TaskTrail Project Report

By Jackson Aulds

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Problem Statement

Project Visibility

Lacking in small to medium teams.

Disorganized Tools

Existing systems are non-collaborative.

Complexity vs. Simplicity

Tools are too complex or too limited.

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Key Features

User Authentication

Django's built-in system.

Task Management

Create, update, and status changes.

Django Caching

For frequently accessed views.

Unit Testing

Django's testing framework.

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Architecture and Tools Used

Frontend

Django Templates (HTML/CSS/JS).

Backend

Django (Python).

Database

SQLite (dev), PostgreSQL (prod).

Cache

Django Caching

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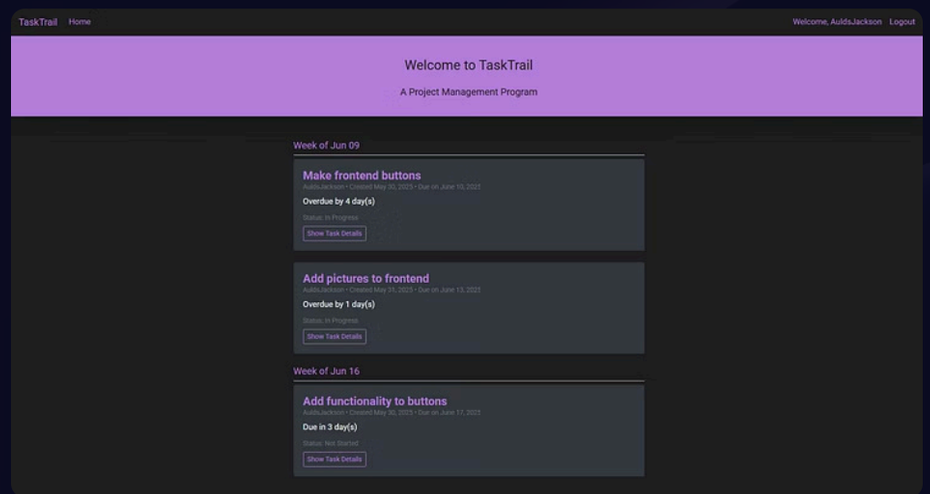
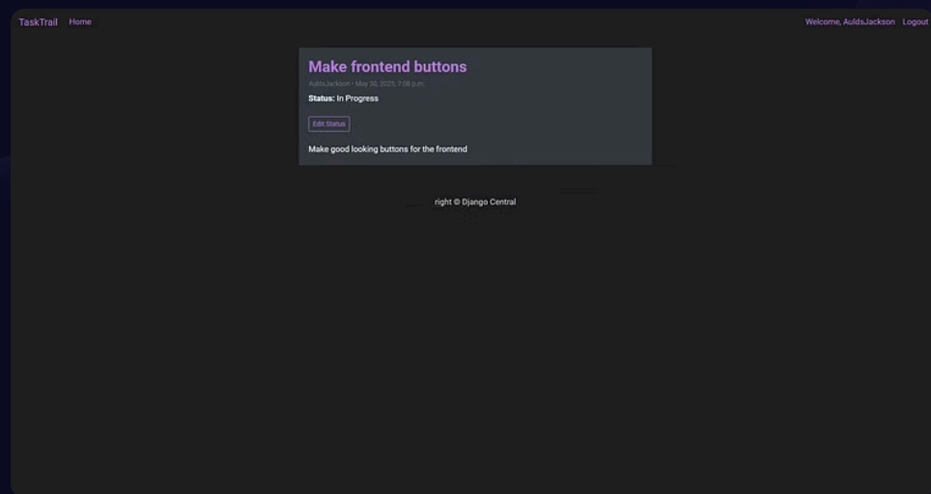
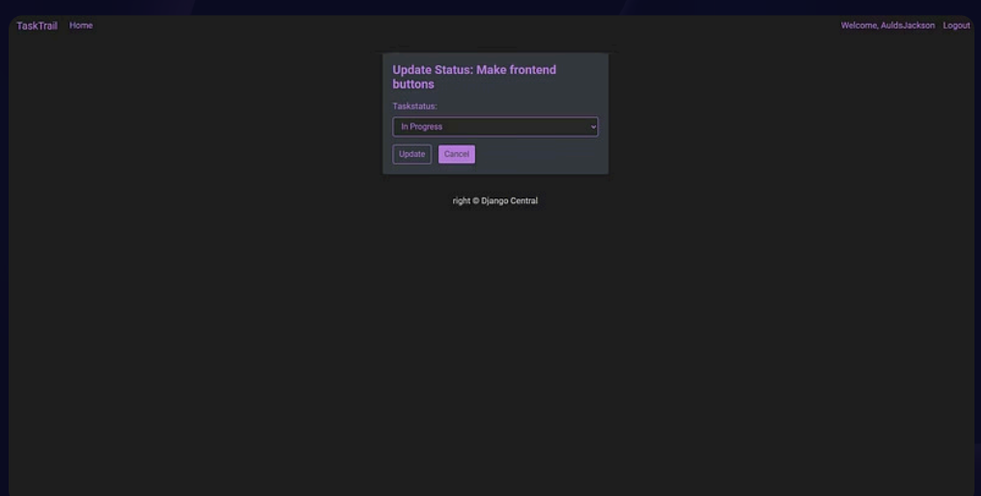
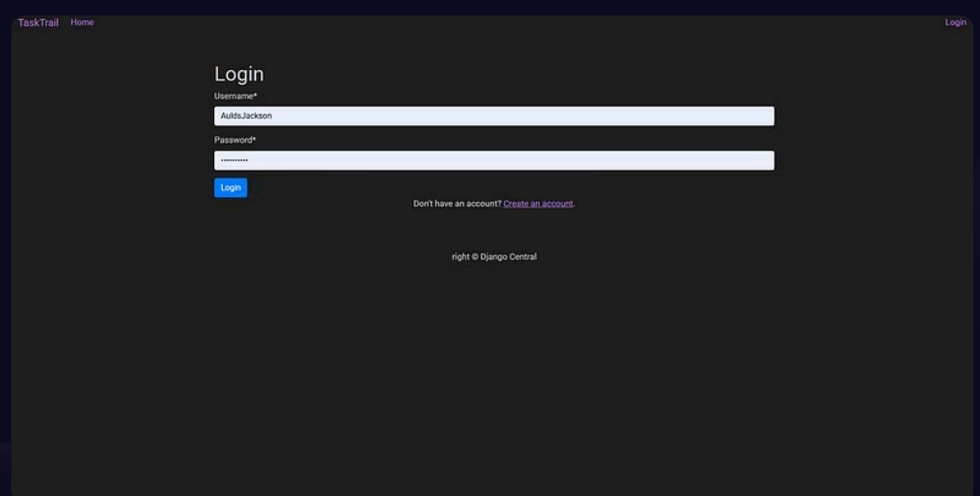
Screenshots









