Loeng 13

Klientrakendus (JavaScript)

Kas saaks ilma JavaScriptita?

Home (Front Page)

ois2.ttu.ee/uusois/uus_ois2.tud_leht

TAL TECH Tallinna Tehnikaülikooli õppeinfosüsteem

Logi sisse

Üldinfo

- ESILEHT
- ÕPPEAINED
- ÕPPEKAVAD
- TUNNIPLAANID
- AKADEEMILINE KALENDER

Rakenduskõrgharidusõpe | **Bakalaureuseõpe** | Magistriõpe | Doktoriõpe | Integreeritud õpe

INFOTEHNOLOOGIA TEADUSKOND

	Õppekava nimetus	Õppekava kood	Õppekavaversiooni kood
+	Arvutisüsteemid	IACB17	IACB17/17
+	IT süsteemide administreerimine	IAAB17	IAAB17/19
-	IT süsteemide arendus	IADB17	IADB17/17

Õppekava juht/programmijuht: Meelis Antoi
Õppetöö keel: eesti keel
Maht (EAP): 180
Nominaalne õppeaeg: 6 semestrit
Õppekava eesmärgid: Õppekava eesmärk on ette valmistada teoreetiliste teadmiste ja praktiliste oskustega tarkvaraarendajaid, töötamaks kaasaegse info- ja kommunikatsioonitehnoloogia valdkonnas tegelevates ettevõtetes. Õppekava lõpetaja on võimeline töötama suuremahuliste IT projektide arenduses nii iseseisvalt kui ka suuremas meeskonnas ja/või jätkama õpinguid info-ja kommunikatsioonitehnoloogia valdkonna magistriõppes.

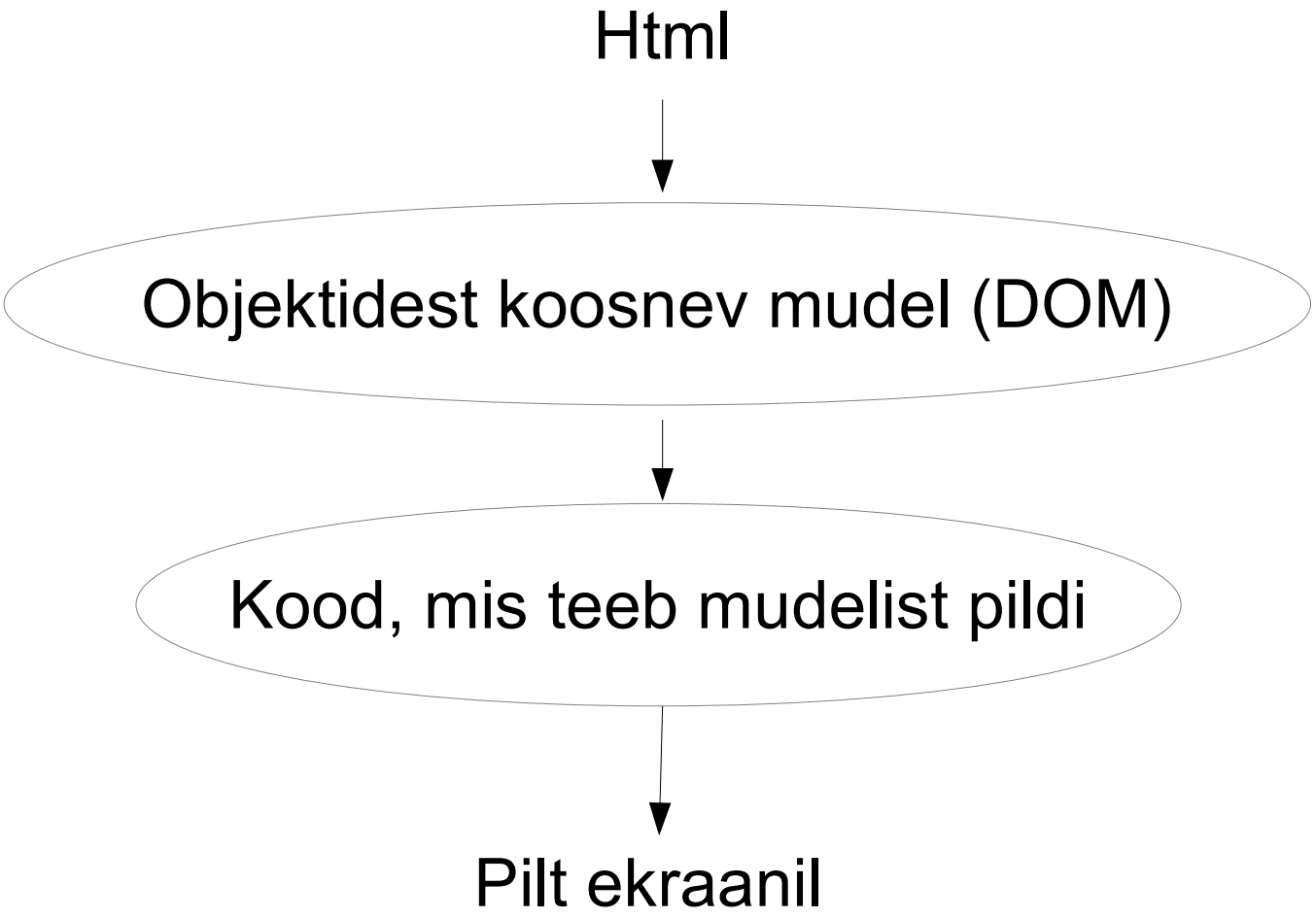
Vaata rohkem..

+	Informaatika	IAIB17	IAIB17/19
+	Küberturbe tehnoloogiad	IVSB17	IVSB17/17
+	Äriinfotehnoloogia	IABB17	IABB17/17

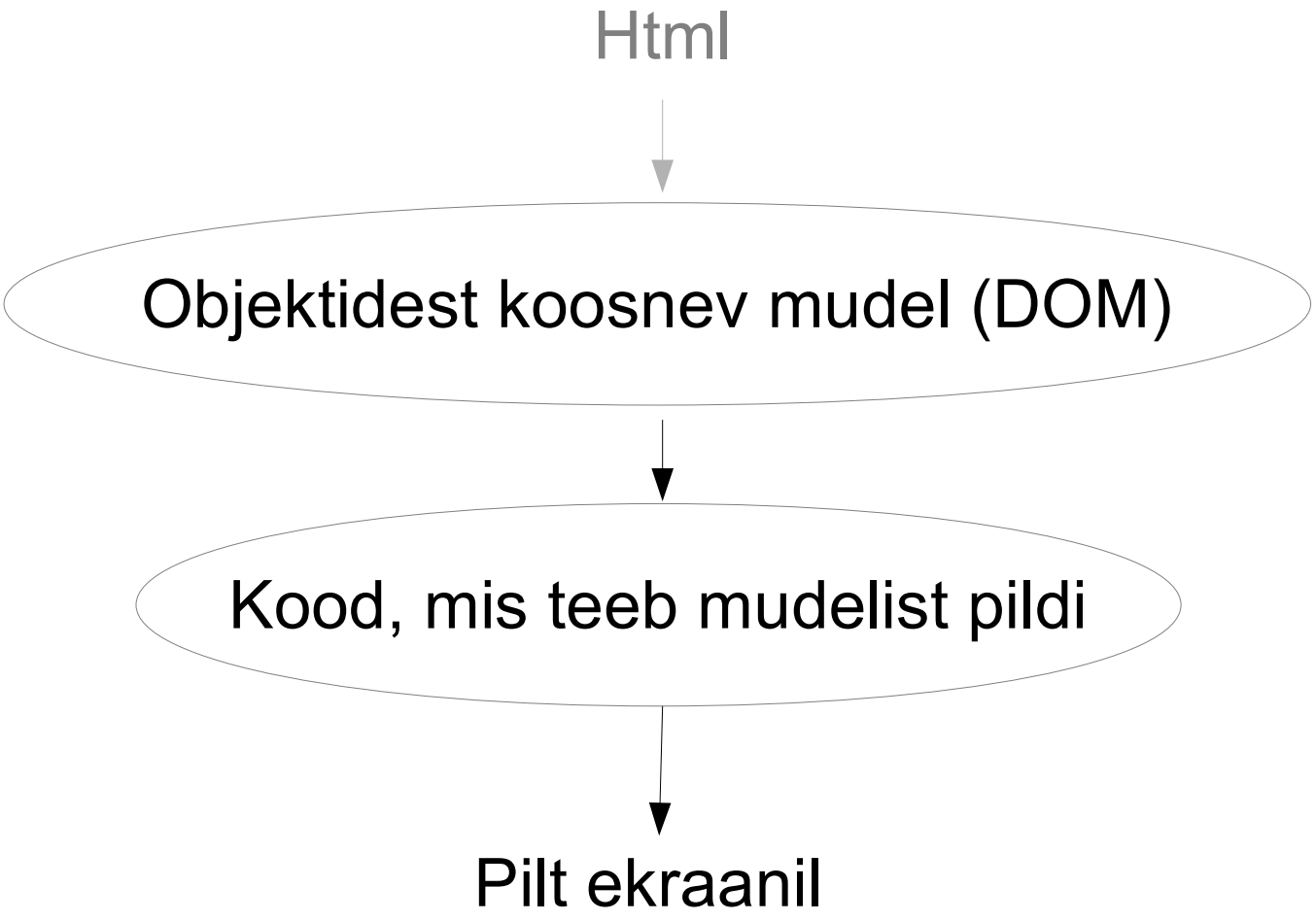
INSENERITEADUSKOND

Mida teeb JavaScripti raamistik?

