addTodo() {
    console.log(todoText)
  }
</script>
```

```
<input
  bind:value={todoText}
  id="todo"
  class="input"
  type="text"
  placeholder="Type something..."
/>
```

“Bind” the variable to the input field

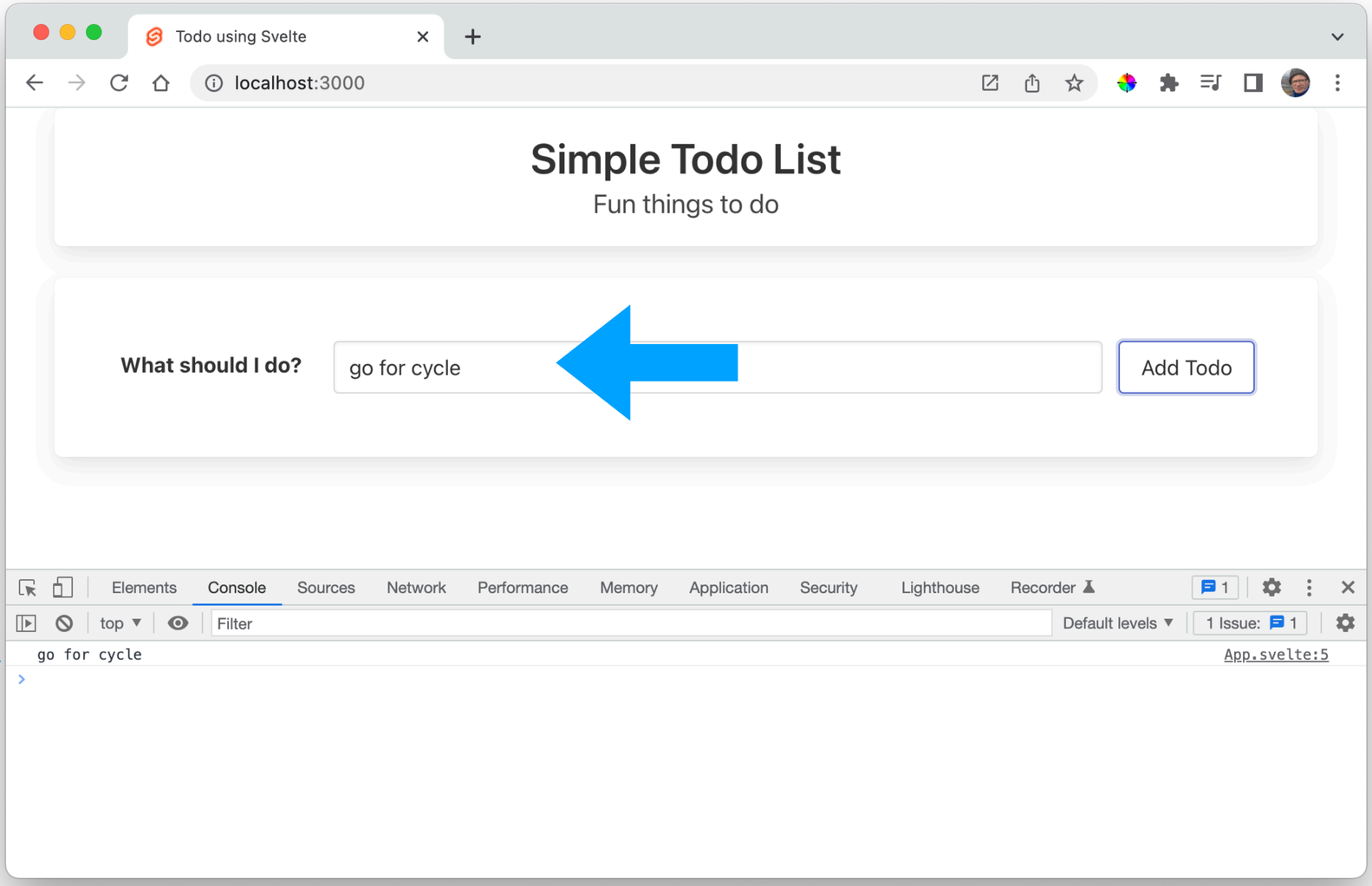
Trigger function when button pressed

