

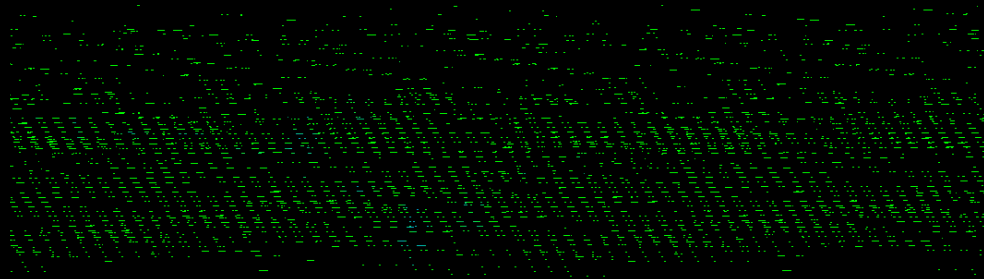
vaadin}>

# Your Backend Deserves a Face

Building Modern UIs with Java only



Sebastian Kuehnau  
Vaadin Enthusiast



Disclaimer

# Who is talking?

## Sebastian Kühnau

+20y in web- & java development

~10y at Vaadin

several technical roles

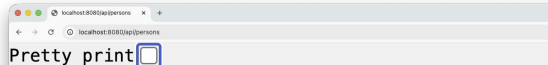
now developer advocate

Off-work mostly outdoors;



Log Files and Terminals are not a User Experience

# Flying Blind



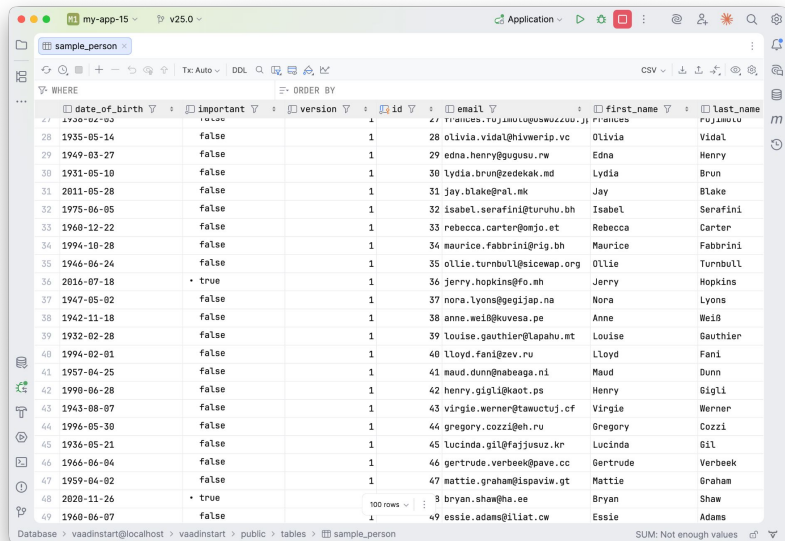
```
[[{"dateOfBirth":"1956-02-16","email":"eula.lane@jigormo.ye","firstName":"Eula","id":"1","important":false,"lastName":"Lane","occupation":"Insurance Clerk","phone":"(762) 526-5961","role":"Worker","skills":[{"id":1001,"name":"Spring","version":1}, {"id":1002,"name":"Java","version":1}, {"id":1003,"name":"AWS","version":1}, {"id":1004,"name":"Kubernetes","version":1}], "version":1}, {"dateOfBirth":"2015-02-16","email":"barry.rodriquez@zun.mm","firstName":"Barry","id":"2","important":false,"lastName":"Rodriquez","occupation":"Mortarm an","phone":"(267) 955-5124","role":"Manager","skills":[{"id":1005,"name":"Docker","version":1}, {"id":1006,"name":"SQL","version":1}], "version":1}, {"dateOfBirth":"1975-02-01","email":"eugenia.selvi@capfad.vn","firstName":"Eugenia","id":"3","important":false,"lastName":"Selvi","occupation":"Beer
```

