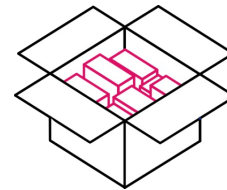


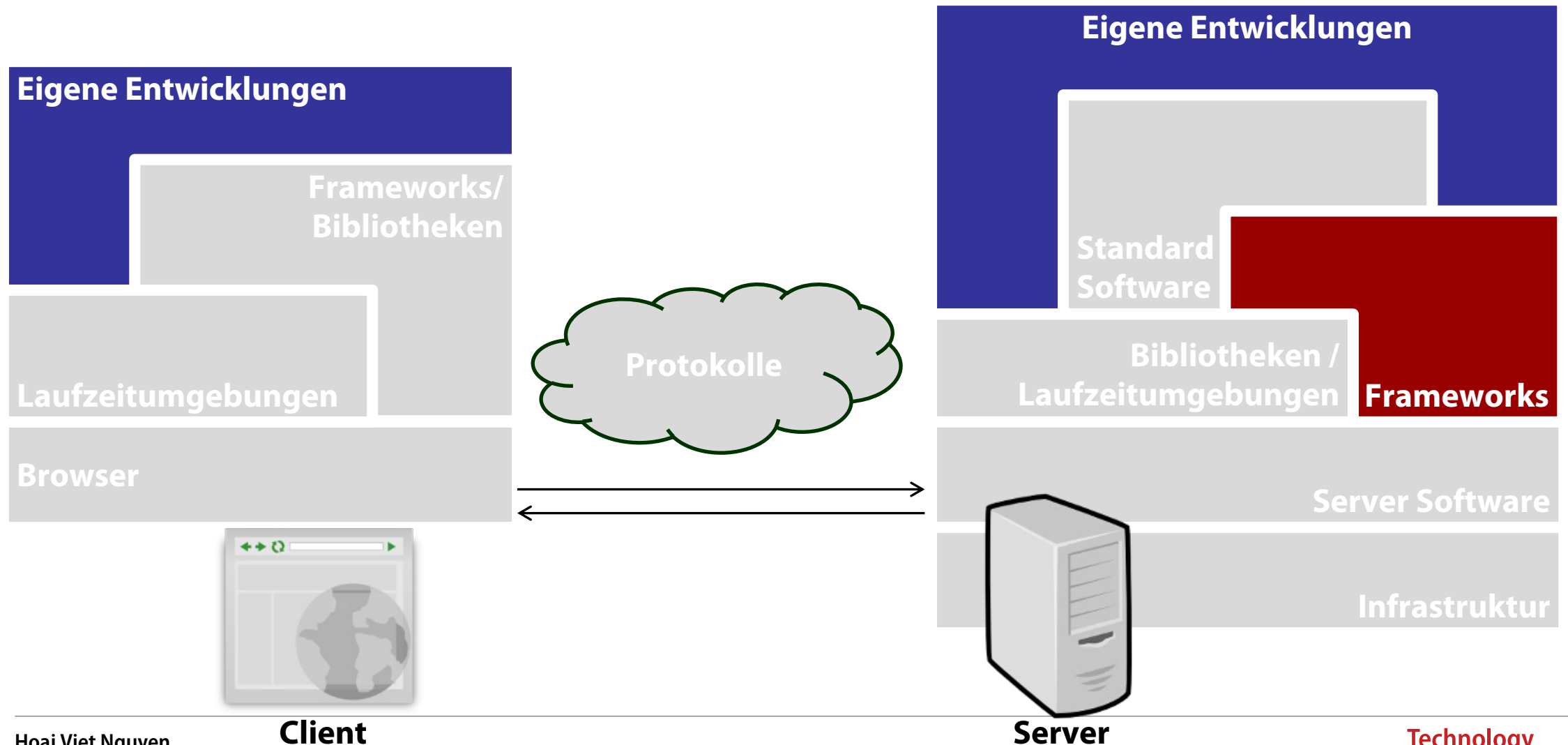
Template Engines

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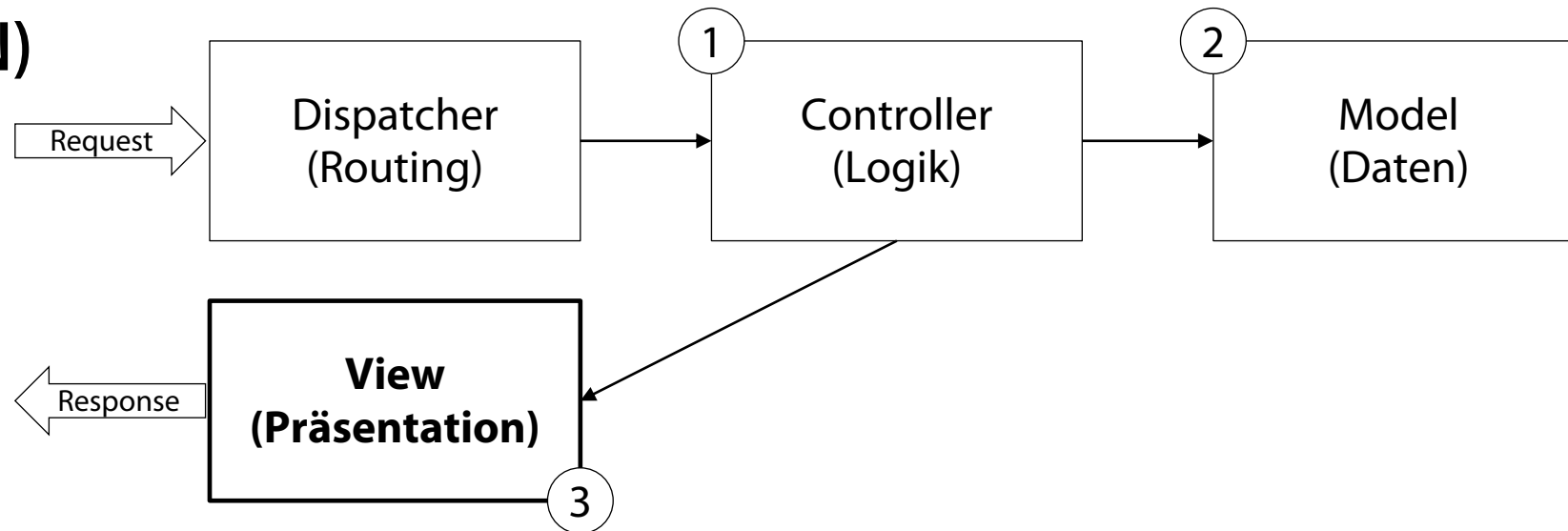


Struktur des Themengebietes



View

- Gibt die Daten in geeignete/angefragter Repräsentation aus. Daten können verschiedene Repräsentationen haben (z.B. HTML, XML oder JSON)



Wie kann ich dynamische HTML-Inhalte generieren?



Template Engines

- **Zuständig für serverseitige Generierung dynamischer HTML-Inhalte**
- **Beinhalten Kontroll- und Datenstrukturen**
 - For-Schleifen
 - If-Bedingungen
 - Switch Case
 - Arrays
 - Variablen
 - ...
- **Variablen aus Controller können in Templates übertragen und ausgegeben werden**

Verfügbare Template Engines (Auszug)

- Spring
 - Thymeleaf
 - Apache Freemarker
 - Mustache
 - Java Server Pages (JSP)
 - Groovy
- Express.js
 - Jade
 - Pug
 - EJS
- Ruby on Rails
 - ERB
 - HAML
 - Slim
- Twig für Symfony
- Django Template Engine