```
<button onclick={() => addTodo()} class="button">Add Todo</button>
```



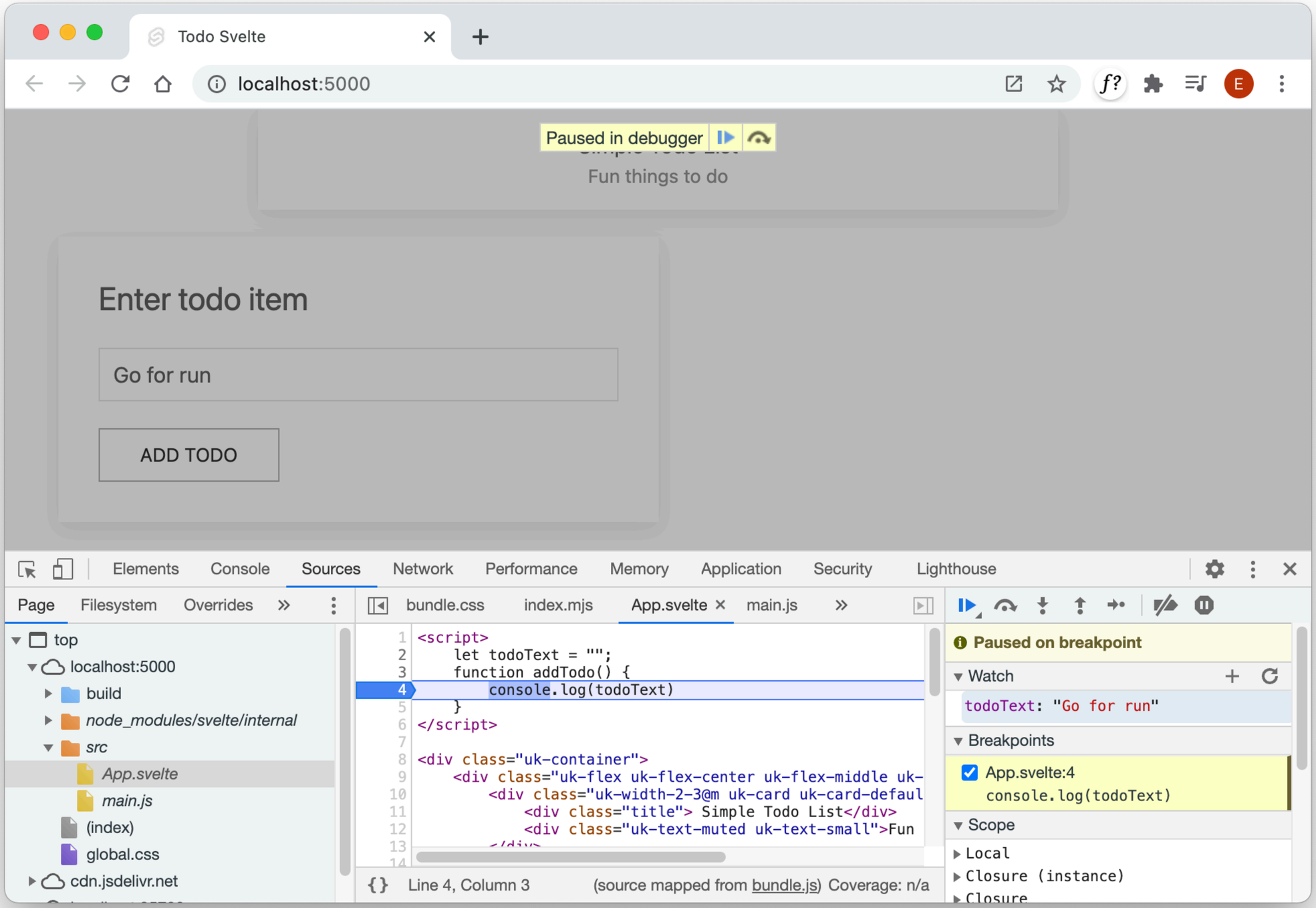
Binding Behaviour