Pildi joonistamine Html-ist



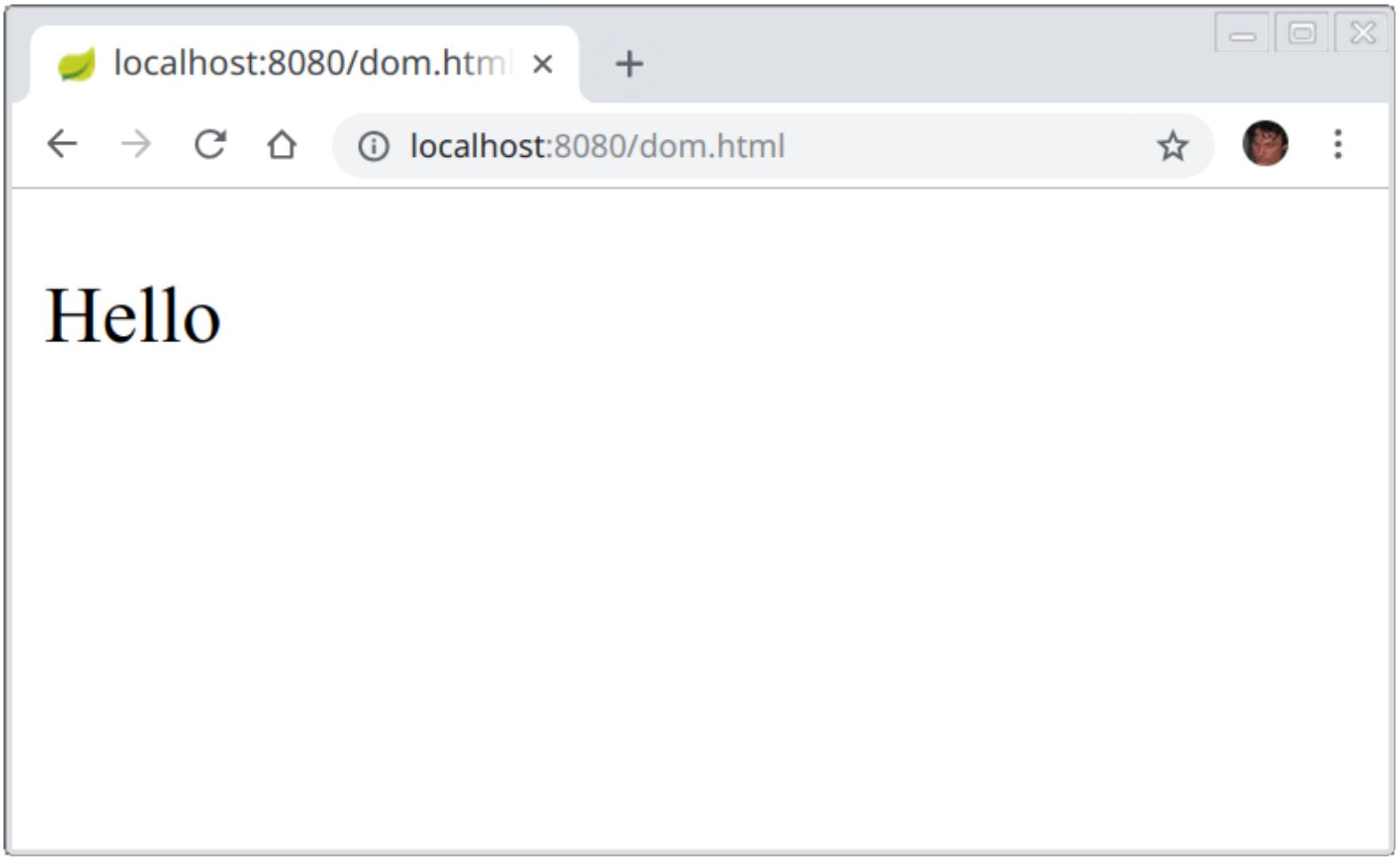
Pildi joonistamine JavaScriptist



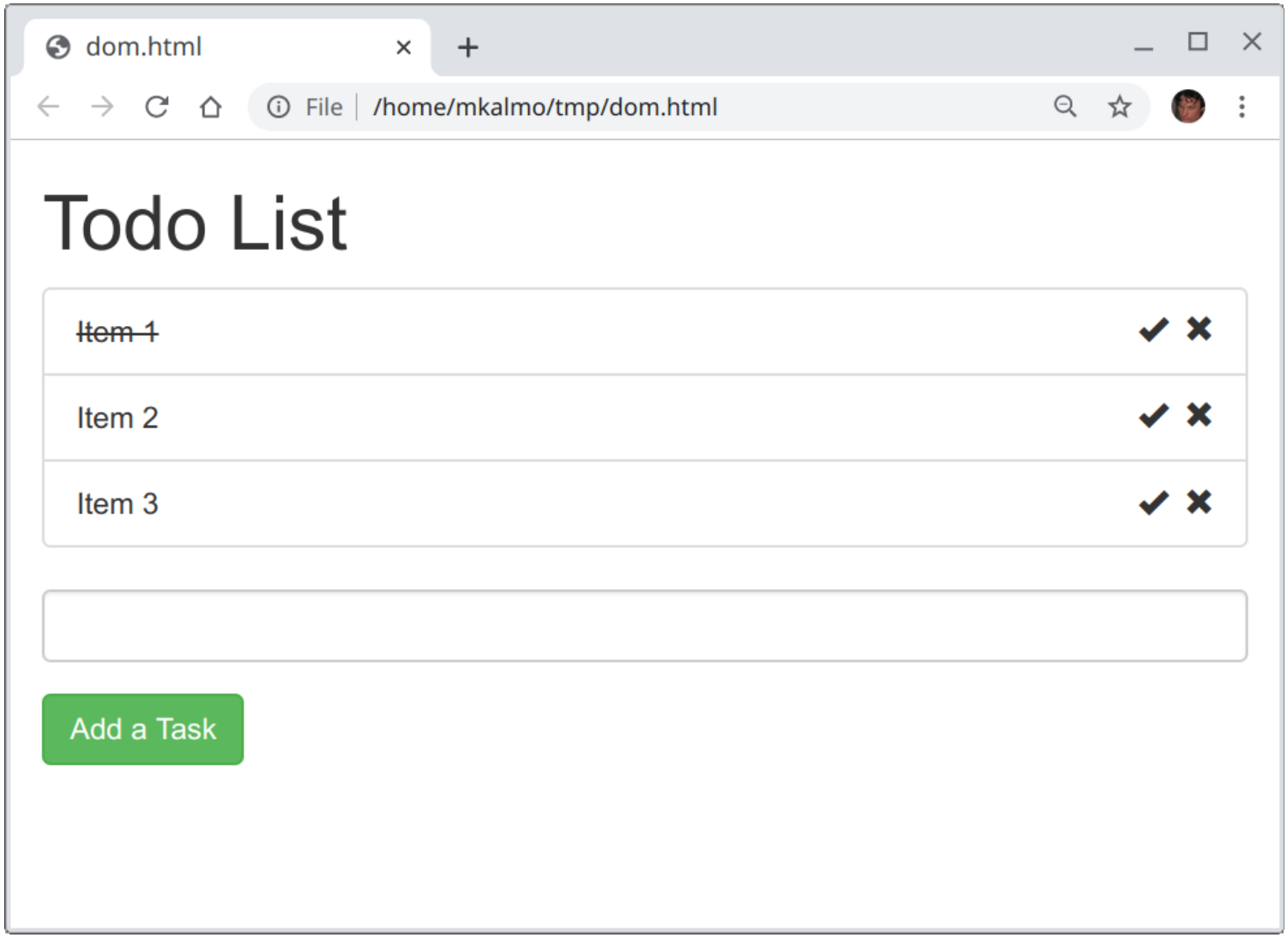
DOM-i muutmine

```
<html>
<body>
<script>

    const p = document.createElement('h1');
    h1.innerText = 'Hello';
    document.body.appendChild(h1);

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

DOM-i muutmine



DOM-i muutmine (näide)



JavaScripti raamistikud

- Angular, React, Vue, …

Raamistik (termin)

Raamistik (termin)

- Inversion of Control (IOC)
- Teeb osa arhitektuurilisi otsuseid

Vue /vjuː/

- Kood ja mallid eraldi
- Html-il põhinev malli keel
- Ei vaja tingimata ehitamist (build), CDN on piisav

Vue (mall)

```
<body>
<div class="col-sm-offset-3 col-sm-6" id="app">
    ...