Übergabe einer Variable im Controller in die View

```
import org.springframework.stereotype.Controller
import org.springframework.ui.Model
import org.springframework.web.bind.annotation.*

@Controller
class DemoController {

    @GetMapping("/greetings")
    fun greetings(name : String, model: Model) : String {
        model.addAttribute("name", name)
        return "demo/greeting"
    }

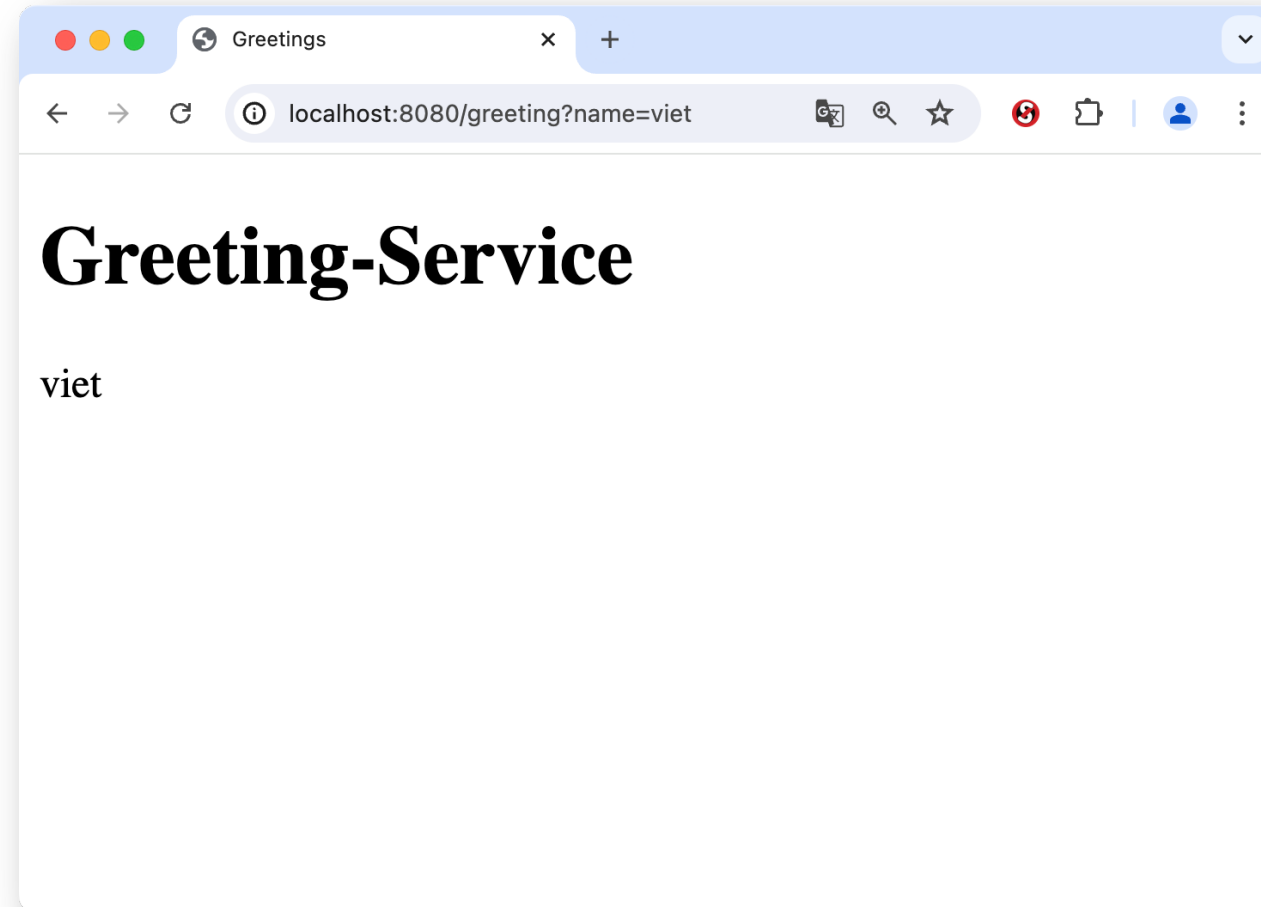
}
```

DemoController.kt

```
<!doctype html>
<html lang="en">
    <head>
        <title>Greetings</title>
    </head>
    <body>
        <h1>Greeting-Service</h1>
        Hallo ${name}
    </body>
</html>
```