```
<script>
  let todoText = "";

  function addTodo() {
    console.log(todoText);
  }
</script>
```



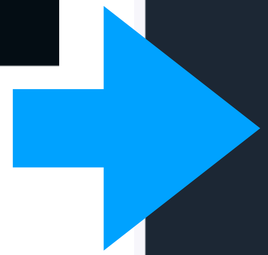
Debugging

Application Structure + Source Debugging available



```
let todoText = "";
let todoItems = [];

function addTodo() {
  console.log(todoText)
  todoItems.push(todoText);
}
```

Simple template style syntax to iterate array



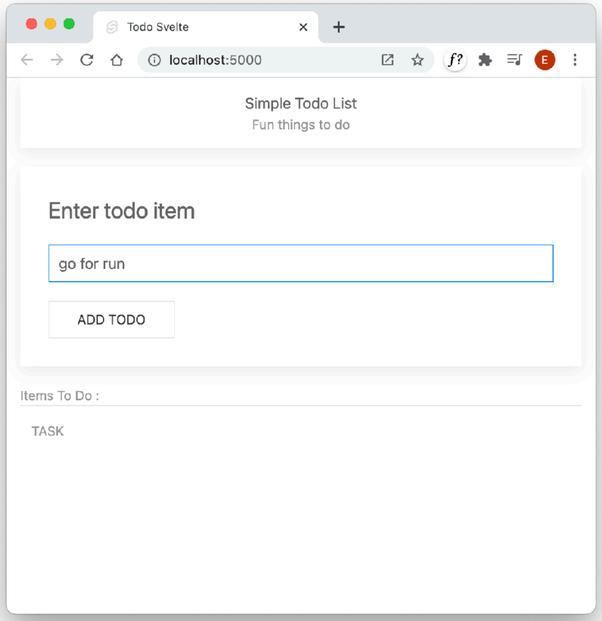
```
<table class="uk-table uk-table-divider">
  <caption> Items To Do :</caption>
  <thead>
    <tr>
      <th>Task</th>
    </tr>
  </thead>
  <tbody>
    {#each todoItems as todo}
      <tr>
        <td> {todo} </td>
      </tr>
    {/each}
  </tbody>
</table>
```

Svelte Template Syntax

Binding Behaviour - Arrays

```
let todoText = "";
let todoItems = [];

function addTodo() {
  console.log(todoText)
  todoItems.push(todoText);
}
```

```
<table class="uk-table uk-table-divider">
  <caption> Items To Do :</caption>
  <thead>
    <tr>
      <th>Task</th>
    </tr>
  </thead>
  <tbody>
    {#each todoItems as todo}
      <tr>
        <td> {todo} </td>
      </tr>
    {/each}
  </tbody>
</table>
```



However, fails to update list!

State Rune

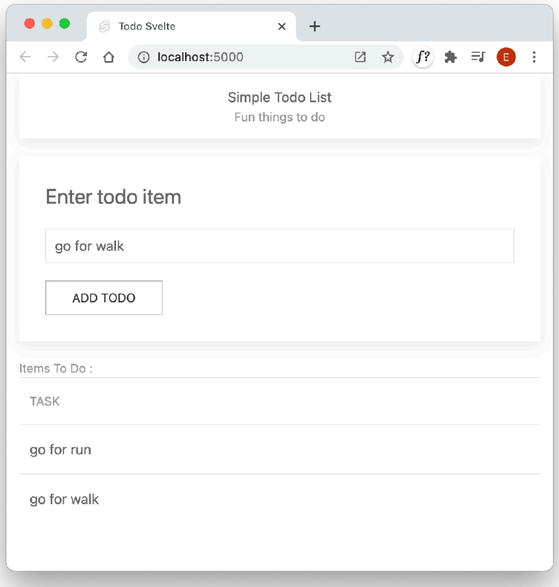
```
let todoText = "";
let todoItems = [];

function addTodo() {
  console.log(todoText)
  todoItems.push(todoText);
}
```

```
let todoItems = $state([]);
```

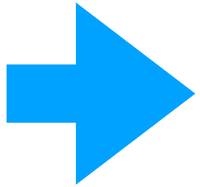
This is called a *rune*, and it's how you tell Svelte that **todoItems** isn't an ordinary variable

It is a special variable, whose values will be automatically reflected in the DOM

So when items are pushed into the array - they will also trigger an update to the page.



Append the string in todoText to the todoItems array

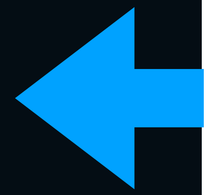


