



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

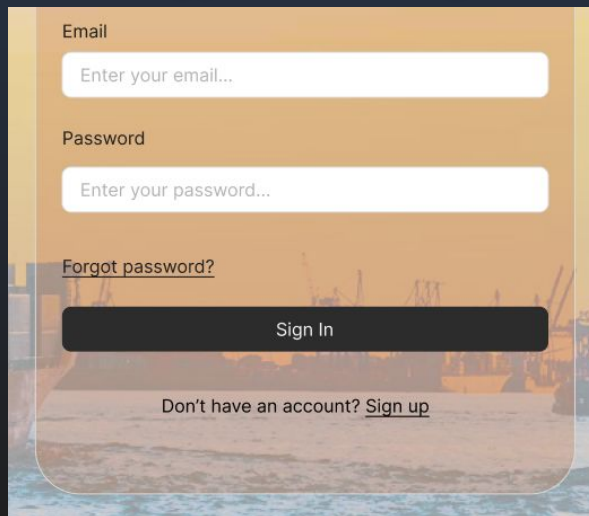
Designed & Developed By

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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...

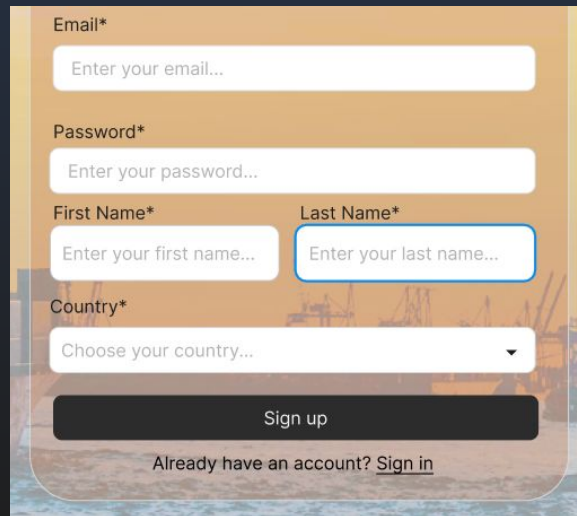
Password

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

!! NOTES !!

(+ system integration)

Technologies: Kafka, MySQL, SpringBoot, (+LEAFLETJS, ...(??))

The backend of the app takes data from: the sql database (also gives) (1), and the kafka producer (springboot backend acts both as a kafka consumer and database "communicator") (2), other machines in production app.

(1) Communication between frontend(client) and backend(springboot server):

CRUD operations with the database. Backend handles GET or POST HTTP REQUESTS and reads or makes changes to the database. All the tables info (user data and their encrypted passwords, fleets, rectangle areas, ...)

(2) springboot backend (via the kafka listener) takes real time messages from kafka producer (other device) that update a vessels information and adjusts the map accordingly.

The client (code section: frontend) asks data (or applies for database changes) from the database with http requests, may edit or filter the info (e.g. vessel filters), and shows the UI.

Consumer can also replay data by changing its offset settings (default to "last message").

Springboot backend communicates with the frontend via websockets, allowing both end communication and smooth operation of the real time position updating, without the need for continuous http requests from every client which would overload the server.