demo/greeting.ftlh

Darstellung im Browser



Übergabe eines Objektes im Controller in die View

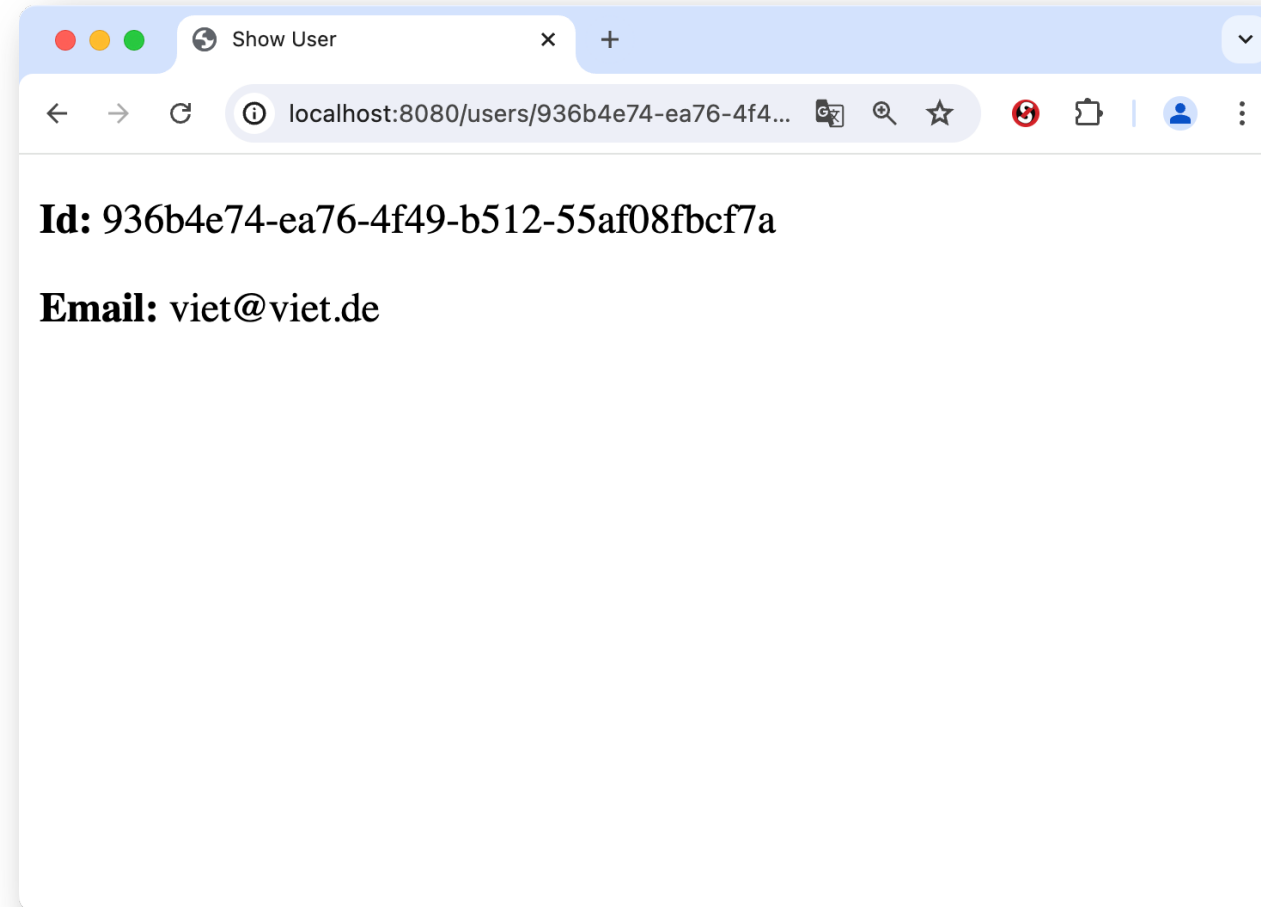
```
@GetMapping("/users/{id}")
fun getUserById(@PathVariable("id") id: UUID, model: Model): String
{
    val user : User? = userService.findById(id)
    model.addAttribute("user", user)
    return "users/showUser"
}
```

UserController.kt

```
<!doctype html>
<html lang="en">
  <head>
    <title>Show User</title>
  </head>
  <body>
    <p><b>Id:</b> ${user.id}</p>
    <p><b>Email:</b> ${user.email}</p>
  </body>
</html>
```