id	version	date_of_birth	email	first_name	important	last_name	occupation
1	1	1956-02-16	eula.lane@jigormo.ye	Eula	f	Lane	Insurance Clerk
8	12783	2011-11-26	gene.goodman@com.tl	Gene	f	Goodman	Medical Communicator
18	35	1947-12-28	mabel.leach@lshoju.evi	Mildred	f	Leach	Food Chemist
14	7	2018-09-19	garrett.stokes@fer.bg	Mildred	f	Stokes	Bandry Machine Oper
13	8	1959-12-49	ross.gray@nba.hr	Mildred	f	Gray	Militia Driver
12	5	1944-12-49	marie.parkes@nowafup.ph	Mildred	f	Parkes	Language Pathologist
19	16219	1991-09-16	barbara.mathis@eodero@jg.in	Mildred	f	Mathis	Instructional Aid
3	1961-07-22	jean.rodriguez@yowbo.wy	Barry	f	Holmes	Podiatrist	
3	1976-12-18	jack.romel@zammub.wy	Jack	f	Romell	Clinical Psychiatrist	
3	1951-06-35	pearl.holmes@yowbo.wy	Barry	f	Holmes	Pod Buxer Helper	
3	1934-05-48	belie.montero@replwid.si	Barry	f	Montero	Classroom Aide	
3	1938-11-18	olive.mollina@kazuppa.se	Barry	f	Mollina	Traditional Chinese	
3	1997-06-28	ninaeva.tod@nawho.na	Barry	f	Tod	Electronic Drafter	
3	2015-09-12	bobby.pearson@ib.kg	Barry	t	Pearson	Vault Teller	
3	1997-09-28	larry.claudio@ra.kk	Barry	f	Clappi	Fire Sprinkler Insta	
3	1976-06-41	ronnie.salucci@lucchi.lv	Barry	f	Salucci	Brewery Pump	
3	1989-05-28	walter.grossi@ruvo.se	Barry	f	Grossi	Kitchen Chef	
3	1968-07-11	frances.koomans@fogta.tz	Barry	f	Koomans	Medical Esthetician	
3	1937-12-15	frances.fujimoto@owuzub.jp	Barry	f	Fujimoto	Auto Tire Worker	
3	1938-03-25	olivia.vidal@iwirw.vc	Barry	f	Vidal	Semi-Truck Driver	
3	1967-07-28	edney.yepu@nawho.na	Barry	f	Clappi	Fire Sprinkler Insta	
3	1931-03-21	lydia.brun@zeekak.nd	Barry	f	Brun	Drywall Hanger	
3	1931-06-48	jeff.blake@edk.com	Barry	f	Blake	Real Property Evalua	
3	1975-06-16	isabel.serfaffi@turubu.hk	Barry	f	Serfaffi	Human Performance Pr	
3	1968-11-42	rebecca.carter@omjo.et	Barry	f	Carter	VSTOL Landing Signa	
3	1909-09-48	maurice.fabrizi@rdg.tz	Barry	f	Fabrizi	Air Control Anti-Air	
3	1946-06-45	ollie.turnbull@silicewap.org	Barry	f	Turnbull	General Superintende	
3	2016-06-29	jeremy.hopkins@nfo.na	Barry	f	Hopkins	Child Protective Ser	
3	1947-03-13	nora.lyons@opajp.na	Barry	f	Lyons	Loos Grinder and Pol	
3	1942-09-29	anne.walib@kuwasa.pe	Barry	f	Walib	Civil Engineering Pr	
3	1952-01-19	louise.owthi@ic@nawho.et	Barry	f	Quatier	Mobile Home Service	
3					Fani	Floor Refinisher	
3					Rigili	Tile Designer	
3					Werner	Economics Profess	
3					Cozzi	Basketball Player	
3					Silvia	Directec Fire Infrnt	
3					Jraham	Antisubmarine Warfa	
3					Jdams	Research Assistant	
3					Jdams	Cigar Roller	
3					DeBorne	Customer Support Rep	
3					Programmer	Programmer	
3					Wastelli	Global Engineering M	
3					Alton	Telegraph and Telcyl	
3					Lordano	Hairpiece Stylist	



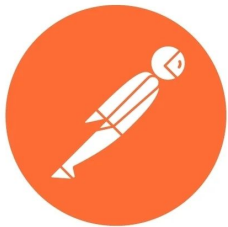
Query Browsers and API Platforms are not a User Experience

