



A website that aims to provide users with real-time location of vessels, tracked by the AIS system

Designed & Developed By

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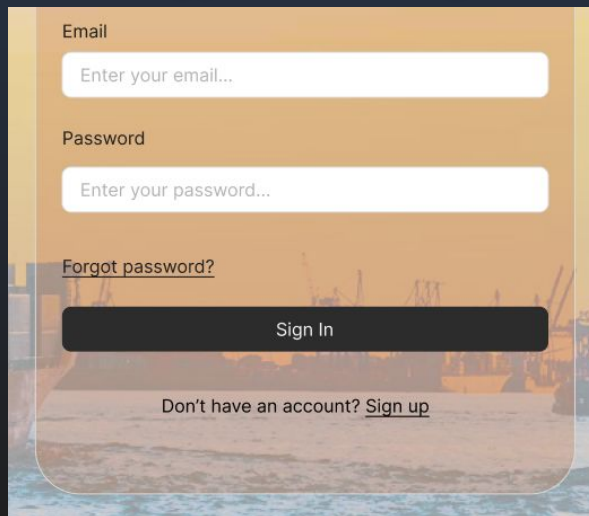
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Σταθοπούλου Μαρία 1115202100177

App Security

The security of the app will be implemented with these methods in Spring-Boot:

- **Authentication:** JSON Web Token
- **Authorization:** JSON Web Token
- **Data Encryption:** Self signed SSL Certificate + Password Encoding



Sign In form with fields for Email and Password, a Forgot password? link, and a Sign In button.

Email

Enter your email...

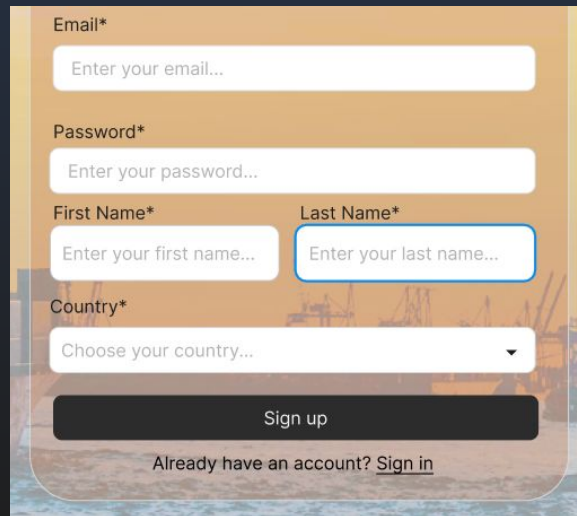
Password

Enter your password...

[Forgot password?](#)

Sign In

Don't have an account? [Sign up](#)



Sign Up form with fields for Email*, Password*, First Name*, Last Name*, and Country*, and a Sign up button.

Email*

Enter your email...

Password*

Enter your password...

First Name*

Enter your first name...

Last Name*

Enter your last name...

Country*

Choose your country...

Sign up

Already have an account? [Sign in](#)

User Roles

- **Non-Registered Users:** Minimal access, must sign up.
- **Registered Users:** Access everything, if they sign in.
- **Admins:** Registered users, can edit ship types and ban/unban users.
- **Banned Users:** Have limited access rights, identical to the non-Registered Users.

System Integration and Data Management

Technologies: Spring Boot, Apache Kafka, MySQL, Leaflet.js, React

Backend Responsibilities:

The backend, built with **Spring Boot**, integrates multiple systems and acts as:

- **Kafka Consumer:**

listens to real-time vessel position updates **PRODUCED BY** → external Kafka Producer.

WebSockets → communicate vessel position updates to the frontend → minimize requests

- **Database Communicator:**

MySQL database → CRUD operations **BY BACKEND** → requested **BY FRONTEND** (client)

Database stores → user accounts (with encrypted passwords), fleets, rectangle search areas, etc.

- **Request Handler**

HTTP requests → from **client** → handled with **REST API** → fetching database records and submitting changes to database entries.

UI / UX : My Account

- **My Profile** : Users have the ability to edit their personal information through the Edit Account button.
- **My Fleets** : Create, view and edit fleets and their details.
- **My Areas** : Create, view and edit saved areas, add notification restrictions if needed.
- **My Notifications** : View and filter different types.
- All of the above will be managed through the database and Springboot.