    <ul class="list-group">
      <li class="list-group-item" v-for="item in items">
        <span>{{ item.text }}</span>
          ...
      </li>
    </ul>

    <button type="button"
            v-on:click="addNewItem"
            class="btn btn-success">Add a Task</button>

  <script src="vue-code.js"></script>
```

Veebitehnoloogiate ainest

```
<table class="list-table">
    <thead>
      <tr>
          <th scope="col">Eesnimi</th>
          <th scope="col">Perekonnanimi</th>
          <th scope="col">Telefon</th>
        </tr>
    </thead>
    <tbody>
    <tr tpl-foreach="$persons as $person">
        <td>
            {{ $person->firstName }}
        </td>
        <td>
            {{ $person->lastName }}
        </td>
    </tr>
    </tbody>
</table>
```

Vue (kontroller)

```
const vm = new Vue({
    el: '#app',

    data: {
        newItemText: '',
        items: [ ... ]
    },

    methods: {
        addNewItem: () => {
            ...
        },

        markAsDone: (id) => {
            ...
        },

        ...
```

Vue (näide)

Vue töötõhimõte

- DOM-i järeltöötlus

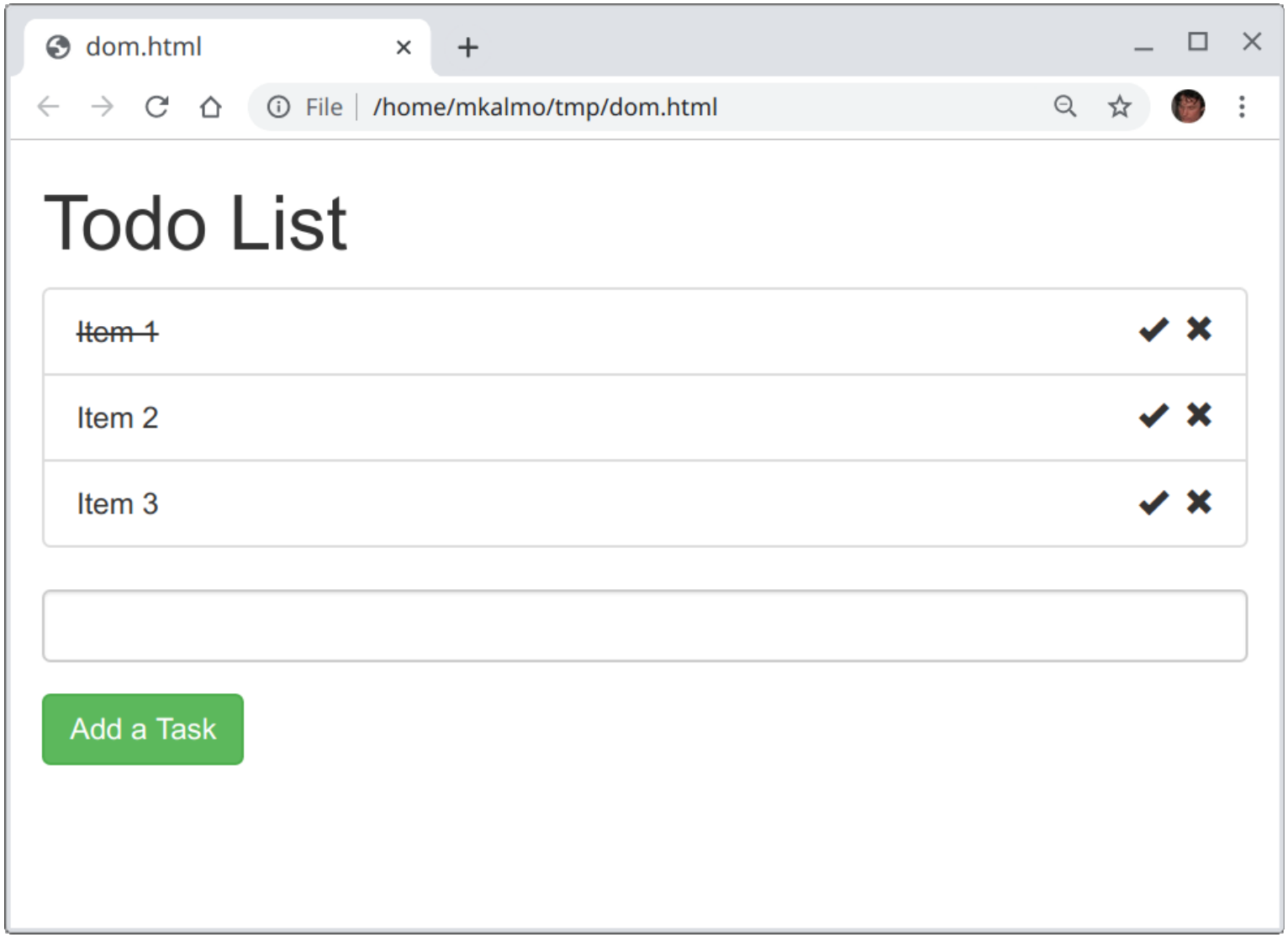
index.html

```
<script src="https://unpkg.com/.../vue.js"></script>

...

<ul class="list-group">
   <li class="list-group-item" v-for="item in items">
      <span>{{ item.text }}</span>
   </li>
</ul>

...

<script src="vue-code.js"></script>
```

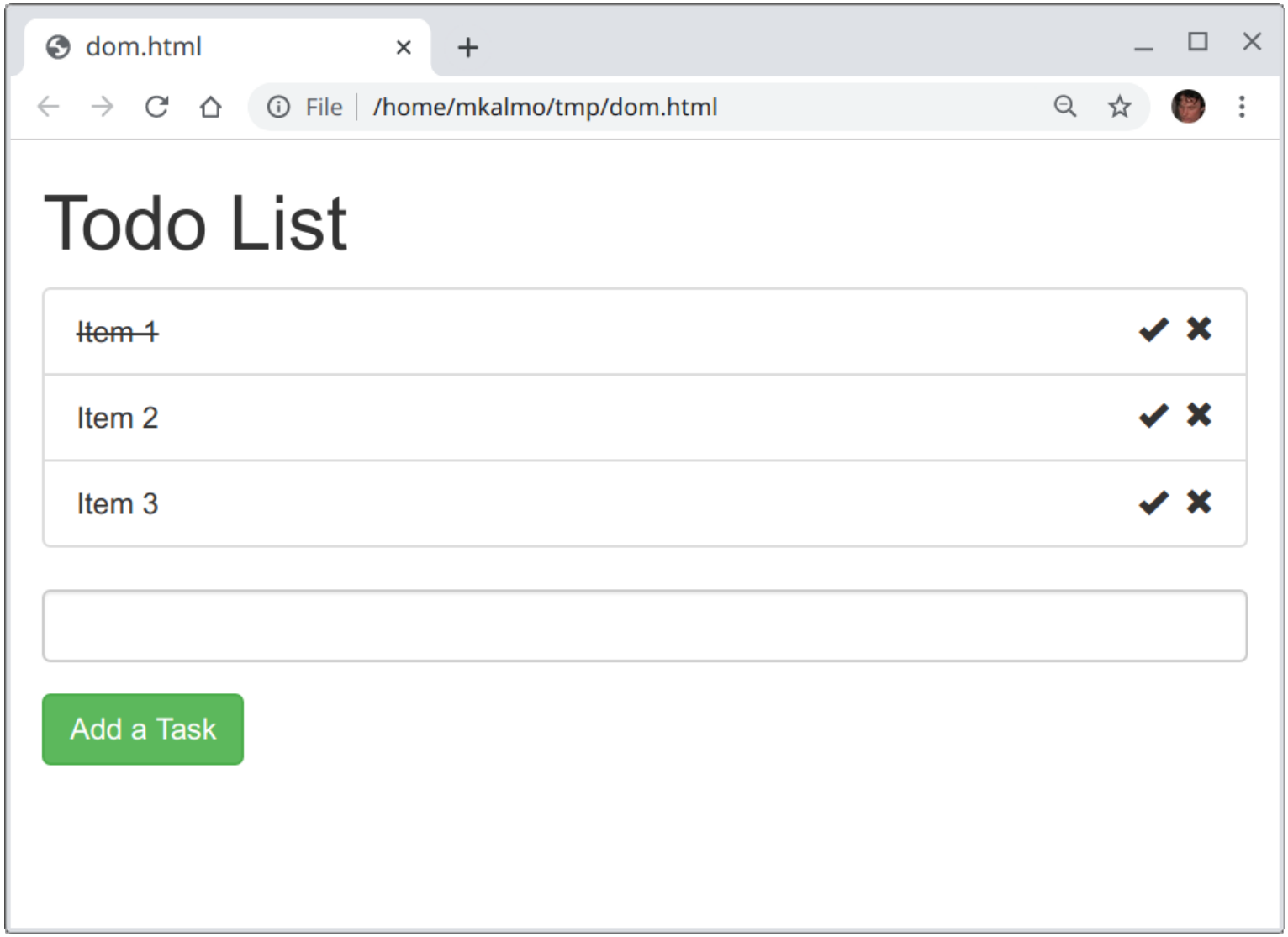
React

```
<script src="https://unpkg.com/...