# Flying Blind



The screenshot shows a web application interface for a query browser. The table displays the following data:

id	date_of_birth	important	version	email	first_name	last_name
27	1930-02-02	false	1	frances.rujamucuguswozoo.jj.frances	frances	rujamuco
28	1935-05-14	false	1	28 olivia.vida@hiwerip.vc	Olivia	Vidal
29	1949-03-27	false	1	29 edna.henry@gugusu.rw	Edna	Henry
30	1931-05-10	false	1	30 lydia.brun@zedekak.md	Lydia	Brun
31	2011-05-28	false	1	31 jay.blake@ra1.mk	Jay	Blake
32	1975-06-05	false	1	32 isabel.serafini@turuhu.bh	Isabel	Serafini
33	1960-12-22	false	1	33 rebecca.carter@omjo.et	Rebecca	Carter
34	1994-10-28	false	1	34 maurice.fabbrini@ig.bh	Maurice	Fabbrini
35	1946-06-24	false	1	35 ollie.turnbull@sicewap.org	Ollie	Turnbull
36	2016-07-18	true	1	36 jerry.hopkins@fo.mh	Jerry	Hopkins
37	1947-05-02	false	1	37 nora.lyons@gegijap.na	Nora	Lyons
38	1942-11-18	false	1	38 anne.we18kuvesa.pe	Anne	We18
39	1932-02-28	false	1	39 louise.gauthier@lapahu.mt	Louise	Gauthier
40	1994-02-01	false	1	40 lloyd.fani@zev.ru	Lloyd	Fani
41	1957-04-25	false	1	41 maud.dunn@habeaga.ni	Maud	Dunn
42	1990-06-28	false	1	42 henry.gigli@koot.ps	Henry	Gigli
43	1943-08-07	false	1	43 virgie.werner@tawuctj.cf	Virgie	Werner
44	1996-05-30	false	1	44 gregory.cozzi@eh.ru	Gregory	Cozzi
45	1936-05-21	false	1	45 lucinda.gil@fajjusuz.kr	Lucinda	Gil
46	1966-06-04	false	1	46 gertrude.verbeek@pave.cc	Gertrude	Verbeek
47	1959-04-02	false	1	47 mottie.graham@ispaviv.gt	Mattie	Graham
48	2020-11-26	true	3	bryan.shaw@ha.ee	Bryan	Shaw
49	1960-06-07	false	1	49 essie.adams@l1iat.cw	Essie	Adams



POSTMAN

I Have 99 Problems and NPM are 98 of Them

# Context Switch



- new Tech Stack & Environments
- other Paradigms (OOP/Reactive)
- REST plumbing
- String Based Development

HTML

```
<!DOCTYPE html>
<html xmlns:wicket="http://wicket.apache.org">
<head>
  <meta charset="UTF-8">
  <title>User Card</title>
</head>
<body>
  <wicket:panel>
    <div class="user-card">
      <h2 wicket:id="username">Max Mustermann</h2>
      <p>Status: <span wicket:id="status">Aktiv</span></p>
      <button wicket:id="actionButton">Profil aufrufen</button>
    </div>
    <ul class="tags">
      <li wicket:id="tagList">
        <span wicket:id="tagName">Java</span>
      </li>
    </ul>
  </wicket:panel>
</body>
</html>
```

Building Web Apps with Java only

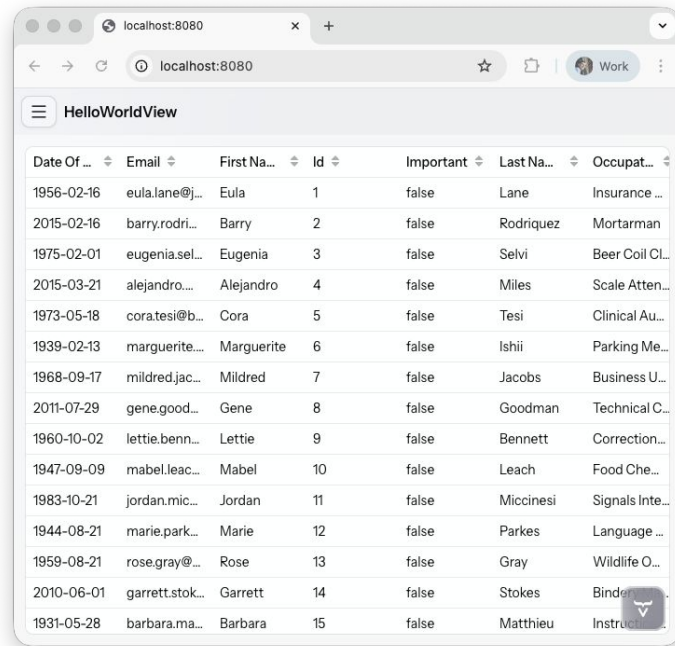
# Vaadin

```
@Route(value = "")
public class HelloWorldView extends HorizontalLayout {

    public HelloWorldView(PersonRepository repository) {

        var grid = new Grid<>(Person.class);
        grid.setItems(repository.findAll());

        add(grid);
    }
}
```