UI / UX : My Profile



My account Ntina Petropoulou

My Profile

My Fleets

My Areas

My Notifications

First Name

Ntina

Last Name

Petropoulou

Country

Greece

Academic Institution*

National Kapodistrian Univer...

Business*

Phone Number*

Edit Account 

< Return

UI / UX : My Fleets









My account Ntina Petropoulou

My Profile

My Fleets

My Areas

My Notifications

<input type="checkbox"/> 	Fleet Name ▾	Active/Total Vessels ▾	per page 5 ▾	1-4 from 4 < >
<input type="checkbox"/>	Rabbit Fleet <small>Created on 22/3/25 00:23</small>	2/3	View and Edit 	View on Map
<input type="checkbox"/>	The great fleet <small>Created on 22/3/25 00:24</small>	3/4	View and Edit 	View on Map
<input type="checkbox"/>	roman empire <small>Created on 22/3/25 00:24</small>	5/8	View and Edit 	View on Map
<input type="checkbox"/>	The greater fleet <small>Created on 22/3/25 00:24</small>	5/7	View and Edit 	View on Map
Create New Fleet 				

< Return

UI / UX : My Areas



My account Ntina Petropoulou

My Profile

My Fleets

My Areas

My Notifications



Area Name ▾

Color ▾

Active ▾

per page 5 ▾

1-1 from 1 < >



Atlantic

Created on 22/3/25 00:44

Orange ▾



View on Map



Create New Area

< Return

UI / UX : My Notifications



My account Ntina Petropoulou

My Profile

My Fleets

My Areas

My Notifications

All Notifications

Alerts

Area Updates

Cargo Updates

Port Arrivals

Tracking Updates



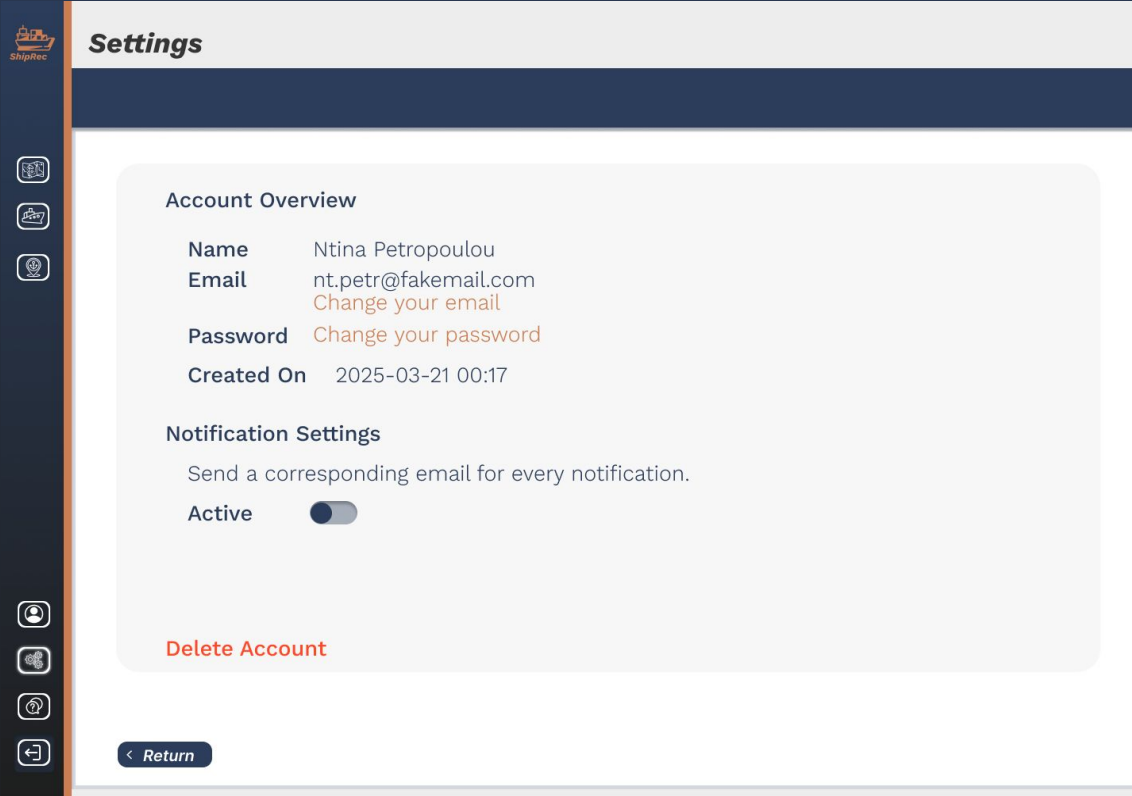
date - newest ▾ 1-10 from 127 < >

<input type="checkbox"/>	Alert	Danger of collision between <i>Queen Mary 2</i> and <i>Eclipse</i> in <i>Rhodes</i> . Please check your shiptrackings.	21/4/2025
<input type="checkbox"/>	Tracking Update	The Vessel <i>Queen Mary 2</i> entered <i>Rhodes</i> and is heading towards its destination.	21/4/2025
<input type="checkbox"/>	Port Arrival	The Vessel <i>Saga</i> arrived to port <i>Piraeus</i> .	18/4/2025
<input type="checkbox"/>	Cargo Update	The Vessel <i>Eclipse</i> loaded cargo at port <i>Piraeus</i> .	12/4/2025
<input type="checkbox"/>	Alert	Danger of collision between <i>Saggita</i> and <i>Joy</i> in <i>Atlantic</i> . Please check your shiptrackings.	9/4/2025