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



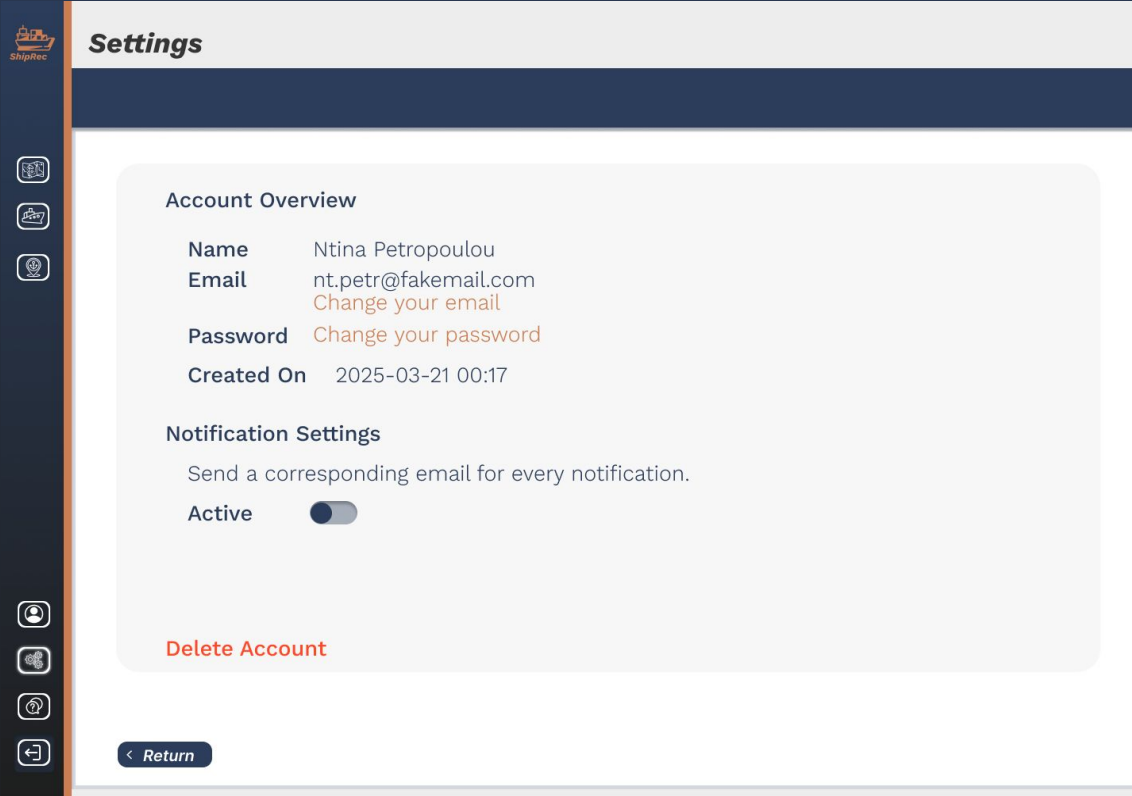
date - newest ▾ 1-10 from 127 < >

<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 links to "Change your email"), Password (with a link to "Change your password"), 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 main content area is a red "Delete Account" link. At the bottom of the sidebar 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

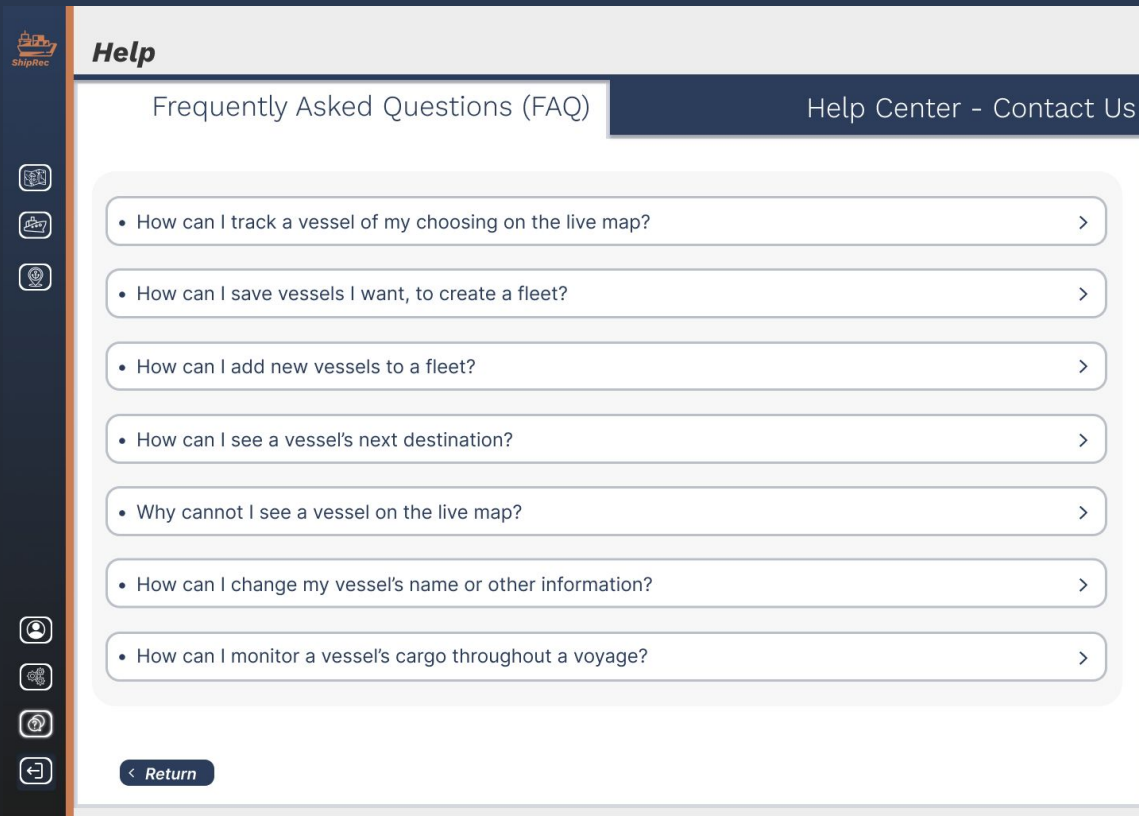
What's your question?

