

Inpatient Therapy Scheduling System

sdmay21-44

Client: UnityPoint Health – Des Moines

Advisor: Mathew Wymore

Team:

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Problem: The current inpatient therapy scheduling system for our client Unity Point Health – Des Moines is an outdated system that has many error messages, limited usability and complex to learn. Our client needs a collaborative, intuitive interface, that allows multiple users to view and update schedules for a more efficient patient scheduling.

Solution: We created a scheduling system in the form of a web application, which allows multiple users to use the system concurrently, prevents scheduling conflicts, displays patient and therapist metrics, and is intuitive for new users.

Design Requirements

Functional

- Create, Read, Update, and Delete Therapist, Patients, Admins, Nurses, Locations, and Rooms
- Support multiple user types (Admin, Therapist, and Nurses)

- Schedule multiple therapy types
- View Schedule by room and therapist
- Support multiple locations
- Ability to print schedule
- Prevent scheduling conflicts
- View Metrics

Relevant Standards

- Comments within Code
- Test Driven Development
- Branch-Review-Merge Process
- IEEE/ISO/IEC 29119-2-2013- Software Testing
- IEEE/ISO/IEC 24748-5-2017- Software Development Plan
- IEEE P2675- Software Deployment

Non-functional

- Adhere to client's color scheme
- Support multiple users at once

Operating Environment

- Healthcare Industry
- Hosted on secure client servers

Engineering Constraints

- Social/Legal: Comply with HIPAA
- Time: August 2020-May 2021

- Budget: No funds supplied
- Resources: 6 Developers
- Technical: C# and .Net Backend