<input type="checkbox"/>	Area Update	There are now 100 vessels in <i>Atlantic</i> .	2/4/2025
<input type="checkbox"/>	Area Update	There are now 50 vessels in <i>Rhodes</i> .	16/3/2025
<input type="checkbox"/>	Tracking Update	The Vessel <i>AXD Synth</i> entered <i>Atlantic</i> and is heading towards its destination.	15/3/2025
<input type="checkbox"/>	Cargo Update	The Vessel <i>Saggita</i> unloaded cargo at port <i>Singapore</i> .	4/3/2025
<input type="checkbox"/>	Port Arrival	The Vessel <i>Saggita</i> arrived to port <i>Singapore</i> .	28/2/2025

[Return](#)









UI / UX : Settings Page

- Users can change their email and password, or delete their account.
- This information is managed by the database.
- Pop-up windows are implemented.

A UI mockup of a settings page. On the left is a dark blue sidebar with the Shiprec logo at the top and a vertical list of icons: a calendar, a document with a pencil, a gear, a person, a group of people, a magnifying glass, and a back arrow. The main content area has a light gray header with the word "Settings" in bold. Below this is a dark blue horizontal bar. The main content is a light gray rounded rectangle containing two sections. The first section, "Account Overview", lists user details: Name (Ntina Petropoulou), Email (nt.petr@fakemail.com with a "Change your email" link), Password (with a "Change your password" link), and Created On (2025-03-21 00:17). The second section, "Notification Settings", includes the text "Send a corresponding email for every notification." and a toggle switch for "Active" which is currently turned off. At the bottom of the rounded rectangle is a red "Delete Account" link. Below the rounded rectangle is a dark blue button with a left arrow and the text "Return".

UI / UX : Help Page

- Users can contact the administrators of the website. This is implemented with forms and through the database.



Help

Frequently Asked Questions (FAQ)Help Center - Contact Us

Contact Us

How can we help you?

Submit any questions you have about the app and the admins will get back to you.