users/showUser.ftlh

Darstellung im Browser



Übergabe einer Liste im Controller in die View

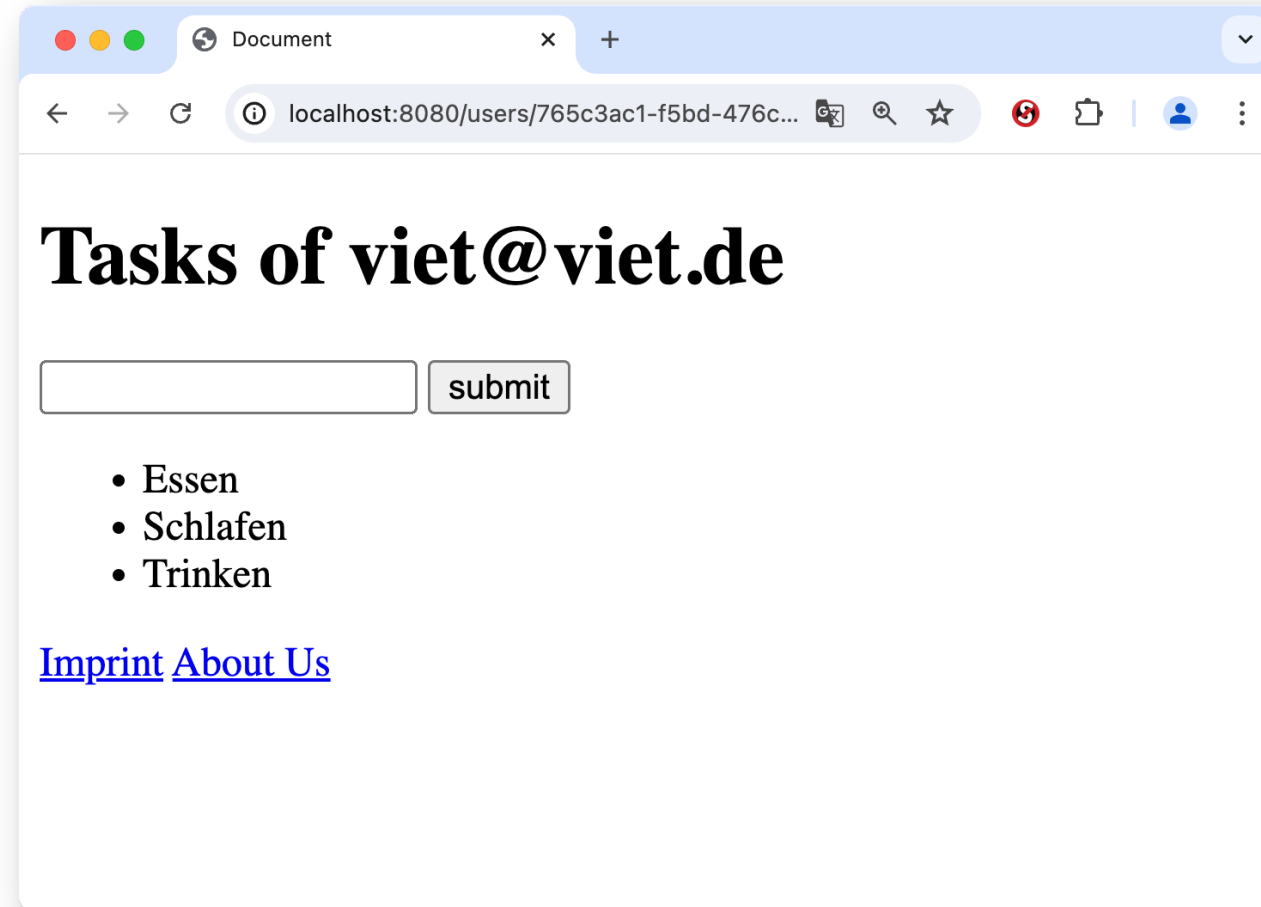
```
@GetMapping("/users/{userId}/tasks")
fun getAllTasksByUser(@PathVariable userId: UUID, model: Model):
String {
    val user = userService.findById(userId)
    if(user != null) {
        val tasks = tasksService.getAllByUser(user)
        model.addAttribute("tasks", tasks)
        model.addAttribute("user", user)
        return "tasks/tasks"
    } else {
        throw ResponseStatusException(HttpStatus.BAD_REQUEST)
    }
}
```

TasksController.kt

```
...
<h1>Tasks of ${user.email}</h1>
<form action="/users/${user.id}/tasks" method="post">
    <input type="text" name="name">
    <input type="submit" value="submit">
</form>
<ul>
<#list tasks as task>
    <#if task.open>
        <li>${task.name}</li>
    </#if>
</#list>
</ul>
...
```