```
<script>
  let todoText = "";
  let todoItems = $state([]);

  function addTodo() {
    console.log(todoText);
    todoItems.push(todoText);
  }
</script>
```

```
<div class="field-body">
  <div class="field">
    <p class="control">
      <input
        bind:value={todoText}
        id="todo"
        class="input"
        type="text"
        placeholder="Type something..."
      />
    </p>
  </div>
  <button onclick={() => addTodo()} class="button">Add Todo</button>
```

Pressing the button triggers the addTodo() function

```
  <div class="section box">
    <div class="title is-6">Things yet do</div>
    <table class="table is-fullwidth">
      <thead>
        <tr>
          <th>Task</th>
        </tr>
      </thead>
      <tbody>
        {#each todoItems as todo}
          <tr>
            <td> {todo} </td>
          </tr>
        {/each}
      </tbody>
    </table>
  </div>
</div>
```



If the array is updated, this loop reruns updating the DOM

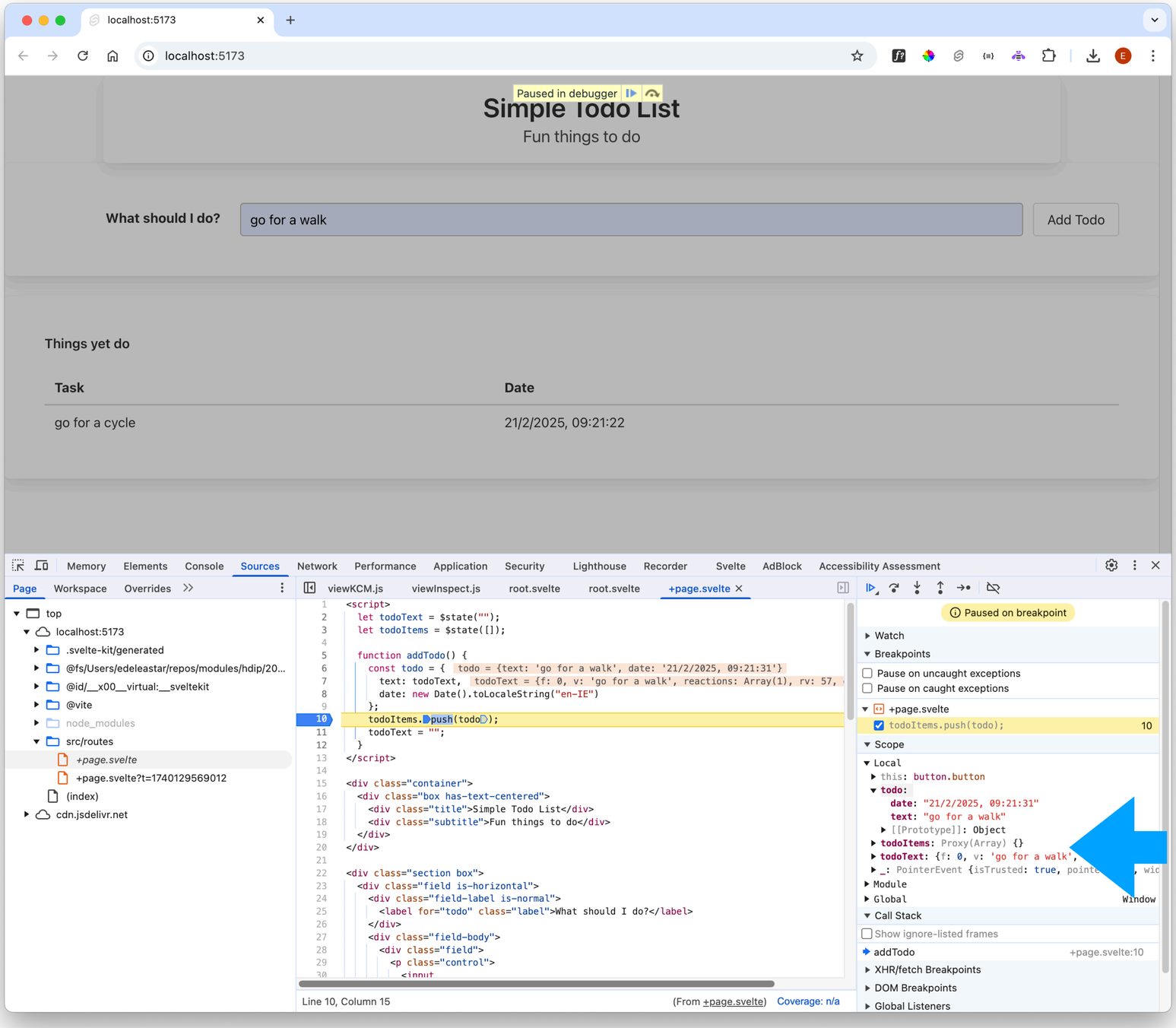
Todo Object