First Name

Last Name

Email

Phone Number

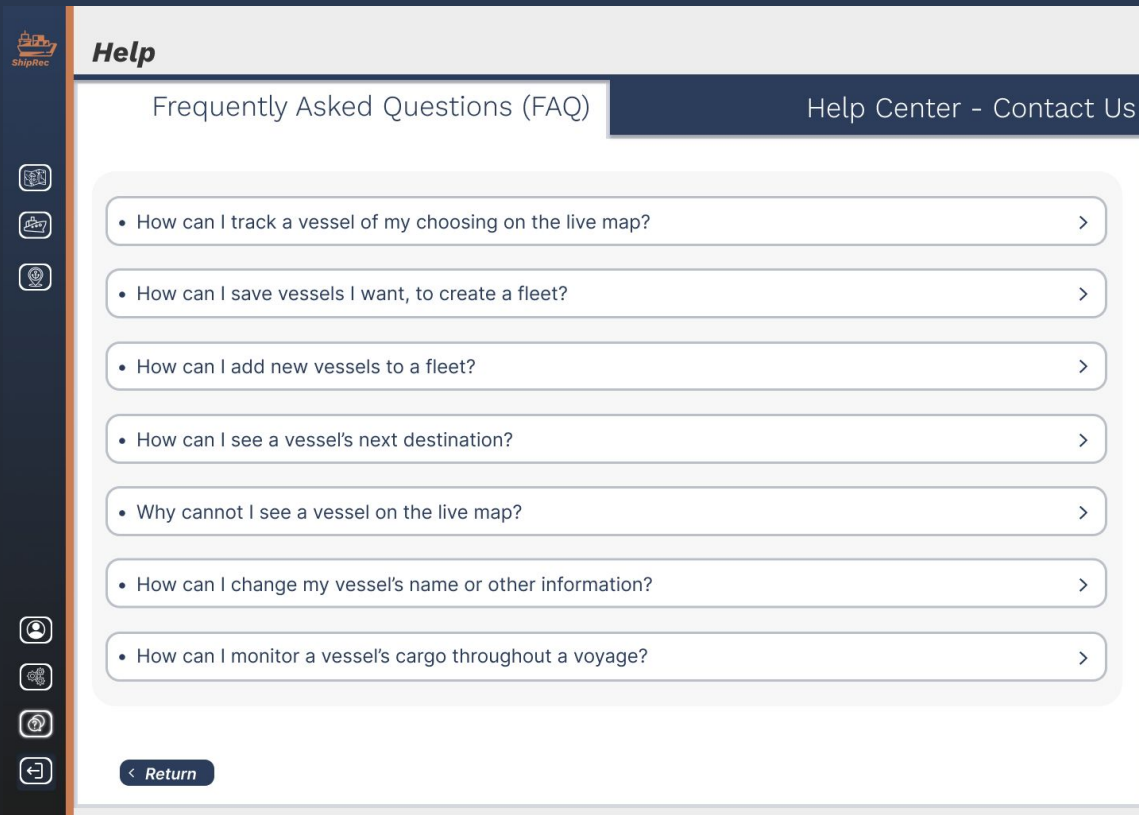
What's your question?

Submit

< Return

UI / UX : Help Page

- Frequently Asked Questions are available, implemented in a drop-down style, coded in the front-end side of the app.



UI / UX : Map Page

- Search with filters
- Filter vessels
- Dark mode
- Zoom in/out
- Create areas in Select Mode - saved based on coordinates