Visualizing TaskTrail's user interface and core functionalities.

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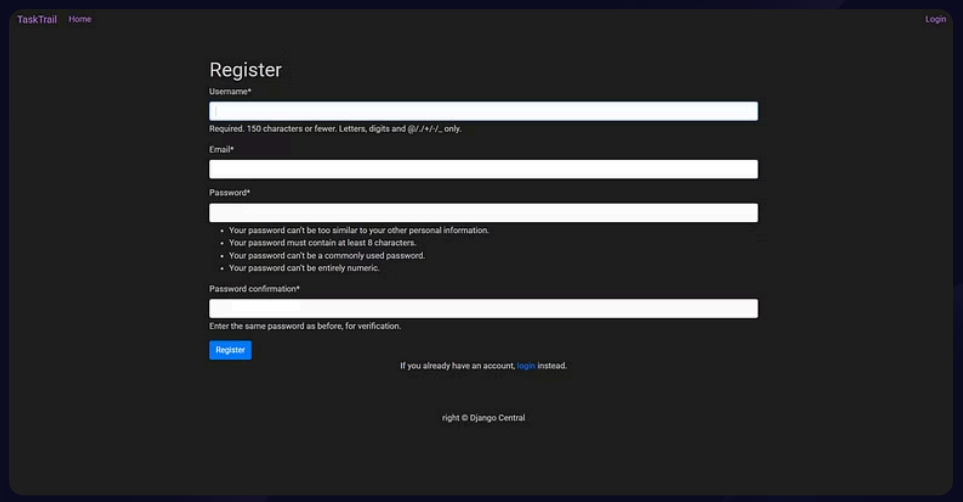
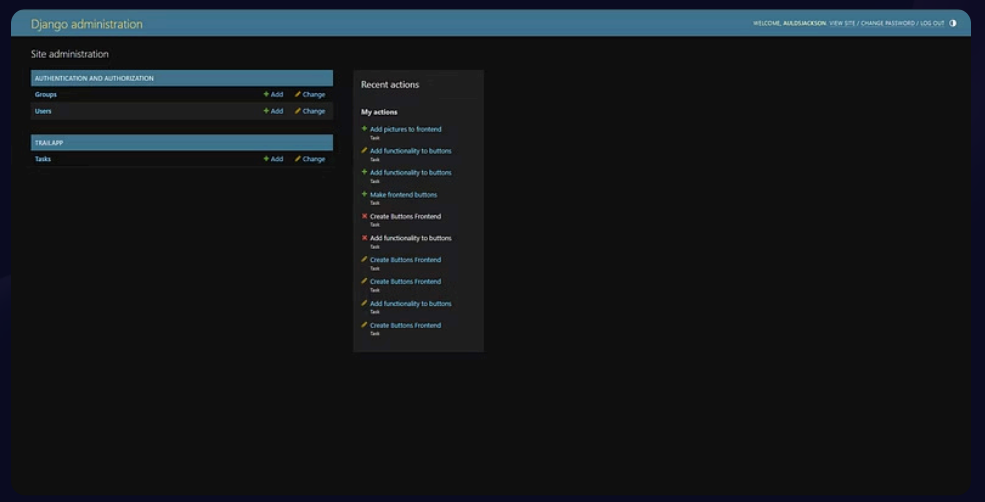
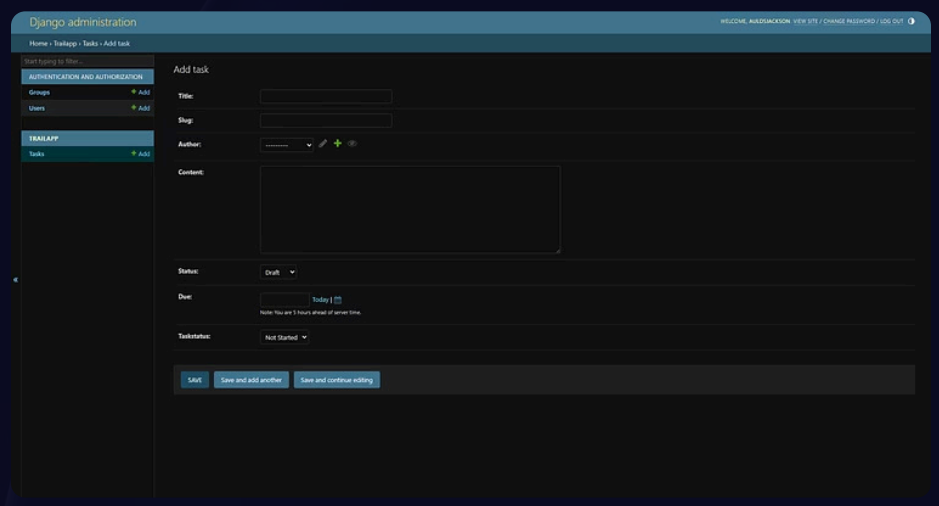
Screenshots








```
Accessed Home Page at 2025-06-14 13:29:33.905721 hours!
Accessed Home Page at 2025-06-14 13:30:27.522065 hours!
Logged out at 2025-06-14 13:30:30.960210 hours!
Register was accessed at 2025-06-14 13:30:45.465308 hours!
Logged in at 2025-06-14 13:31:05.518333 hours!
Accessed Home Page at 2025-06-14 13:31:05.529553 hours!
```

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Implementation Notes

1

Status Update

update_task_status view.

2

Access Protection

@login_required decorator.

3

Homepage Caching

Redis for expensive queries.

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Testing Summary