```
function addTodo() {
  const todo = {
    text: todoText,
    date: new Date().toLocaleString("en-IE"),
  };
  todoItems.push(todo);
  todoText = "";
}
```

Items To Do :

TASK	DATE
go for run	13/4/2021, 16:34:08
go for walk	13/4/2021, 16:34:14

```
<div class="section box">
  <div class="title is-6">Things yet do</div>
  <table class="table is-fullwidth">
    <thead>
      <tr>
        <th>Task</th>
        <th>Date</th>
      </tr>
    </thead>
    <tbody>
      {#each todoItems as todo}
        <tr>
          <td>{todo.text}</td>
          <td>{todo.date}</td>
        </tr>
      {/each}
    </tbody>
  </table>
</div>
```



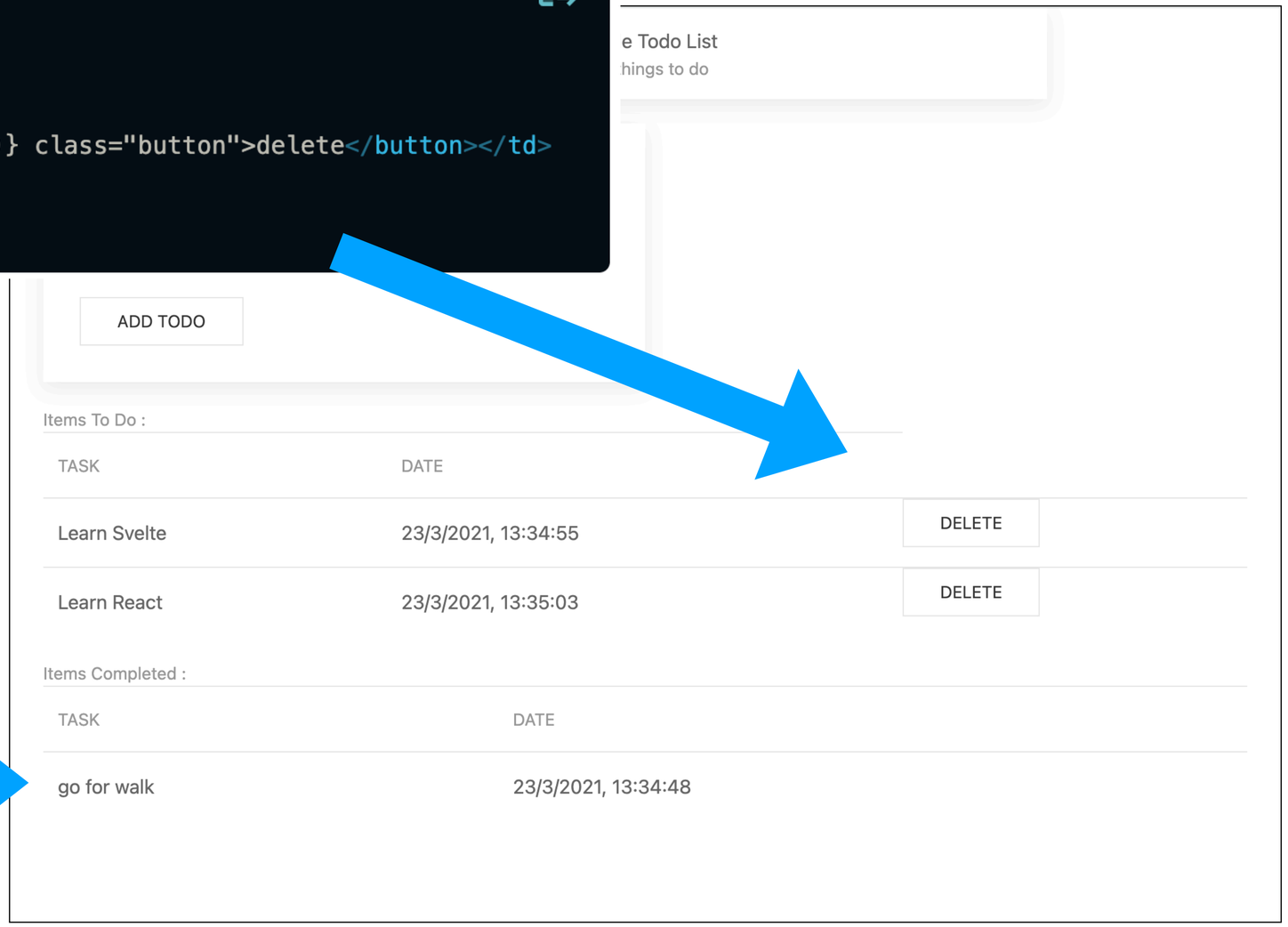
Debugging

Inspect Data Structure

Done List - UX