Live Map



Vessels



Ports



My account



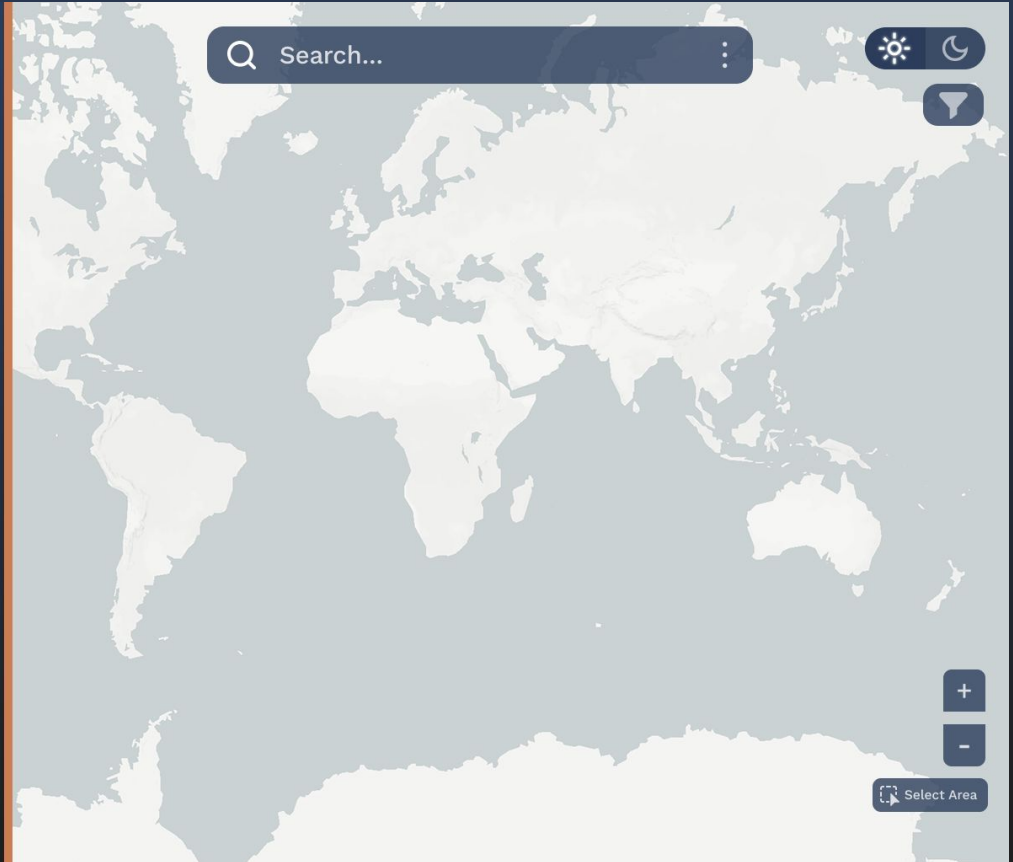
Settings



Help

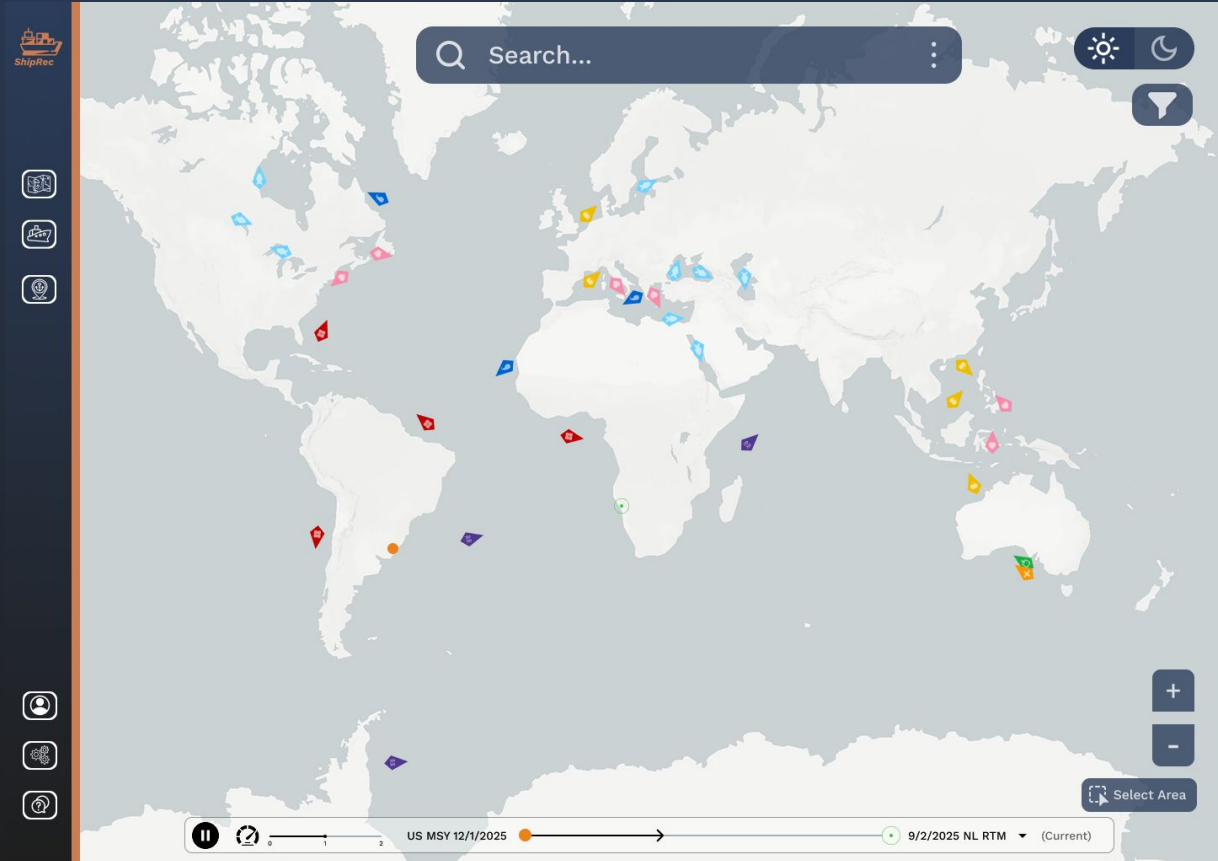


Sign Out











UI / UX : Map Page

- See vessel's current and past course - vessel position history in database
- Create, edit and view fleets