...

<div id="root"></div>

<script>

    const li = React.createElement("li", {}, 'Item 1');
    const ul = React.createElement("ul", {}, li);

    ReactDOM.render(ul, document.getElementById('root'));

</script>

...
```

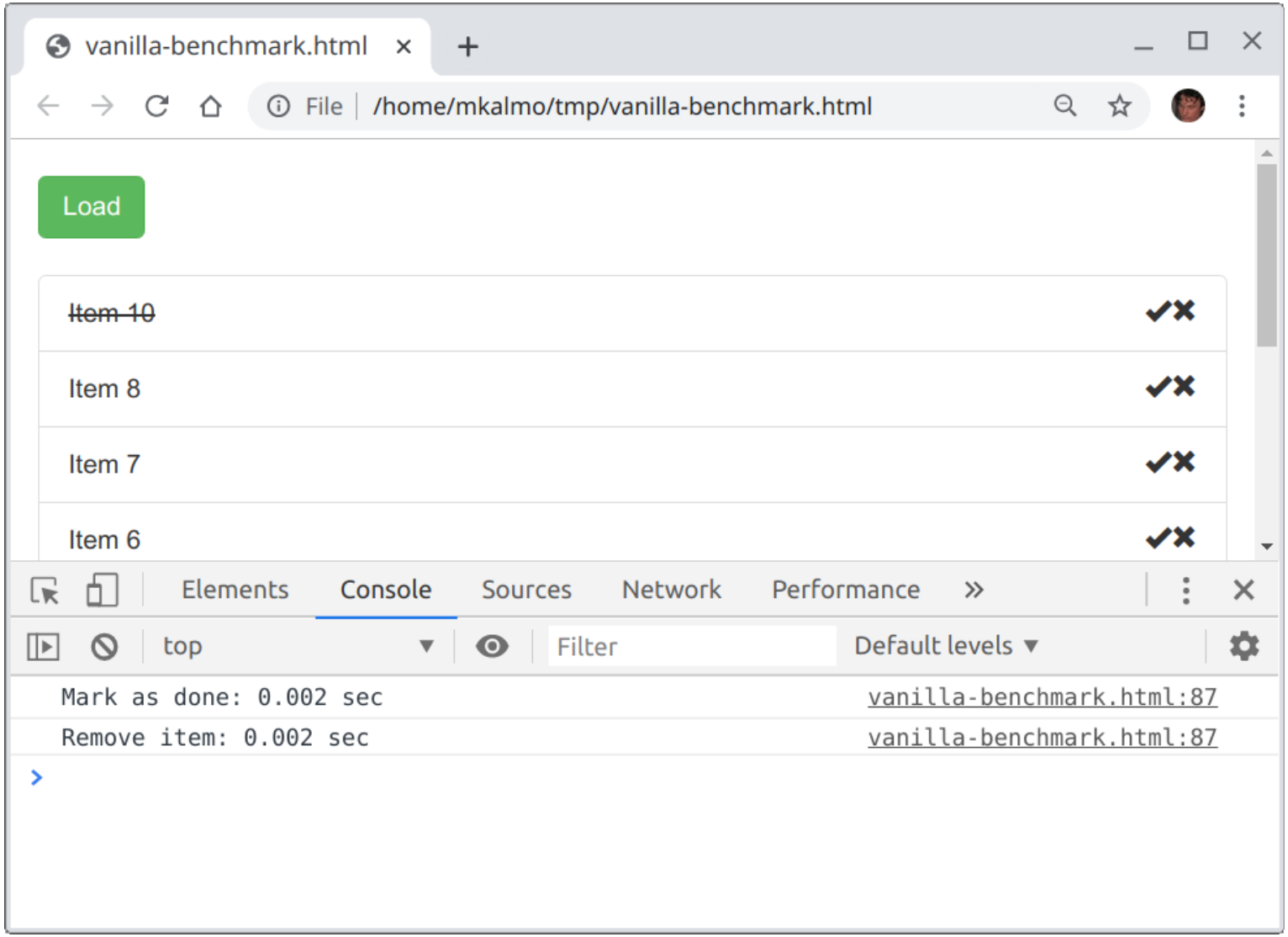
Muudatused (DOM + tagarakendus)



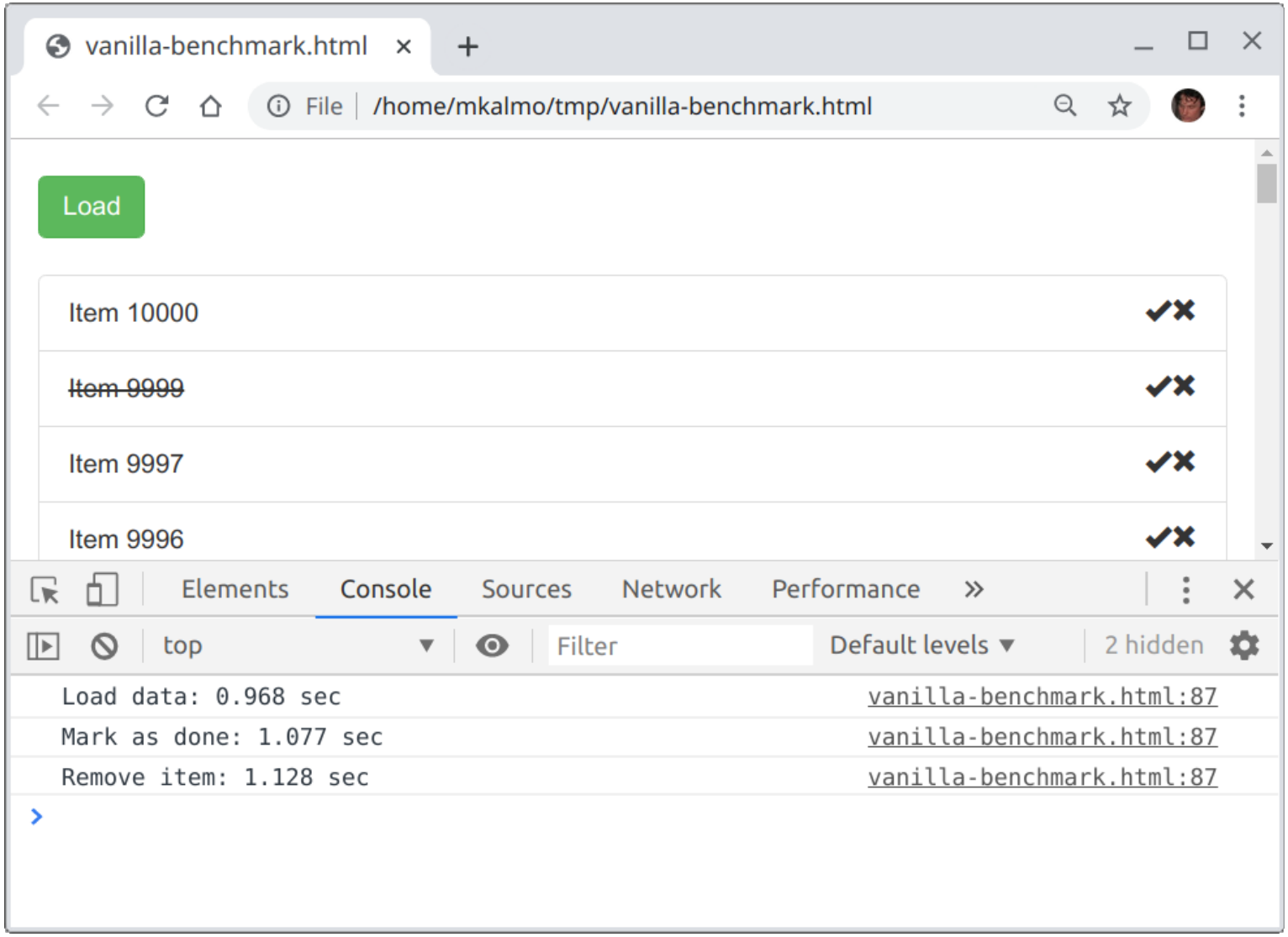
Virtual DOM