A screenshot of a web browser window displaying a table of person data. The browser address bar shows 'localhost:8080'. The page title is 'HelloWorldView'. The table has columns for Date Of Birth, Email, First Name, Id, Important, Last Name, and Occupation. The data is as follows:

Date Of ...	Email	First Na...	Id	Important	Last Na...	Occupat...
1956-02-16	eula.lane@j...	Eula	1	false	Lane	Insurance ...
2015-02-16	barry.rodri...	Barry	2	false	Rodriquez	Mortarman
1975-02-01	eugenia.sel...	Eugenia	3	false	Selvi	Beer Coil CL...
2015-03-21	alejandro....	Alejandro	4	false	Miles	Scale Atten...
1973-05-18	cora.tesi@b...	Cora	5	false	Tesi	Clinical Au...
1939-02-13	marguerite...	Marguerite	6	false	Ishii	Parking Me...
1968-09-17	mildred.jac...	Mildred	7	false	Jacobs	Business U...
2011-07-29	gene.good...	Gene	8	false	Goodman	Technical C...
1960-10-02	lettie.benn...	Lettie	9	false	Bennett	Correction...
1947-09-09	mabel.leac...	Mabel	10	false	Leach	Food Che...
1983-10-21	jordan.mic...	Jordan	11	false	Miccinesi	Signals Inte...
1944-08-21	marie.park...	Marie	12	false	Parkes	Language ...
1959-08-21	rose.gray@...	Rose	13	false	Gray	Wildlife O...
2010-06-01	garrett.stok...	Garrett	14	false	Stokes	Bind...
1931-05-28	barbara.ma...	Barbara	15	false	Matthieu	Instru...

..., but how does  
my **Java** code get  
to the **Browser** ?



# Architecture

```
▼ <vaadin-horizontal-layout theme="spacing" has-st  
  ▶ #shadow-root (open)  
  ▶ <vaadin-text-field placeholder="Your name">@  
  ▶ <vaadin-button tabindex="0" role="button" last  
</vaadin-horizontal-layout>
```

*Vaadin UI Components*  
*Web Components*

```
var name = new TextField("Your name");  
var button = new Button("Say hello", event ->  
  Notification.show("Hello " + name.getValue()));  
add(new HorizontalLayout(name, button));
```

# Architecture

```
▼ <vaadin-horizontal-layout theme="spacing" has-st
  ▶ #shadow-root (open)
  ▶ <vaadin-text-field placeholder="Your name">@
  ▶ <vaadin-button tabindex="0" role="button" last
</vaadin-horizontal-layout>
```

*Vaadin UI Components  
Web Components*

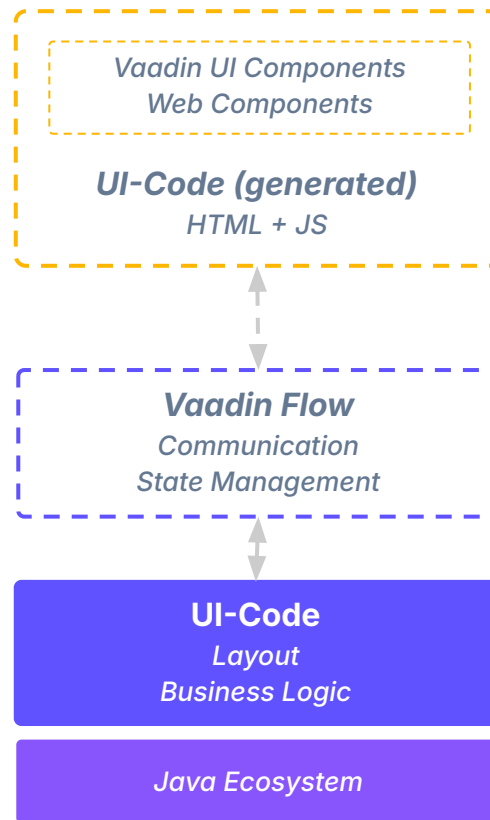
**UI-Code (generated)**  
*HTML + JS*

```
var name = new TextField("Your name");
var button = new Button("Say hello", event ->
  Notification.show("Hello " + name.getValue()));
add(new HorizontalLayout(name, button));
```