```
      {#each todoItems as todo}
        <tr>
          <td> {todo.text} </td>
          <td> {todo.date} </td>
          <td><button onclick={() => deleteTodo(todo.id)} class="button">delete</button></td>
        </tr>
      {/each}
```

```
<div class="section box">
  <div class="title is-6">Things done</div>
  <table id="done-table" class="table is-fullwidth">
    <thead>
      <tr>
        <th>Task</th>
        <th>Date</th>
      </tr>
    </thead>
    <tbody>
      {#each doneItems as todo}
        <tr>
          <td> {todo.text} </td>
          <td> {todo.date}</td>
        </tr>
      {/each}
    </tbody>
  </table>
</div>
</div>
```



Done List - Behaviour

Declare Items

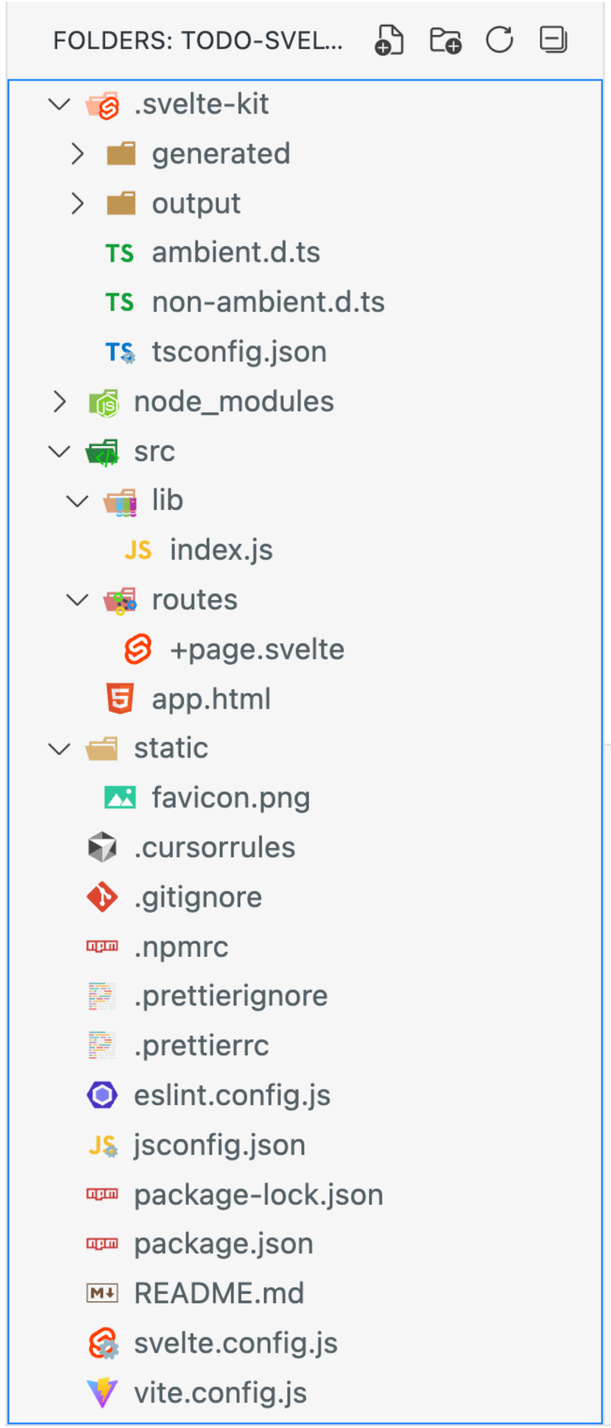
Create todo, including date + id

Push on to todoItems array

Add deleted Todos to doneItems