dom.html
File
/home/mkalmo/tmp/dom.html
Todo List
Item 1
Item 2
Item 3
Add a Task

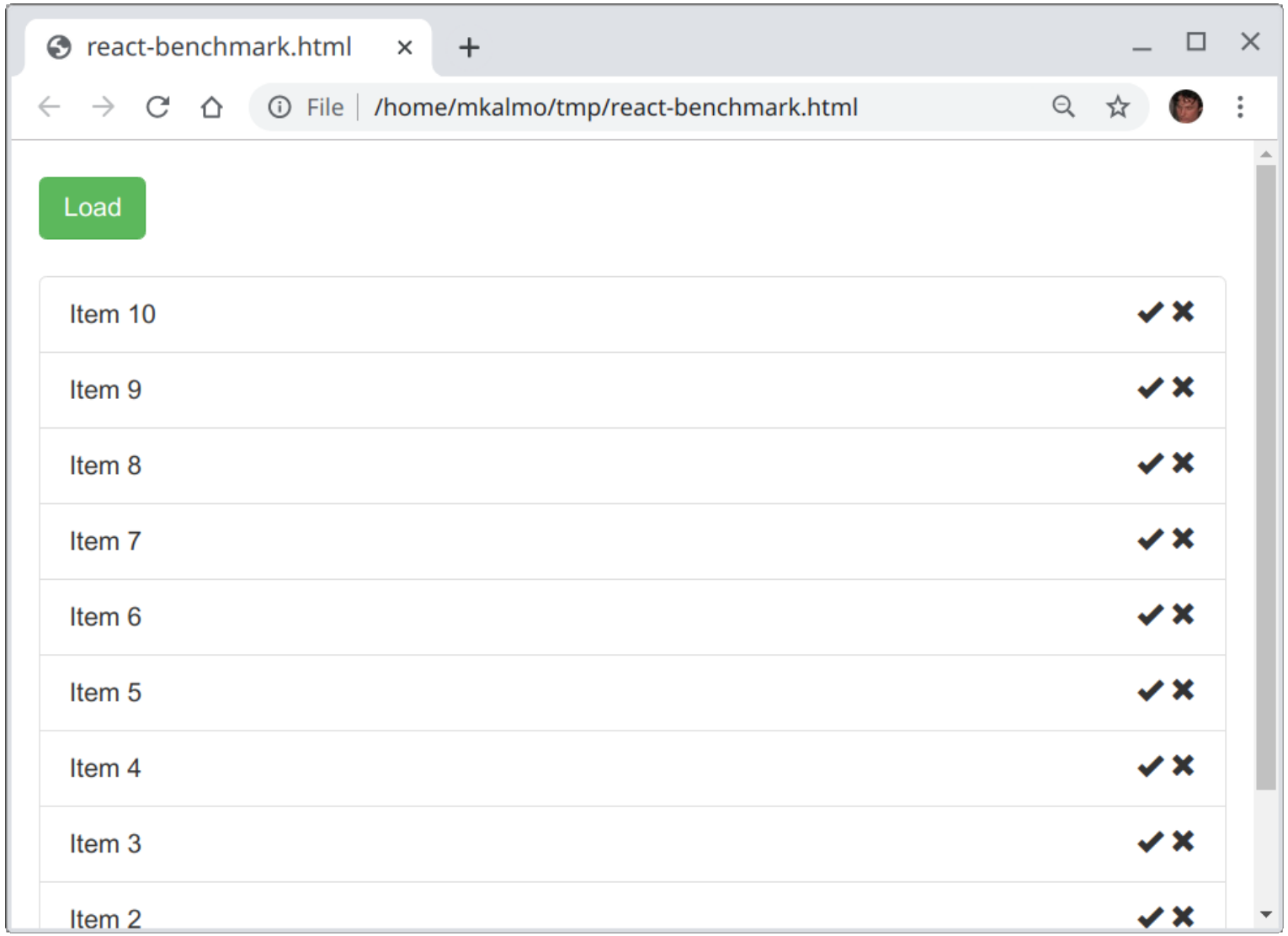
Päris DOM (benchmark)



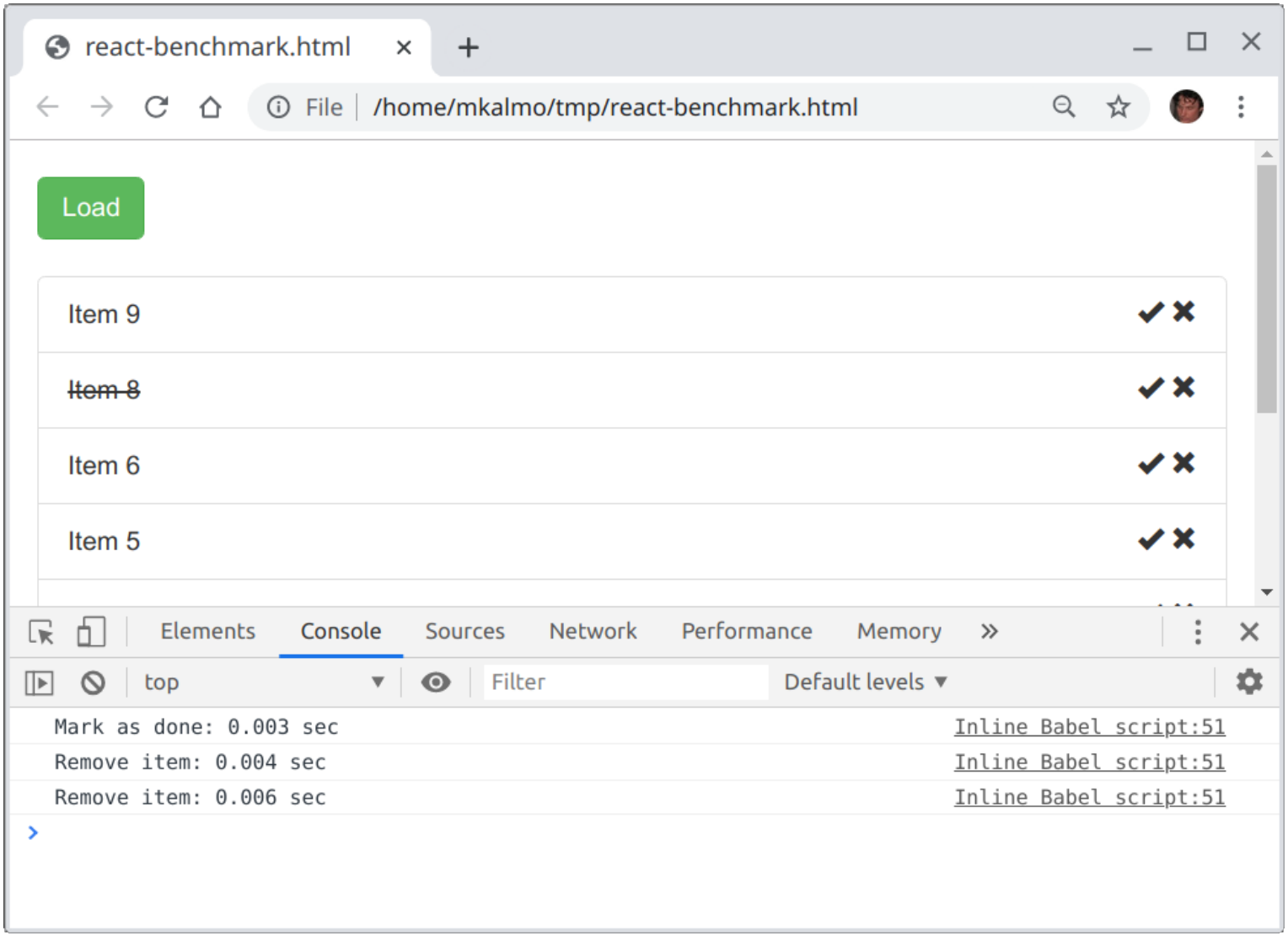
Päris DOM (benchmark)



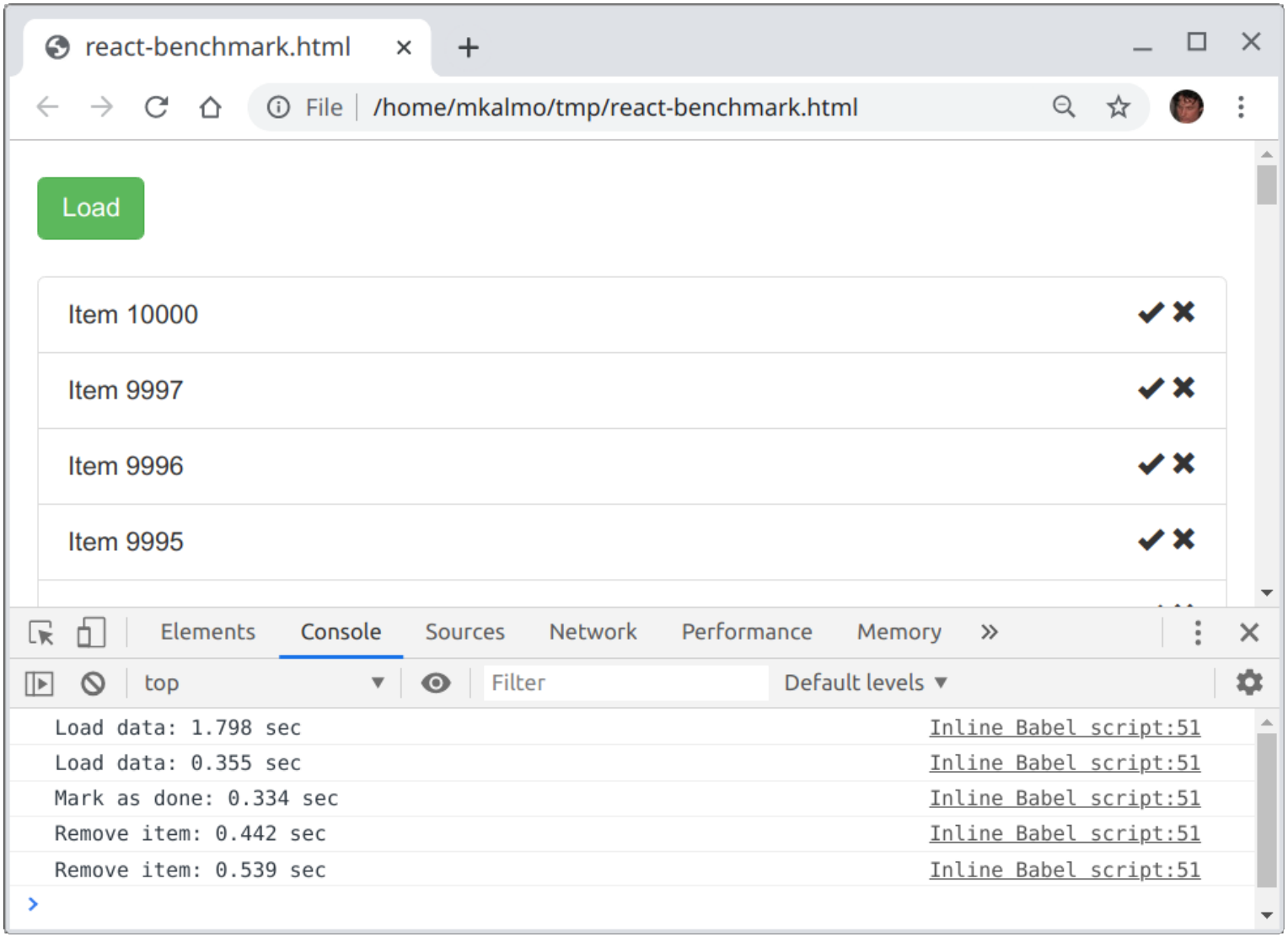
Virtual DOM (benchmark)



Virtual DOM (benchmark)



Virtual DOM (benchmark)



Reacti mallide keel (JSX)