UI / UX : Vessels Page

- Add vessel(s) to fleet
- Show in map
- Search with filters



Vessels

 Add Filter









 Search...

<input type="checkbox"/>	Vessel Name	Destination Port	Reported ETA	Current Port	IMO	Vessel Type	per page 5 1-3 from 3
<input type="checkbox"/>	QUEEN MARY 2	PIRAEUS	2025-03-23 10:00 UTC	DUTCH HARBOR	9378498	Tanker	View on Map
<input type="checkbox"/>	ECLIPSE	DUTCH HARBOR	2025-03-24 03:30 UTC	HOMER	9811000	Cargo Vessel	View on Map
<input type="checkbox"/>	COSTA PACIFICA	PORT KLANG	2025-03-26 14:45 UTC	STURGEON BAY	9719179	Passenger Ship	View on Map


[< Return](#)


UI / UX : Ports Page

- Show in map
- Search with filters



Ports

 Add Filter

 Search...

per page 5 1-3 from 3 < >					
Country ▾	Port Name ▾	Vessels In Port ▾	Arrivals/Departures (24hrs) ▾	Local Time ▾	
GREECE	PIRAEUS	100	20/50	2025-03-23 20:18	View on Map
USA	DUTCH HARBOR	200	50/60	2025-03-23 10:18	View on Map
MALAYSIA	PORT KLANG	150	40/70	2025-03-24 02:18	View on Map

[← Return](#)

UI / UX : Admin Page

The **Administrative Users** logs in with their specific credentials and has three extra features from the regular users.

- **Users** : Administrators can search and view users' information, ban/unban users and delete permanently the account of a banned user.
- **Vessels** : Search and filter vessels, view their information and modify the vessel type through a dropdown.
- **Messages** : Search and filter messages from users and view their queries.

UI / UX : Admin Users Page



Admin Page Adminos Adminopoulos

Users

Vessels

Messages

Search...



First Name

Last Name

Email

Created On

per page 10

1-6 from 6

Status



Georgos

Prappas

gprappas@fakemail.com

2025-03-21 00:21

Active

Ban User



Maria

Stathopoulou

mstath@fakemail.com

2025-03-21 00:20

Active

Ban User



Lydia

Mantzari

lydi@fakemail.com

2025-03-21 00:19

Banned

Unban User



Xenofon

Kasta

xenk@fakemail.com

2025-03-21 00:18

Active

Ban User



Ntina

Petropoulou

nt.petr@fakemail.com

2025-03-21 00:17

Active

Ban User



Thanos

Giavridis

th.gvrd@fakemail.com


2025-03-21 00:16

Banned

Unban User

< Return

UI / UX : Admin Vessels Page



Admin Page Adminos Adminopoulos









UsersVesselsMessages


Add Filter

Q Search...










<input type="checkbox"/>	Vessel Name	Destination Port	Reported ETA	Current Port	IMO	Vessel Type	Status
<input type="checkbox"/>	QUEEN MARY 2	PIRAEUS	2025-03-23 10:00 UTC	DUTCH HARBOR	9378498	Tanker	Active
<input type="checkbox"/>	ECLIPSE	DUTCH HARBOR	2025-03-24 03:30 UTC	HOMER	9811000	Cargo Vessel	Active
<input type="checkbox"/>	COSTA PACIFICA	PORT KLANG	2025-03-26 14:45 UTC	STURGEON BAY	9719179	Passenger Ship	Inactive

< Return





UI / UX : Admin Messages Page




Admin Page Adminos Adminopoulos

UsersVesselsMessages

Add Filter

Search...