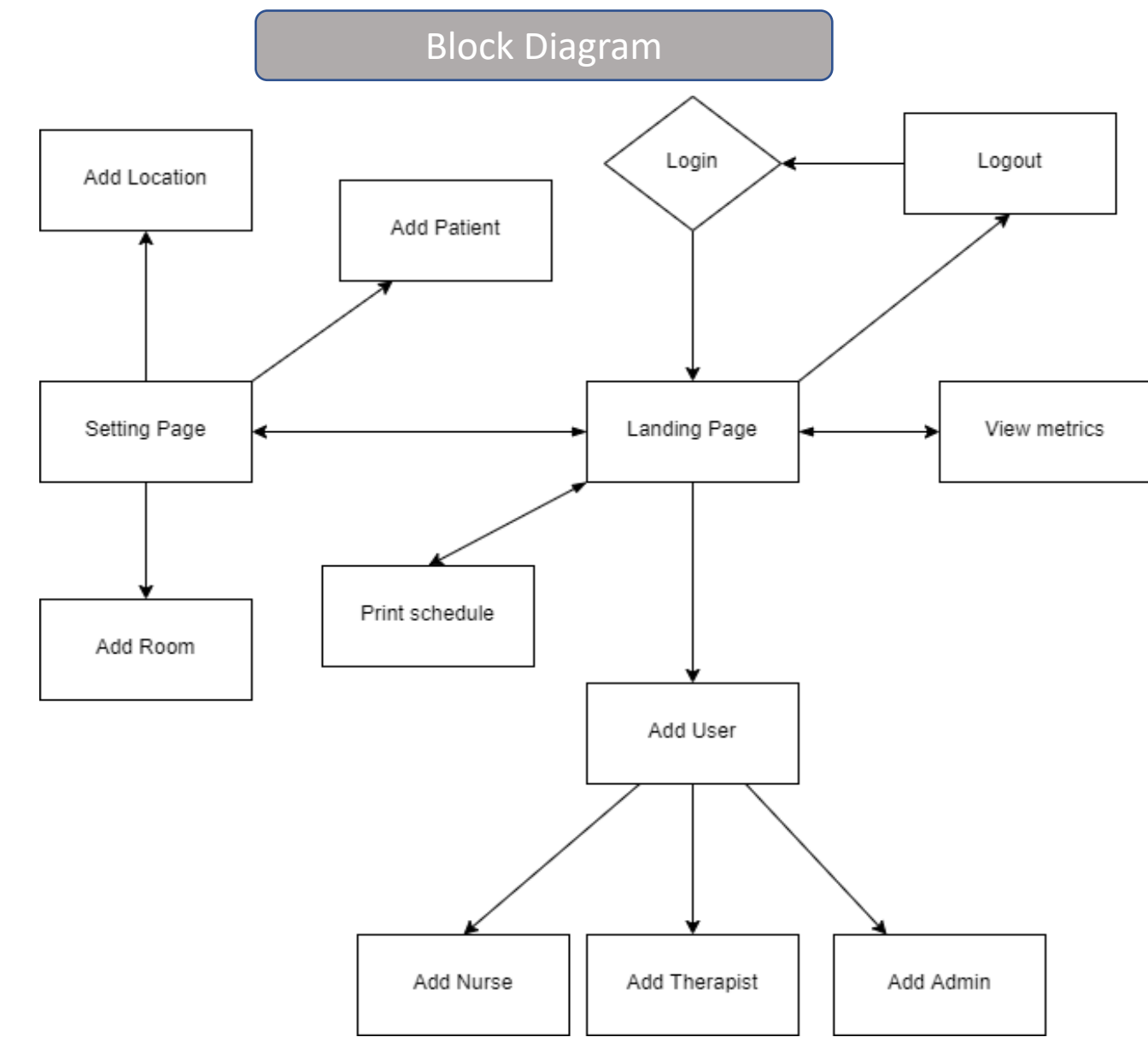
Intended Users and Uses

Administrators (staff): ability to Create, Read, Update, Delete on all modules of the system, as well as viewing metrics for all therapist and patients.

Therapist: ability to Create, Read, Update, Delete appointments for patients and manage their own schedule, as well as view their own metrics.

Nurses: ability to view patients schedules and room schedules.