test_taskstatus_update	Validates task status updates.
test_update_task_requires_login	Ensures unauthorized redirection.

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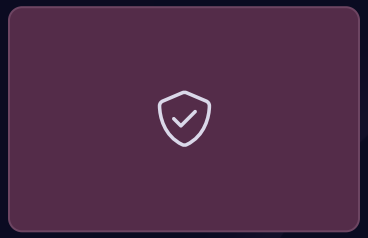
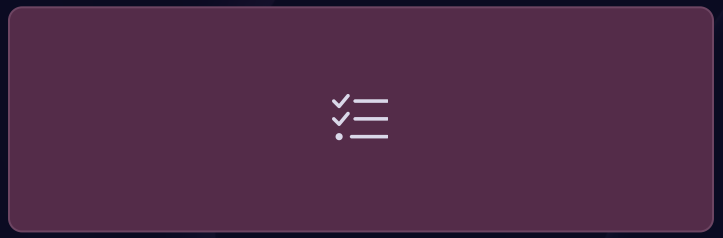
Summary and Reflections



Security Complexity

Many ways to breach systems.



Unit Testing

Ensures long-term reliability.

Django Admin

Simplifies management.

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Future Work

User Roles & Permissions

Add user roles and permissions for multi-tier access

Expose REST APIs

Expose REST APIs for mobile and third-party integrations

Add Analytics & Reporting

Add analytics and reporting features for projects

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Thank You for Your Time!

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