STIMS

the Smart Tagged Inventory Management System

Abstract

STIMS, the Smart Tagged Inventory Management System is a database driven storage catalog capable of adding and tracking any combination of real world items. This multi-modal storage paradigm is achieved through the use of many tagging systems, in comparison to other inventory databases using simply one for a specific type of physical media.

The goal of STIMS is to provide database administrators with the tools to easily catalog new items and even create new object types for tracking, while providing a streamlined search and recall dashboard for end-users to facilitate inventory check-in and check-out operations while maintaining database security throughout the whole process.

Usability

- Users don't interact with the database system directly
- Database catalogers can add new items from the GUI app
- User onboarding process is quick and self-guided

Simplicity

- Easy to understand GUI web application
- Utilizes Docker to facilitate easy set-up by database admins
- Works on any device capable of displaying web content

Customizability

- Account system allows for options and saved queries
- New item types can be added by administrators
- Item filters and sorting allow for user dashboard modification

Tech Stack

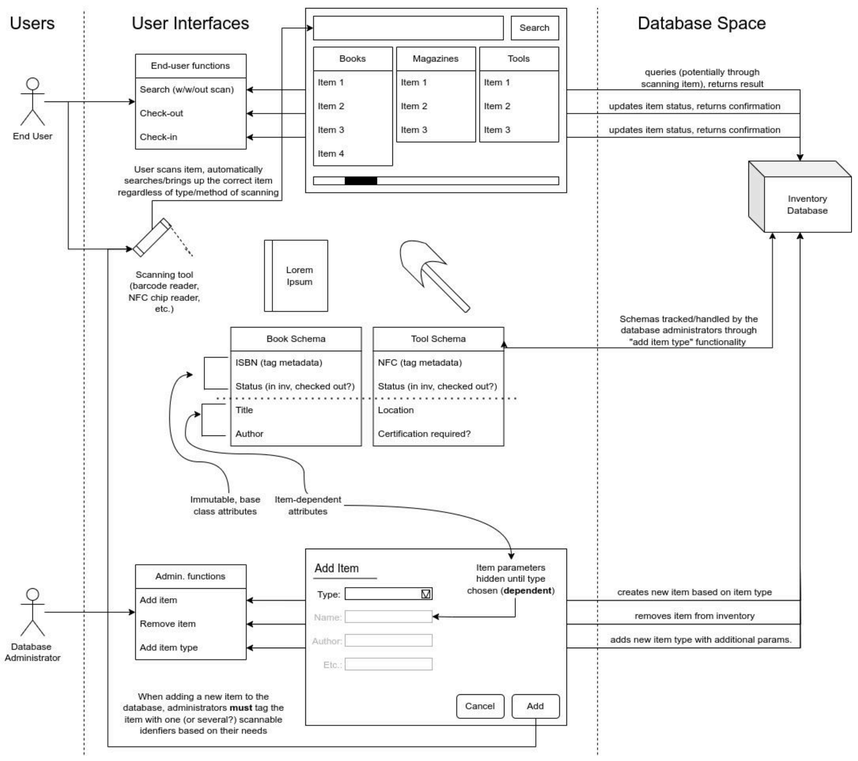
Frontend:
- Angular
- Mat. Design

Middleware:
- NodeJs, Express
- Swagger API

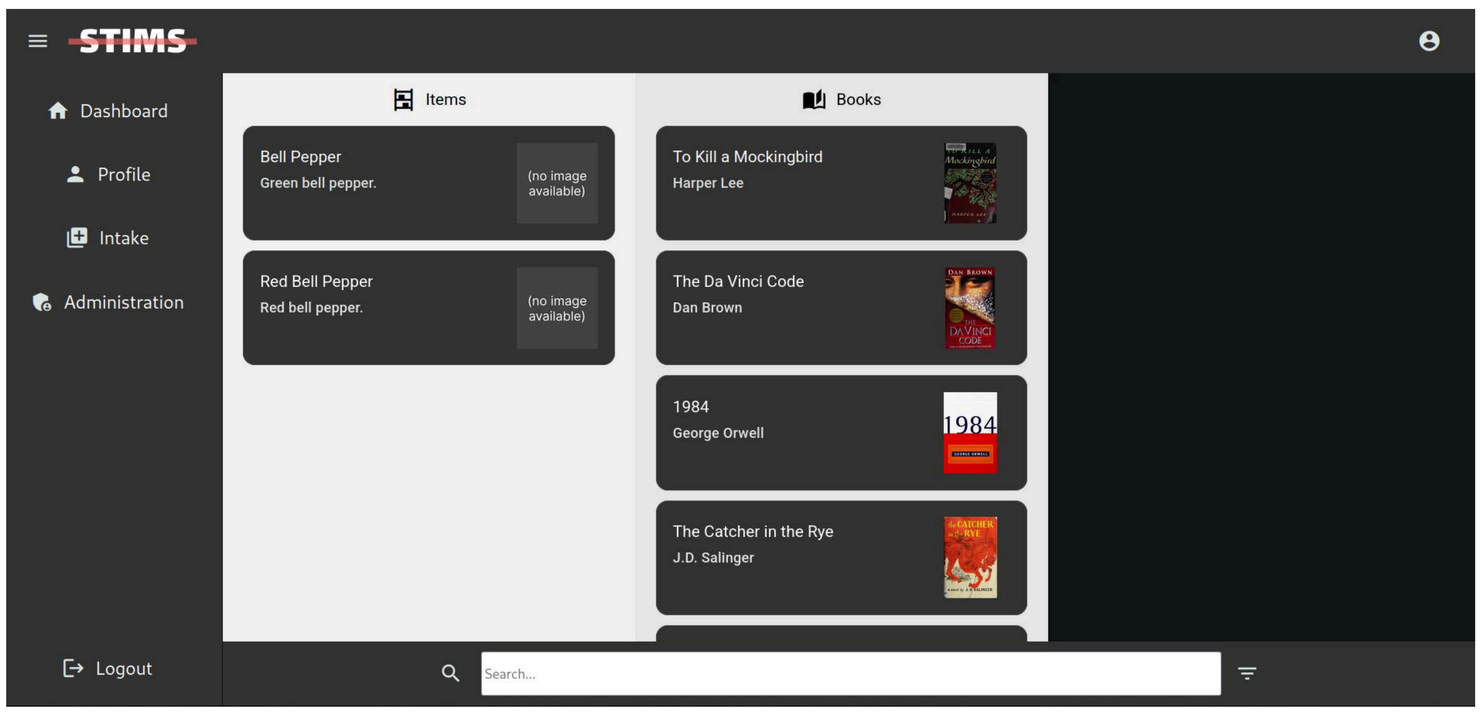
Backend:
- PostgreSQL
- Adminer

Development:
- VS Code
- Bruno
- Docker

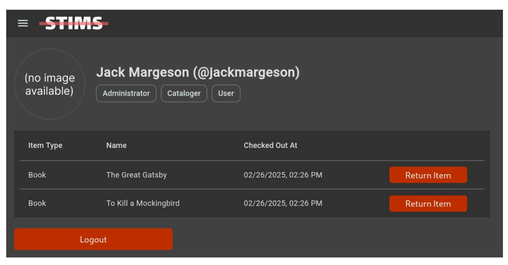
Original Design



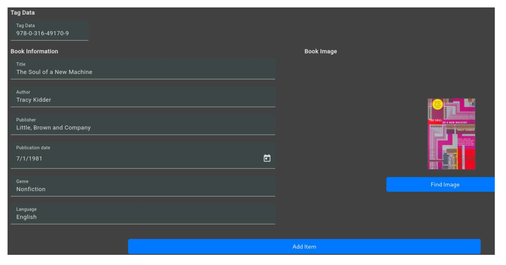