# Architecture

```
▼ <vaadin-horizontal-layout theme="spacing" has-st
  ▶ #shadow-root (open)
  ▶ <vaadin-text-field placeholder="Your name">@
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</vaadin-horizontal-layout>
```

```
var name = new TextField("Your name");
var button = new Button("Say hello", event ->
    Notification.show("Hello " + name.getValue()));
add(new HorizontalLayout(name, button));
```

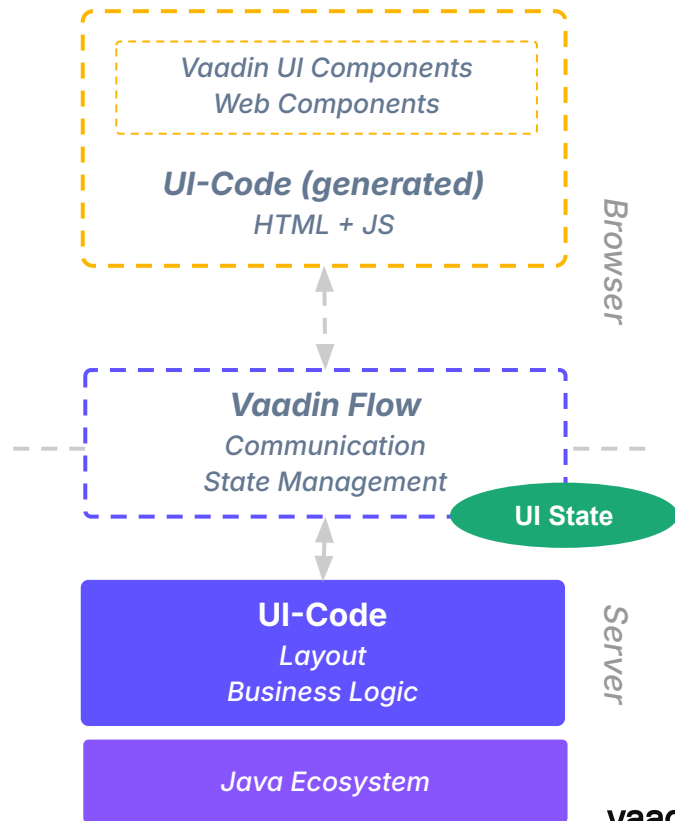


# Architecture

```
<vaadin-horizontal-layout theme="spacing" has-st  
  #shadow-root (open)  
    <vaadin-text-field placeholder="Your name">  
    <vaadin-button tabindex="0" role="button" last  
</vaadin-horizontal-layout>
```



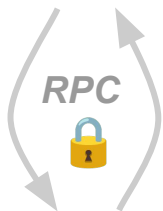
```
var name = new TextField("Your name");  
var button = new Button("Say hello", event ->  
  Notification.show("Hello " + name.getValue()));  
add(new HorizontalLayout(name, button));
```



# Architecture

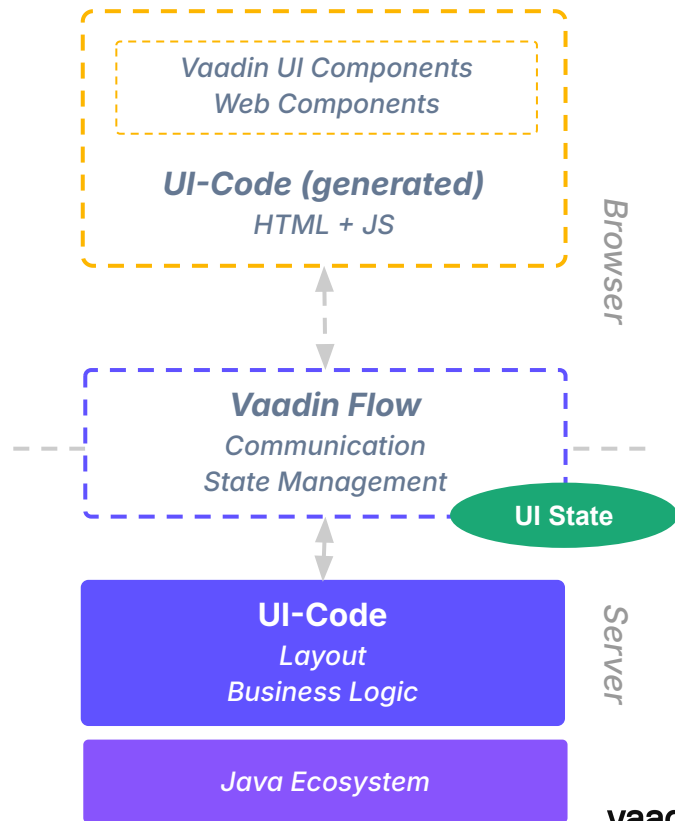
```
<vaadin-horizontal-layout theme="spacing" has-st  
  #shadow-root (open)  
  <vaadin-text-field placeholder="Your name">  
  <vaadin-button tabindex="0" role="button" last  
</vaadin-horizontal-layout>
```