```
<script>
  import { v4 as uuidv4 } from "uuid";
  let todoText = $state("");
  let todoItems = $state([]);
  let doneItems = $state([]);

  function addTodo() {
    const todo = {
      text: todoText,
      date: new Date().toLocaleString("en-IE"),
      id: uuidv4()
    };
    todoItems.push(todo);
    todoText = "";
  }

  function deleteTodo(id) {
    doneItems.push(todoItems.find((todo) => todo.id === id));
    todoItems = todoItems.filter((todo) => todo.id !== id);
  }
</script>
```

Project Structure



Project Structure

Generated (bundled) application

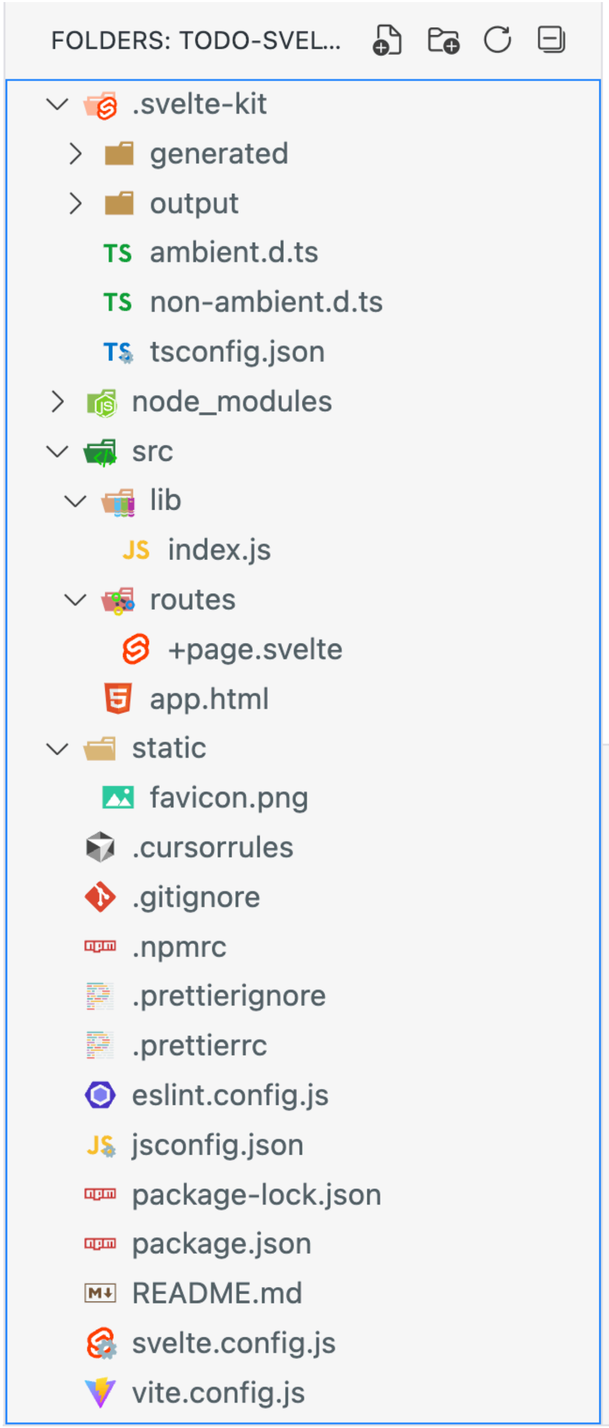
Application Modules

Shared Components

Application Source

Static resources

Configuration files



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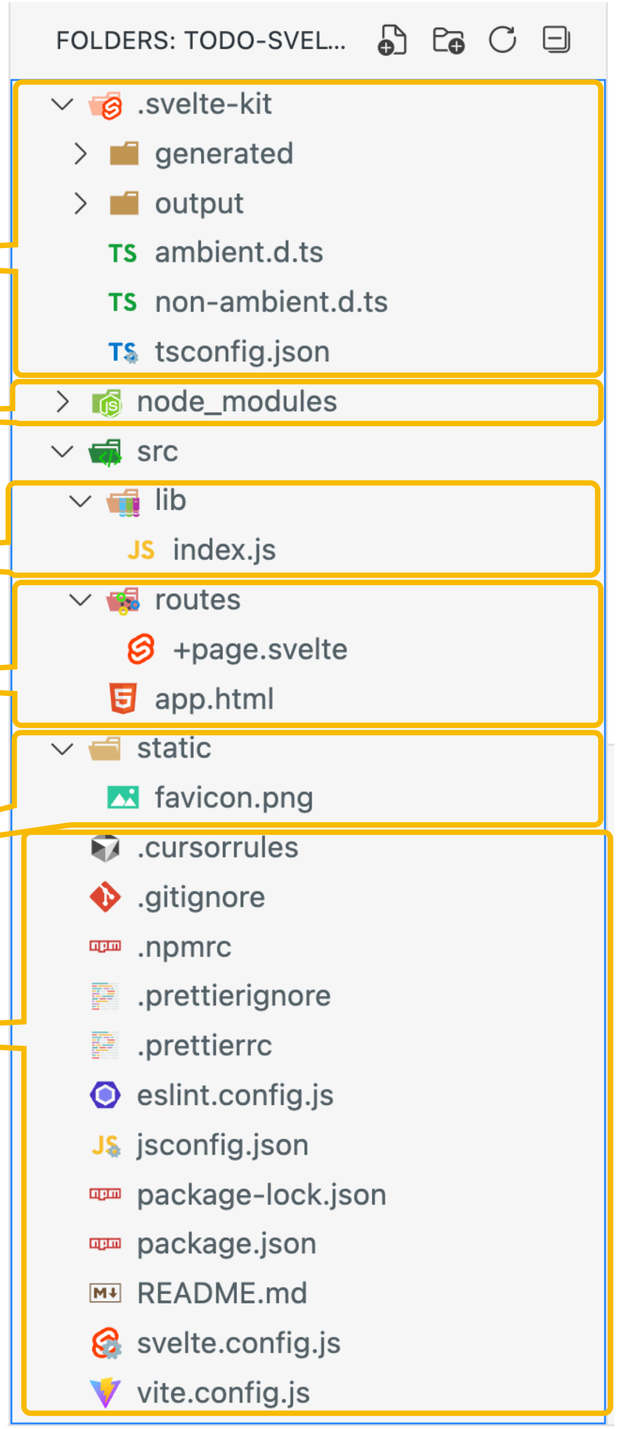

Project Structure

Svelte First Steps

Building your first Svelte Application