task/tasks.ftlh

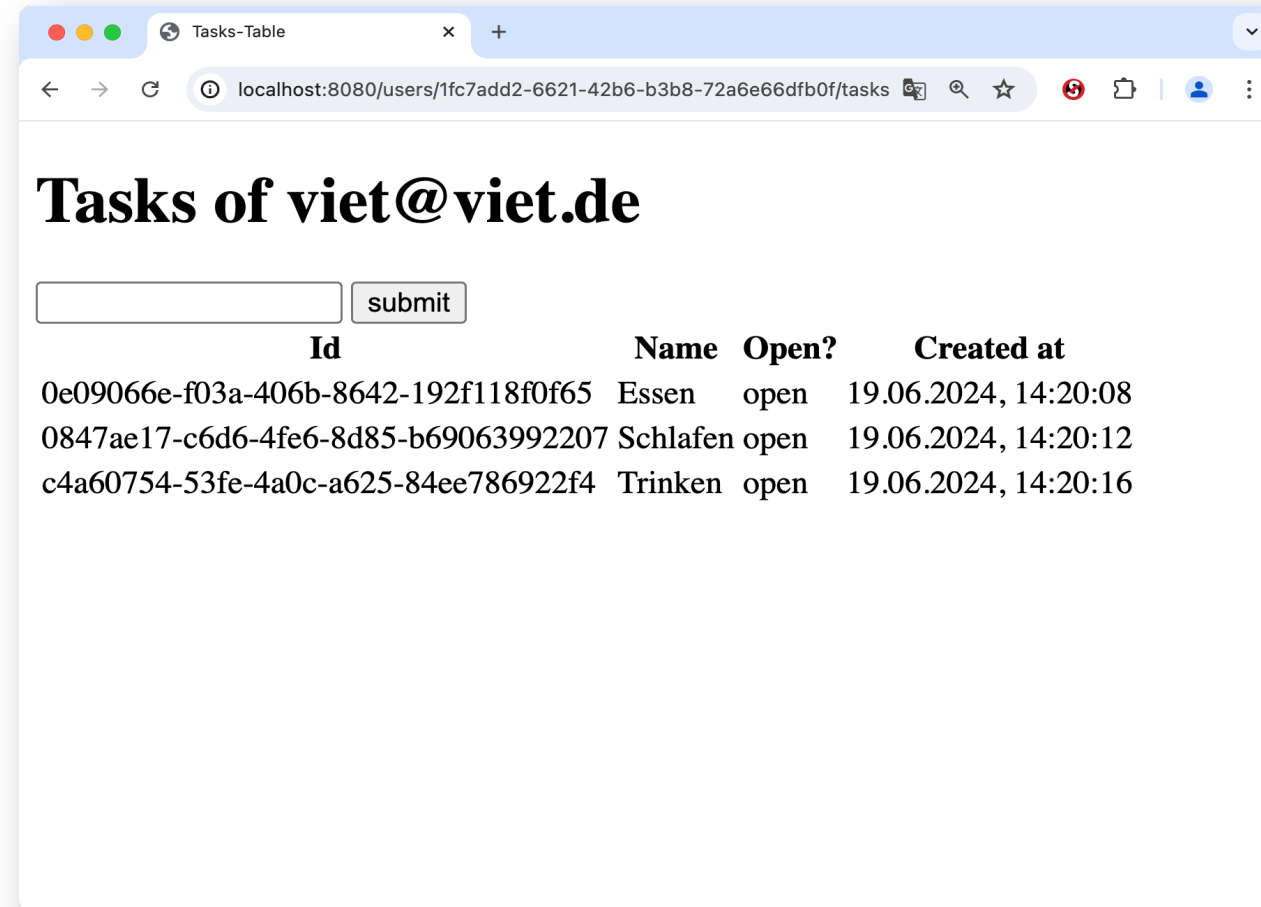
Darstellung im Browser



Ausgabe einer Liste in der View als Tabelle

```
<table>
  <thead>
    <tr>
      <th>Id</th>
      <th>Name</th>
      <th>Open?</th>
      <th>Created at</th>
    </tr>
  </thead>
  <tbody>
    <#list tasks as task>
      <tr>
        <td>${task.id}</td>
        <td>${task.name} </td>
        <td>${task.open?string}</td>
        <td>${task.createdAt}</td>
      </tr>
    </#list>
  </tbody>
</table>
```

Darstellung im Browser



Template-Vererbung in Freemarker

```
<#macro layout>
<!doctype html>
<html lang="en">
  <head>
    <title>Document</title>
  </head>
  <body>
    <header>
      
    </header>
    <hr>
    <main>
      <#nested>
    </main>
    <hr>
    <footer>
      <a href="#">Imprint</a>
      <a href="#">About Us</a>
    </footer>
  </body>
</html>
</#macro>
```

```
<#import "../layout.ftlh" as base>
<@base.layout>
  <h1>Tasks of ${user.email}</h1>
  <form action="/users/${user.id}/tasks" method="post">
    <input type="text" name="name">
    <input type="submit" value="submit">
  </form>
  <ul>
    <#list tasks as task>
      <#if task.open>
        <li>${task.name}</li>
      </#if>
    </#list>
  </ul>
</@base.layout>
```

```
<#import "layout.ftlh" as base>
<@base.layout>
  <h1>Welcome!</h1>
  <form method="post" action="/users">
    <input type="email" name="email">
    <input type="submit" value="create">
  </form>
  <h2>Users</h2>
  <ul>
    <#list users as user>
      <li>
        <a href="/users/${user.id}/tasks">${user.email}</a>
      </li>
    </#list>
  </ul>
</@base.layout>
```