HTTP[S] Post  
with *clientId* &  
*csrfToken*



JSON Response  
with *clientId* +1,  
*syncId* + 1 & *csrfToken*

```
var name = new TextField("Your name");  
var button = new Button("Say hello", event ->  
  Notification.show("Hello " + name.getValue()));  
add(new HorizontalLayout(name, button));
```



# Get Started in a few steps

```
<dependency>  
  <groupId>com.vaadin</groupId>  
  <artifactId>vaadin-core</artifactId>  
</dependency>
```

```
<dependency>  
  <groupId>com.vaadin</groupId>  
  <artifactId>vaadin-dev</artifactId>  
  <optional>true</optional>  
</dependency>
```

```
<dependency>  
  <groupId>com.vaadin</groupId>  
  <artifactId>vaadin-spring-boot-starter</artifactId>  
</dependency>
```

# Get Started in a few steps

```
<dependency>  
  <groupId>com.vaadin</groupId>  
  <artifactId>vaadin-core</artifactId>  
</dependency>
```

Framework

Base  
components

Dev  
tools

```
<dependency>  
  <groupId>com.vaadin</groupId>  
  <artifactId>vaadin-dev</artifactId>  
  <optional>true</optional>  
</dependency>
```

Vaadin Dev  
Server

Copilot

```
<dependency>  
  <groupId>com.vaadin</groupId>  
  <artifactId>vaadin-spring-boot-starter</artifactId>  
</dependency>
```

*For **Spring-Boot** projects only  
(helps with the AutoConfiguration)*

# Get Started in a few steps

```
<plugin>
  <groupId>com.vaadin</groupId>
  <artifactId>vaadin-maven-plugin</artifactId>
  <executions>
    <execution>
      <goals>
        <goal>build-frontend</goal>
      </goals>
    </execution>
  </executions>
</plugin>
```

# Get Started in a few steps

```
<plugin>
  <groupId>com.vaadin</groupId>
  <artifactId>vaadin-maven-plugin</artifactId>
  <executions>
    <execution>
      <goals>
        <goal>build-frontend</goal>
      </goals>
    </execution>
  </executions>
</plugin>
```

- *prepare necessary meta info*
- *build optimized frontend bundle (optional in DevMode)*