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



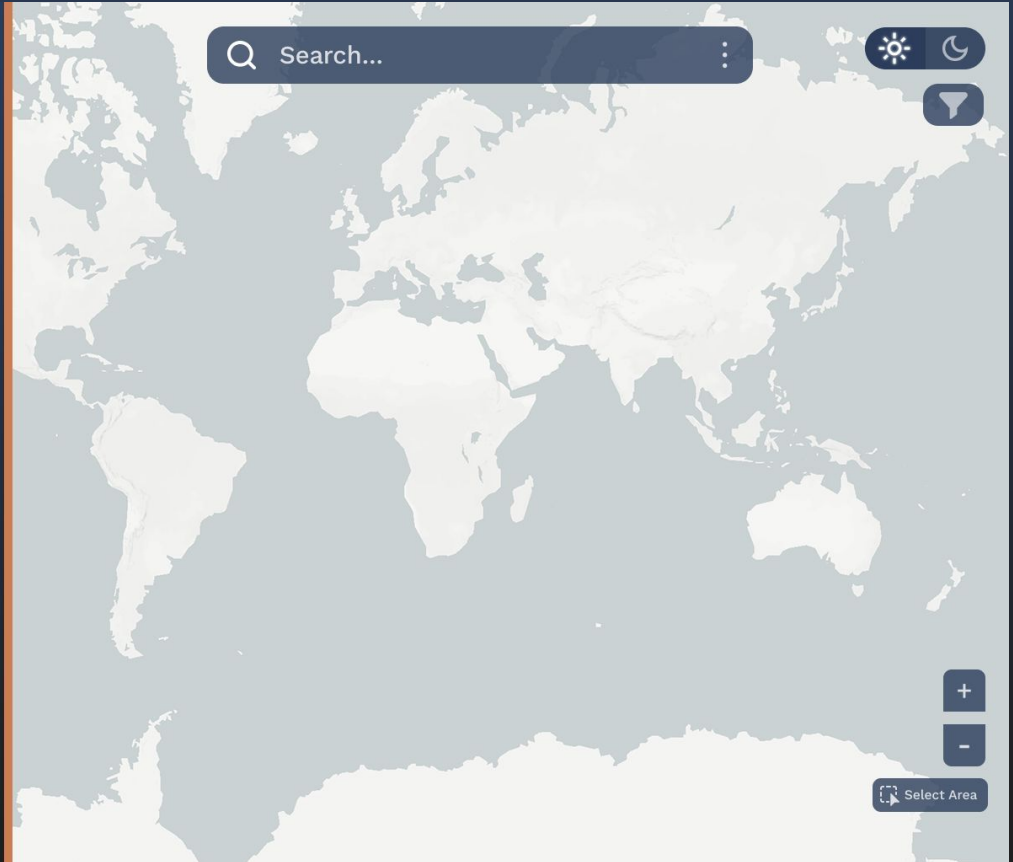
Settings



Help

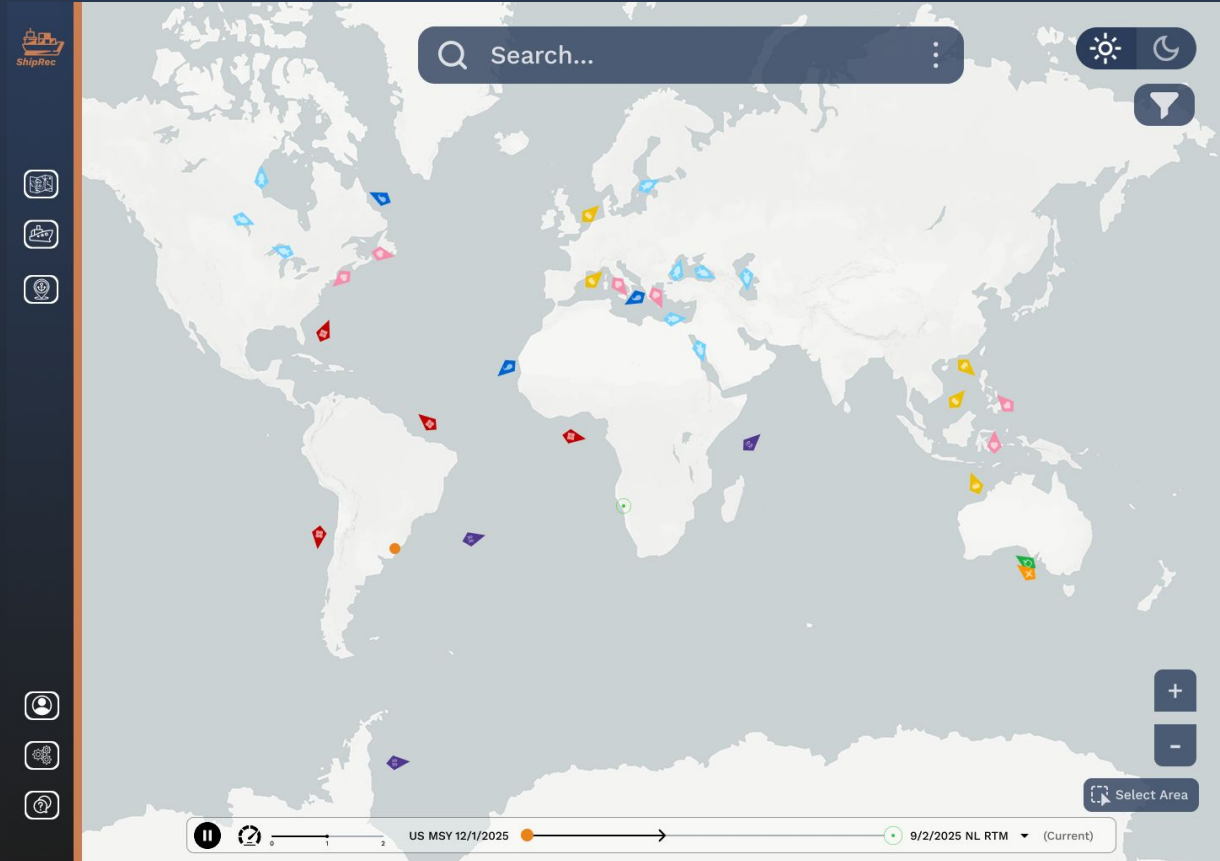


Sign Out











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	
<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...