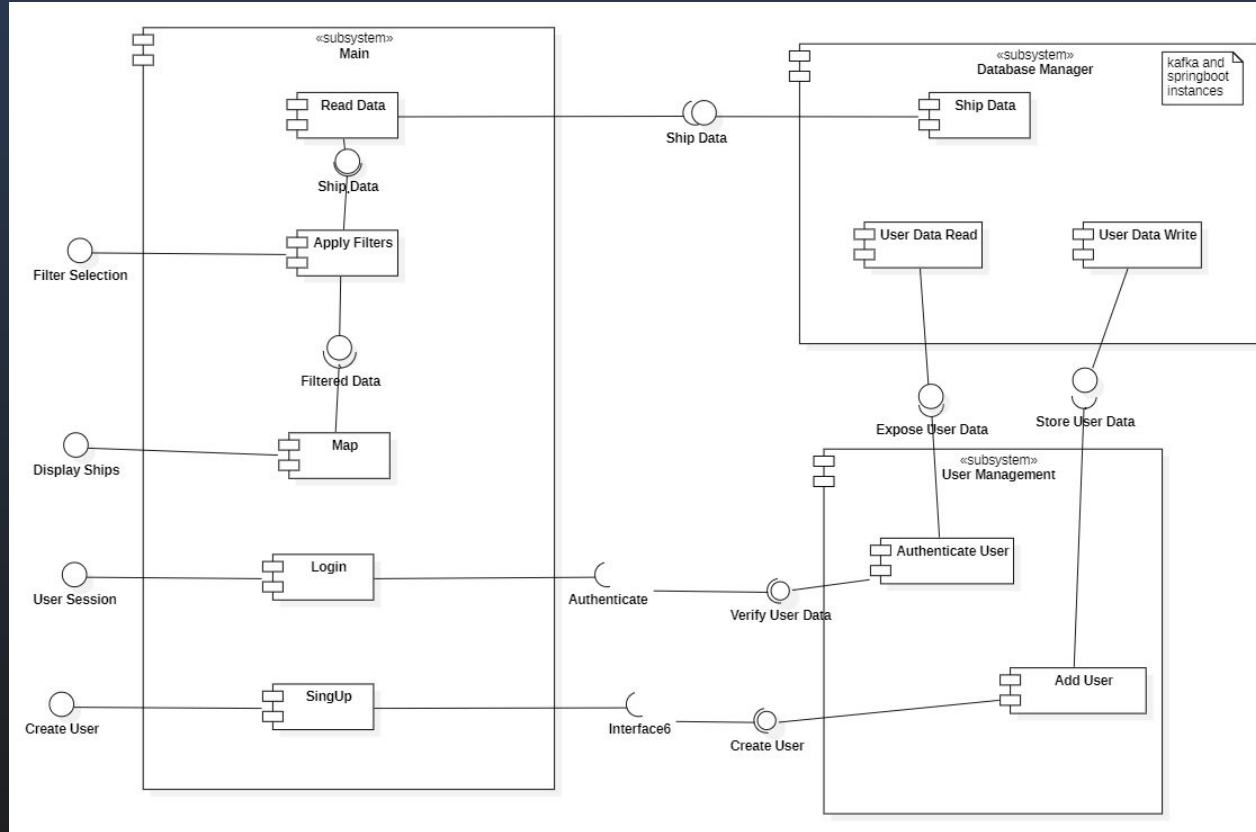
	First Name	Last Name	Email	Phone Number	Date	per page 10 1-6 from 6
<input type="checkbox"/>	Georgos	Prappas	gprappas@fakemail.com	2103210981	2025-03-21 00:50	See Query
<input type="checkbox"/>	Maria	Stathopoulou	mstath@fakemail.com	2103444981	2025-03-21 00:50	See Query
<input type="checkbox"/>	Lydia	Mantzari	lydi@fakemail.com	6909821891	2025-03-21 14:23	See Query
<input type="checkbox"/>	Xenofon	Kasta	xenk@fakemail.com	2102347695	2025-03-21 12:56	See Query
<input type="checkbox"/>	Ntina	Petropoulou	nt.petr@fakemail.com	6989321412	2025-03-21 10:44	See Query
<input type="checkbox"/>	Thanos	Giavridis	th.gvrd@fakemail.com	6909821892	2025-03-21 10:43	See Query

Send a corresponding email for every query notification.

Active ☐

< Return

UML Component Diagram: Initial Page



***Thank You For
Your Attention***