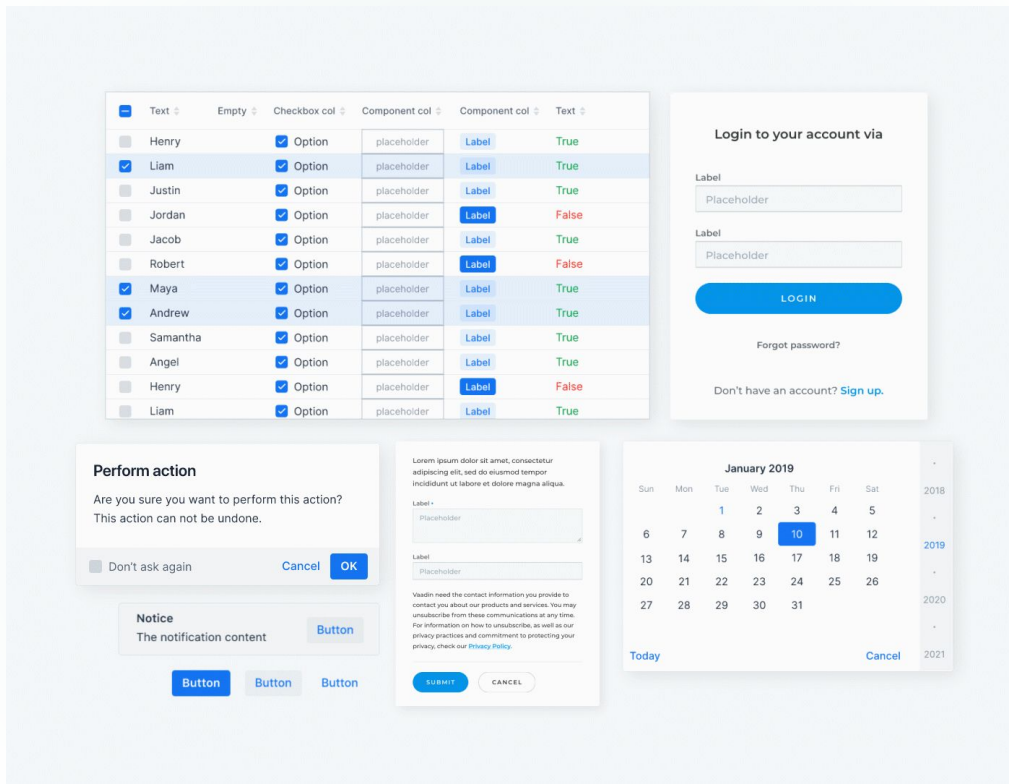
Using ready-made components & more

# 56 Components

- Optimised for desktop & mobile
- Themable & Accessible
- Based on Web Components
- Common Architecture
- Framework agnostic

+ +2000 components in  
[vaadin.com/directory](https://vaadin.com/directory)

+ and you can also integrate  
[3rd party components](#)



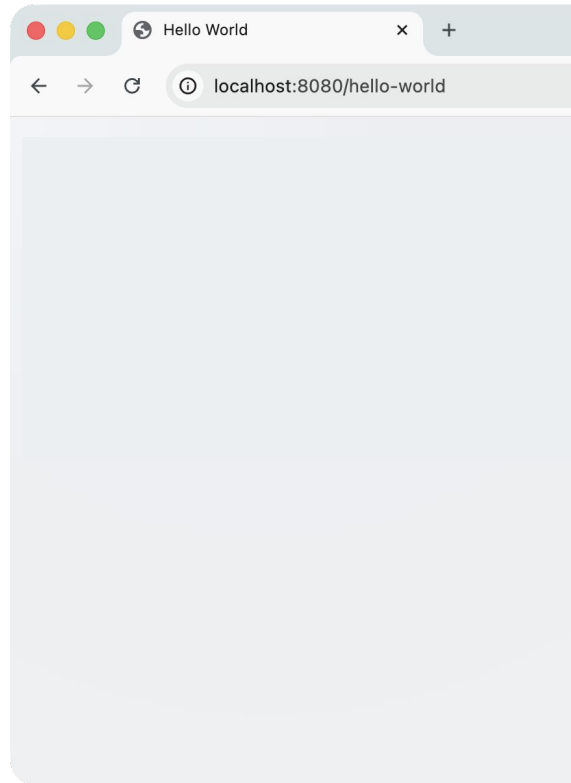
# Navigation

```
@Route("hello-world")
public class HelloWorldView extends VerticalLayout {

    public HelloWorldView() {

    }

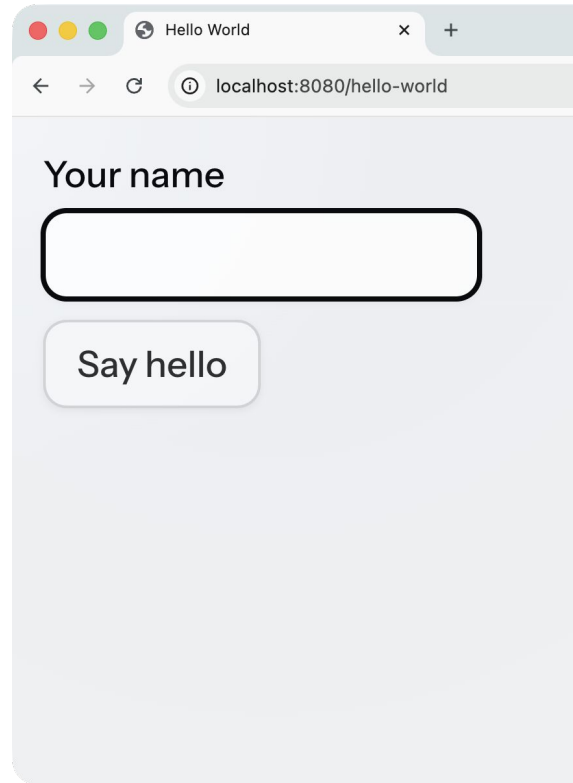
}
```