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

[per page 5](#) [1-3 from 3](#) [<](#) [>](#)

[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 ▾	per page 5 ▾ Vessel Type ▾	1-3 from 3 < > 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...

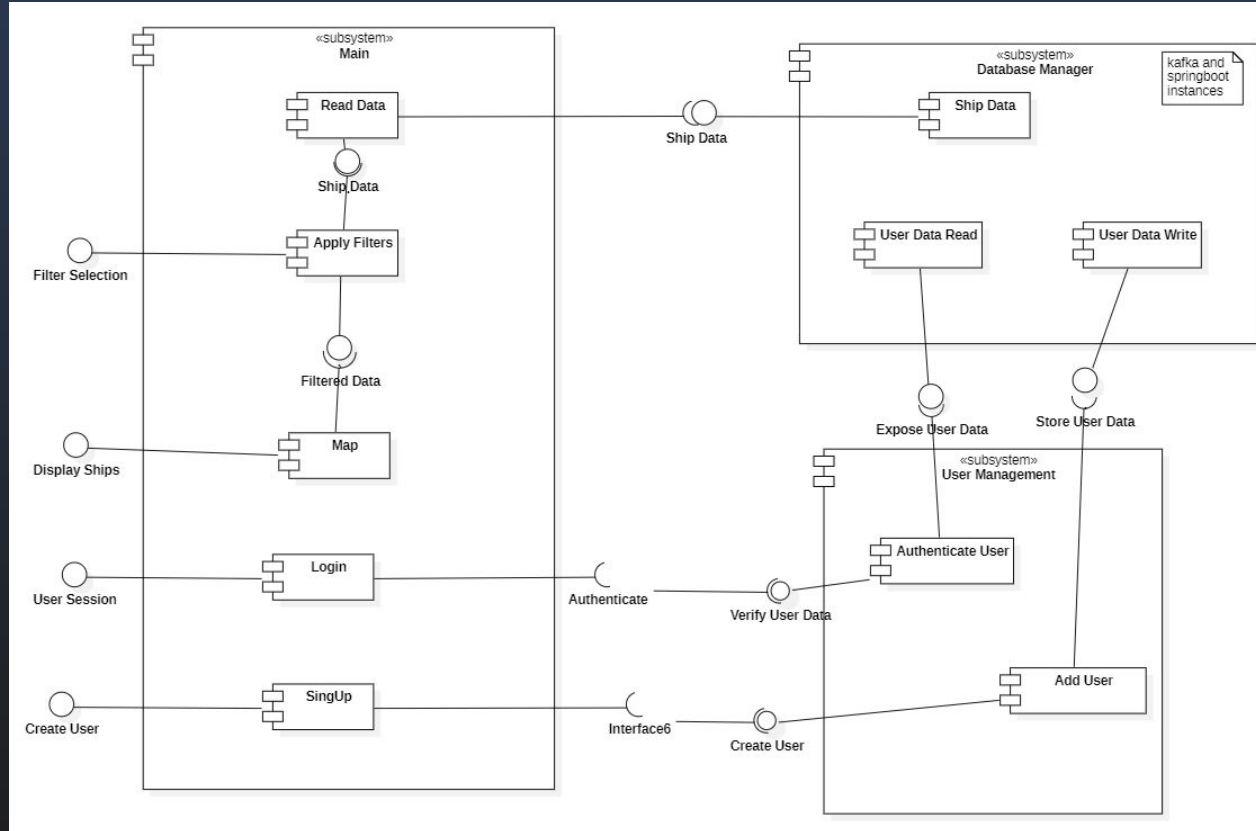
 	First Name	Last Name	Email	Phone Number	Date	
<input type="checkbox"/>	Georgos	Prappas	gprappas@fakemail.com	2103210981	2025-03-21 00:50	See Query
<input type="checkbox"/>	Maria	Stathopoulou	mstath@fakemail.com	2103444981	2025-03-21 00:50	See Query
<input type="checkbox"/>	Lydia	Mantzari	lydi@fakemail.com	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***