```
<script src="https://unpkg.com/.../babel.js" ...

...

<div id="root"></div>

<script type="text/babel">

    const ul = <ul><li>Item 1</li></ul>;

    ReactDOM.render(ul, document.getElementById('root'));

</script>
```

Babel

Babel · The compiler for

babeljs.io/repl#?babili=false&browsers=&build=&builtIns=false&spec=false&loose=fal...

BABEL

Search

Docs Setup Try it out Videos Blog Donate Team GitHub

```
1 for (let i of [1, 2]) {
2     console.log(i);
3 }
4
```

```
1 "use strict";
2
3 for (var _i = 0, _arr = [1,
  2]; _i < _arr.length; _i++) {
4   var i = _arr[_i];
5   console.log(i);
6 }
```

Reacti mallide keel (JSX)

Babel · The compiler for

babeljs.io/repl#?babili=false&browsers=&build=&builtIns=false&spec=false&loose=false&code...

BABEL

Search

Docs Setup Try it out Videos Blog Donate Team GitHub

```
1 const ul = <ul><li>Item 1</li></ul>;
2
```

```
1 "use strict";
2
3 var ul = React.createElement("ul", null,
  React.createElement("li", null, "Item
  1"));
```

Reacti mallide keel (JSX)

```
...
<div id="root"></div>
<script type="text/babel">
    const ul = <div><br /></div>;
    ReactDOM.render(ul, document.getElementById('root'));
</script>
```

Reacti mallide keel (JSX)

```
...
<script type="text/babel">
    const name = 'Item 1';
    const ul = <ul><li>{ name }</li></ul>;
    ReactDOM.render(ul, document.getElementById('root'));
</script>
```

Reacti mallide keel (JSX)

```
...

<script type="text/babel">

    const items = [1, 2, 3];

    const ul = <ul>
                {
                    items.map(i => <li>Item { i }</li>)
                }
                </ul>;

    ReactDOM.render(ul, document.getElementById('root'));

</script>
```

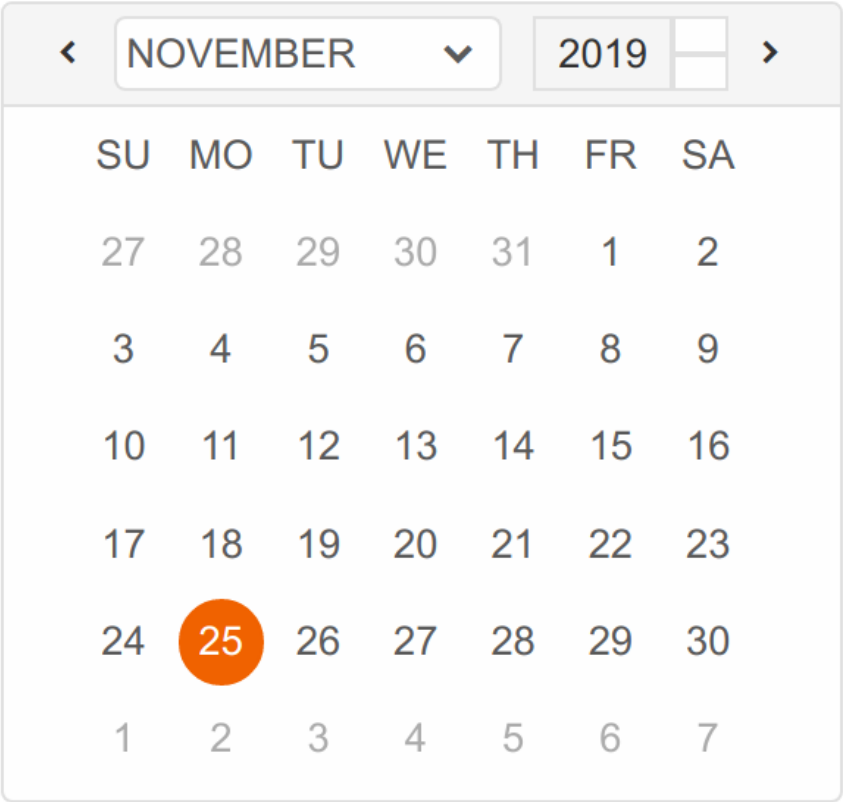
Reacti mallide keel (JSX)

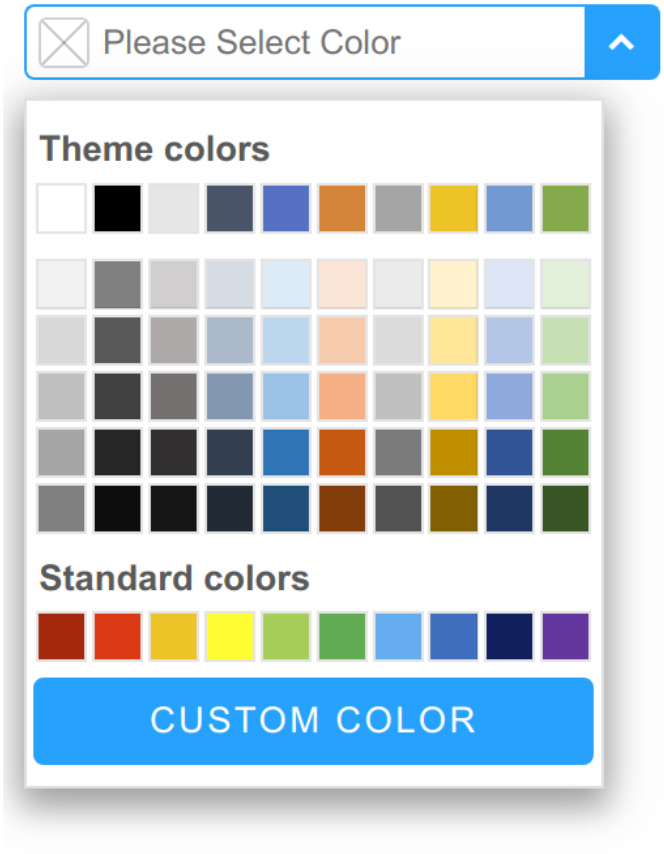
```
...