# Components

```
@Route("hello-world")
public class HelloWorldView extends VerticalLayout {

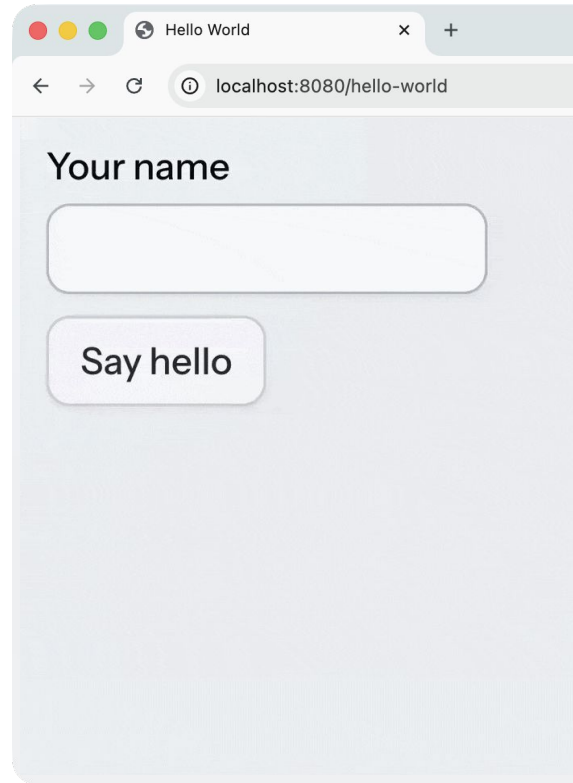
    public HelloWorldView() {
        var name = new TextField("Your name");
        var sayHello = new Button("Say hello");
        add(name, sayHello);
    }
}
```



# Interaction

```
@Route("hello-world")
public class HelloWorldView extends VerticalLayout {

    public HelloWorldView() {
        var name = new TextField("Your name");
        var sayHello = new Button("Say hello");
        sayHello.addClickListener(e ->
            Notification.show("Hello " +
                name.getValue() + "!"));
        sayHello.addClickShortcut(Key.ENTER);
        add(name, sayHello);
    }
}
```



# Apache 2.0



Vaadin 25+

# Supported Technologies

- Java 21+, Maven 3.8+, Gradle 8.14+
- Node 24+
- Spring Boot 4.0+
- Evergreen Browsers + Safari 17
- TC 10.1, Jetty 12, Payara 6, WF 36, JBoss 8.1
- Quarkus 3.27+
- Unsupported Karaf & OSGi

Join the journey. Meet. Learn. Create.

# Community

- Focus in good Developer Experience
- Open source community with +200k members
- Support via [vaadin.com/forum](https://vaadin.com/forum) and [github.com/vaadin](https://github.com/vaadin)
- Meetups, Conferences and other Events or even more

# How to start?

- [start.vaadin.com](https://start.vaadin.com) to create your own Vaadin Project
- [start.spring.io/](https://start.spring.io/) add Vaadin Dependency  
and create a Spring based Project
- **Starter-** & **Skeleton-**projects on [github.com/vaadin](https://github.com/vaadin)
  - Spring, CDI, Gradle, Quarkus, Plain
- Tutorial on [vaadin.com/start](https://vaadin.com/start)

Where to go from here?

# Get started with Vaadin



Slides  
Demo Project

[seb@vaadin.com](mailto:seb@vaadin.com)

[github.com/SebastianKuehnau/vaadin-jug-demo/tree/2026-03-JUGCH](https://github.com/SebastianKuehnau/vaadin-jug-demo/tree/2026-03-JUGCH)

Meet us at  
Vaadin Create 2026  
in Barcelona  
Oct 27-28, 2026

Discount Code: **JUGCH50**

[vaadin.com/  
vaadin-create-2026](https://vaadin.com/vaadin-create-2026)

vaadin}>

# Kiitos paljon!

## Feel free to reach out

`seb@vaadin.com`

`x.com/seb_vaadin`

`linkedin.com (Sebastian Kuehnau 🐼)`

`vaadin.com/forum`