Dashboard



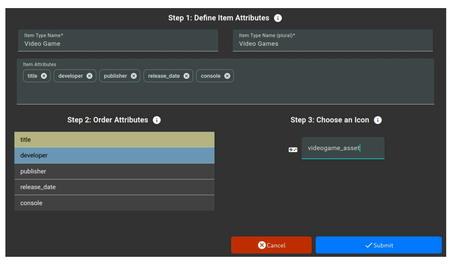
User Profile



Intake



New Category



Major Accomplishments

- Automated self-defined class system
  - Need to keep track of newspapers? Simply define what details a newspaper should track and STIMS takes care of the rest.
- Custom user authentication pipeline
  - Developed fully from the ground up
  - Integrated role system allows system administrators can give user accounts permissions to interact with certain features in the program, such as intake
- Clean, user-friendly UI and design
  - Maximizes usability over niche functionality
  - Designed as a web application to be portable and functional on any device

Broader Impact

- Improved alternative to current open-source ILS (integrated library software) systems
  - Newer code and technologies equals less set-up hassle and more performance
- Type generality expands the system's use-cases beyond libraries
  - Makerspaces (tool rentals)
  - Archival offices (research management)
  - Legal firms (document lookup)
  - Healthcare institutions (educational material, equipment)

Design Challenges

- Full-stack development
  - Project required frontend, backend, and middleware API development
  - Networking issues between services mitigated through the use of Docker
- Security
  - Proper authentication flow/hashing for password storage setup took time
  - API endpoints need JWT signature checks

Install Demo System (beta)

```
Bash (Unix)
$ curl -fsSL marg.es/on/install/stims | bash

Powershell (Windows)
> irm marg.es/on/install/stims.ps1 | iex
```

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