<script type="text/babel">

    const items = [1, 2, 3];

    const ul = <ul>
               {
                   getItems()
               }
               </ul>;

    ReactDOM.render(ul, document.getElementById('root'));

    function getItems() { ... }

</script>
```

React monoliit (näide)

Komponendid

- Html + Css + JavaScript





https://www.htmlelements.com/demos/

Komponendid

- https://developer.mozilla.org/en-US/docs/Web/Web_Components

Komponendid

```html
<!DOCTYPE html>
<html>
<head>
    <meta charset="utf-8">
    <title>Web Component Example</title>
    <script src="main.js" defer></script>
    <link href="main-style.css" rel="stylesheet">
</head>
<body>
<h1>Web Component Example</h1>

<my-component data-text="Sample text"/>

</body>
</html>
```

Komponendid

- Angular, React, Vue, ...

Komponendid Reactis

```
const content = <div>
                    ...
                    <Calendar date={ new Date() } />
                    ...
                </div>;

ReactDOM.render(content, document.getElementById('root'));
```

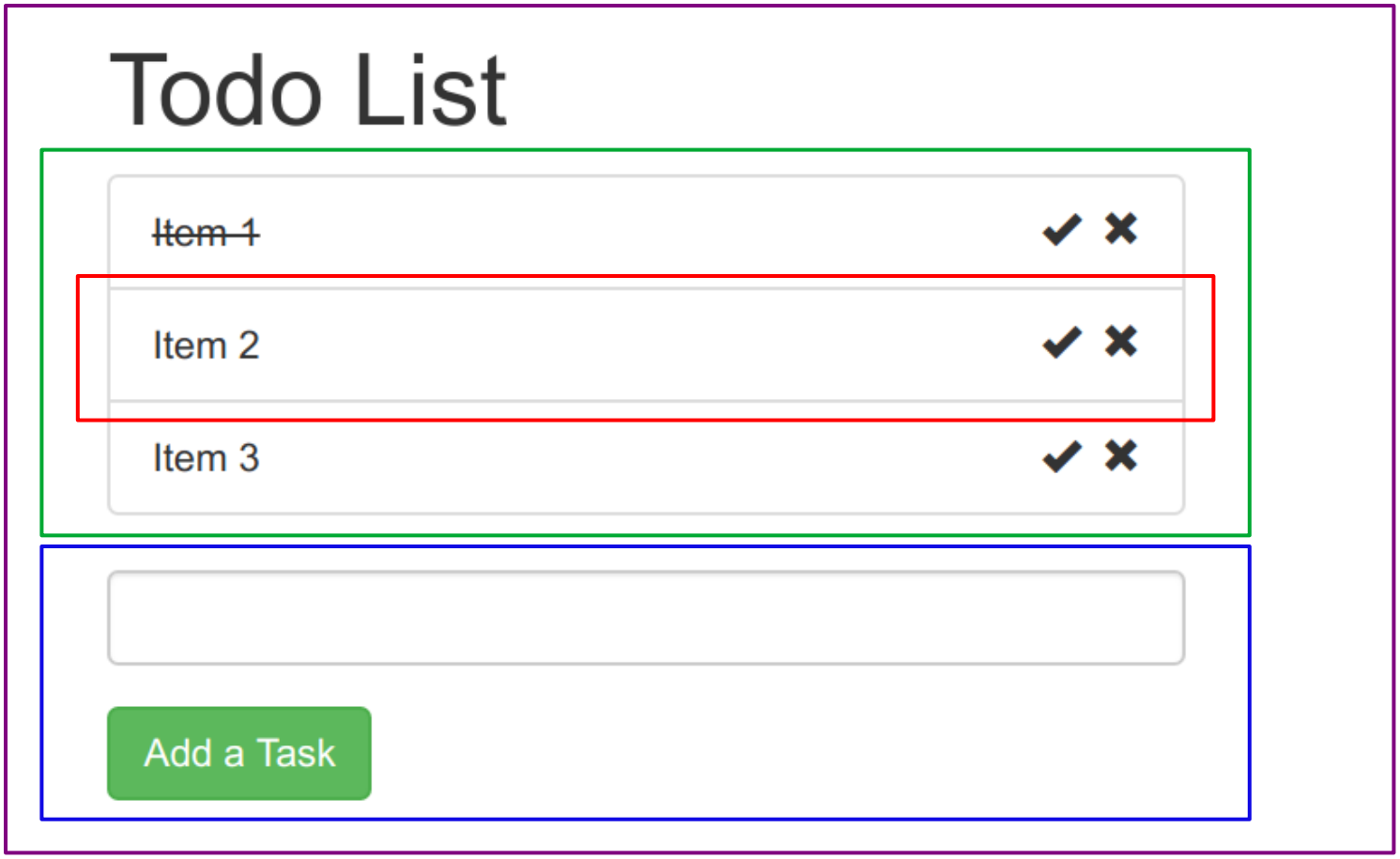
Analoogia

- Monoliitne Java rakendus kasutab ArrayList-i
- Nt. kalendri komponendi kasutamine

Analoogia

- Objektorienteeritult kirjutatud rakendus
- Kogu rakenduse komponentideks jagamine

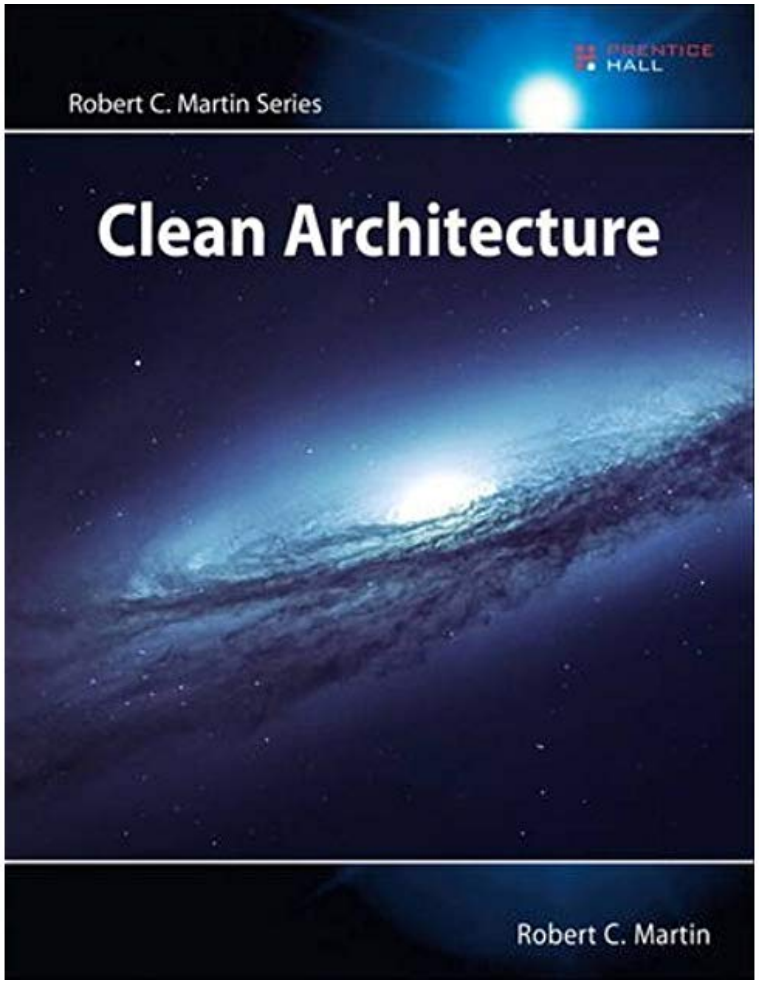
Komponendid



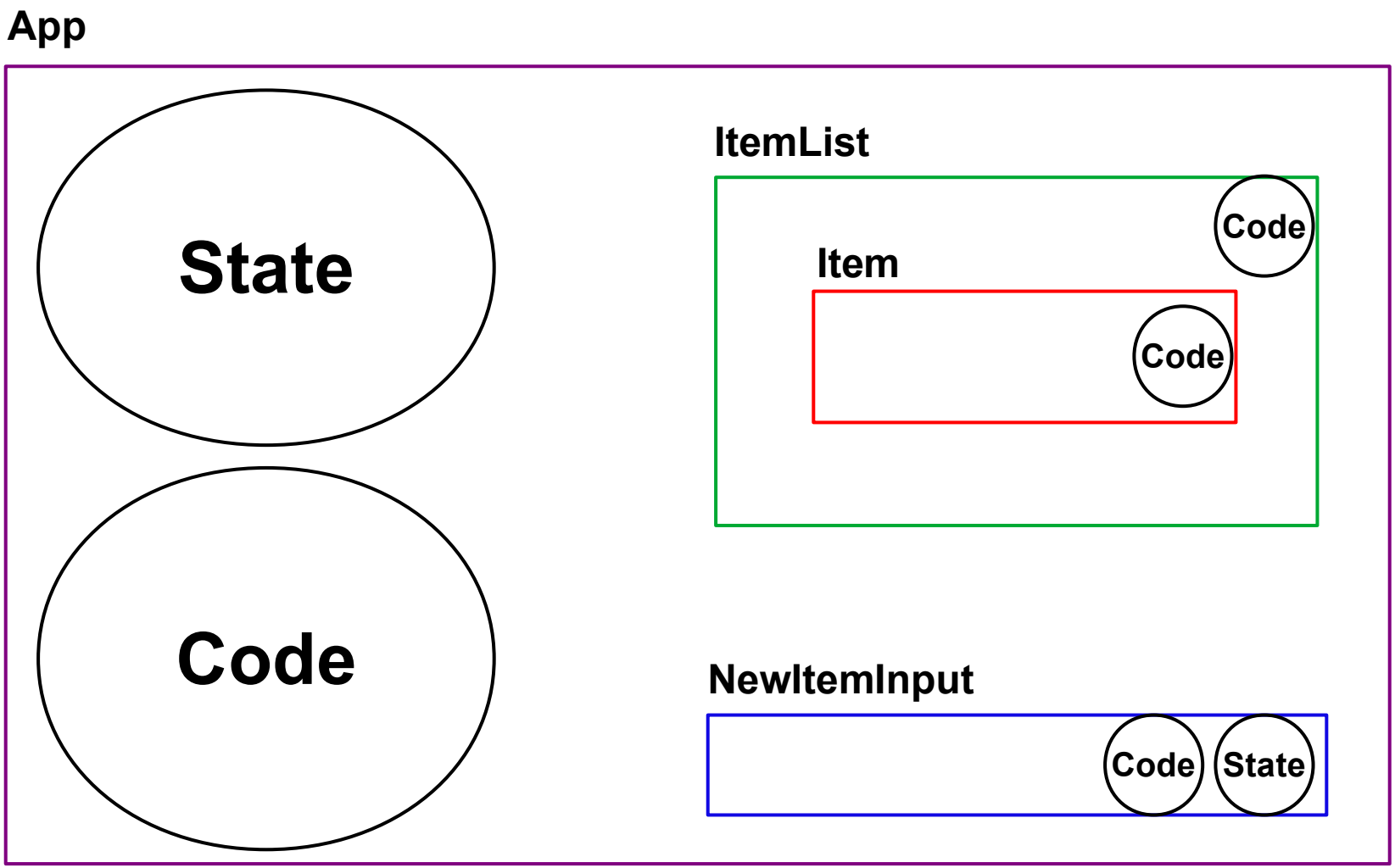
Komponendid

- Loogika jagamine komponentide vahel
- Seosed ja sõltuvused
- Suhtlus komponentide vahel

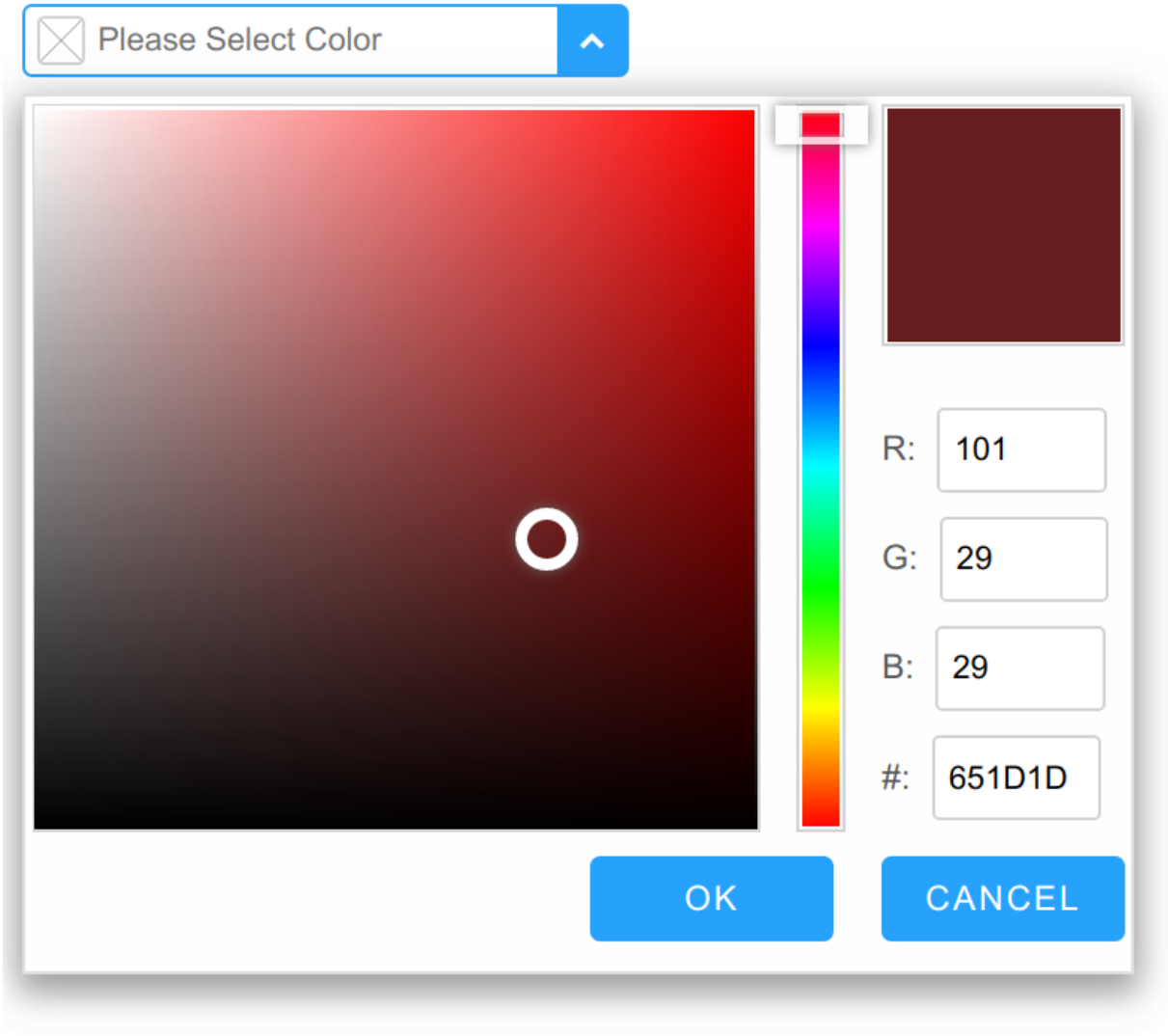
Analoogia: seosed ja sõltuvused



Komponentide seosed ja sõltuvused



Komponendi olek



Reacti rakendus komponentidega (näide)

Tööriistad

- Translaator (nt. JSX)
- Paketeerija
- Hot Swap
- ...

Paketeerija

```
import React, {Component} from 'react';
import Http from './Http';

import ItemList from "./ItemList";
import ItemInput from "./ItemInput";

class TodoApp extends Component { ...
```

Tööriistad

- npx create-react-app <app name>

Kaitsmised

Eksami teemad

- Servlet
- Projekti ehitamine
- Jdbc
- Spring Core
- Spring Mvc
- Jpa
- Spring Security