Design Approach and Technical Details



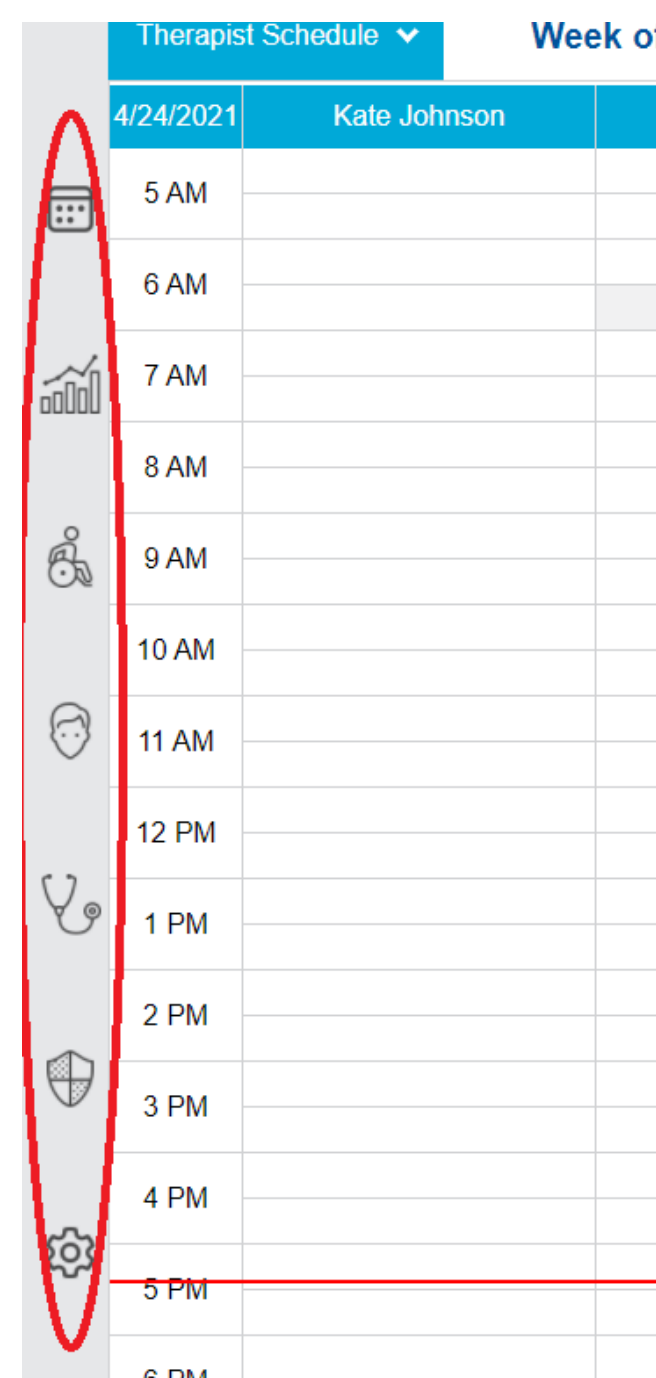
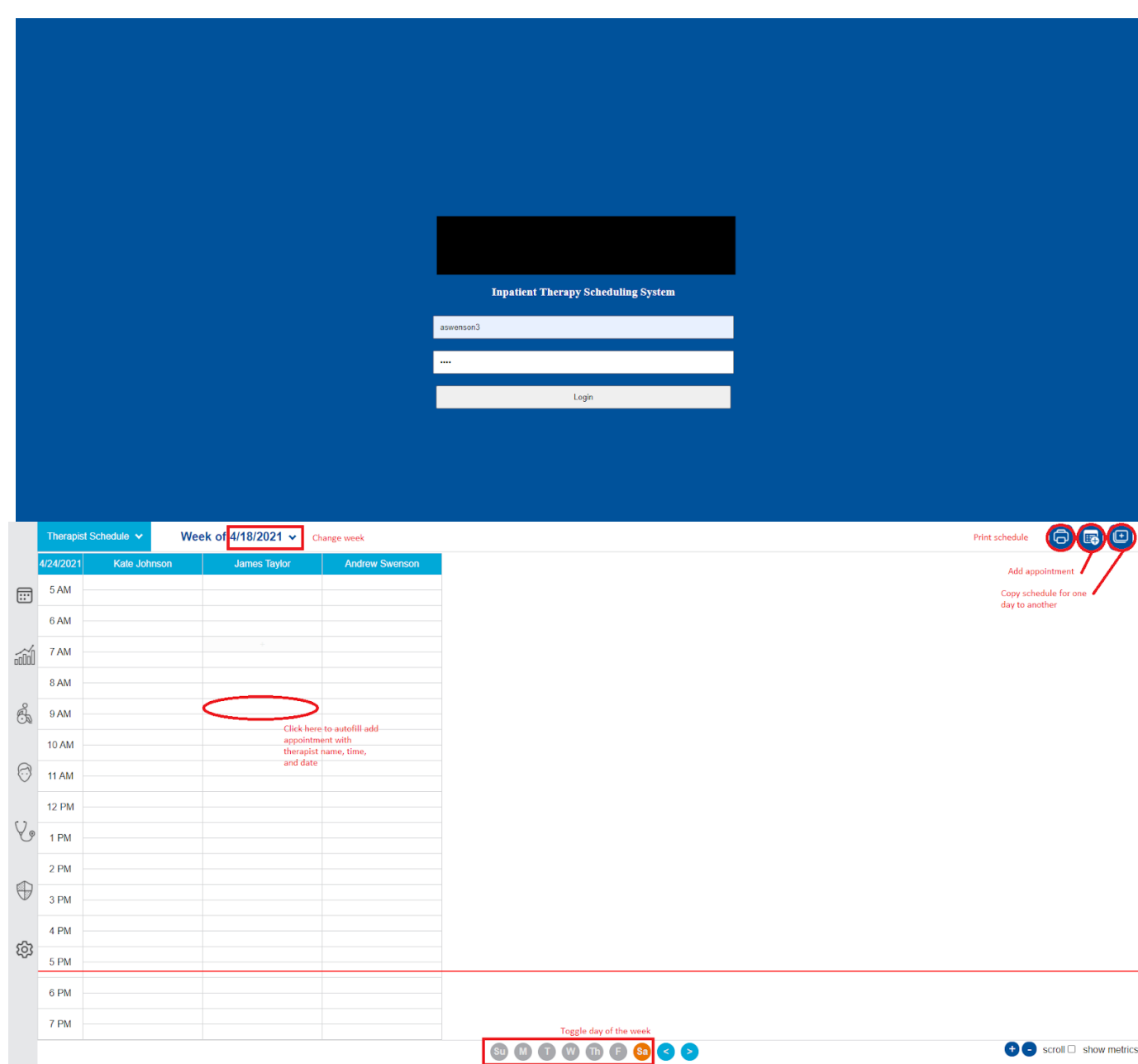
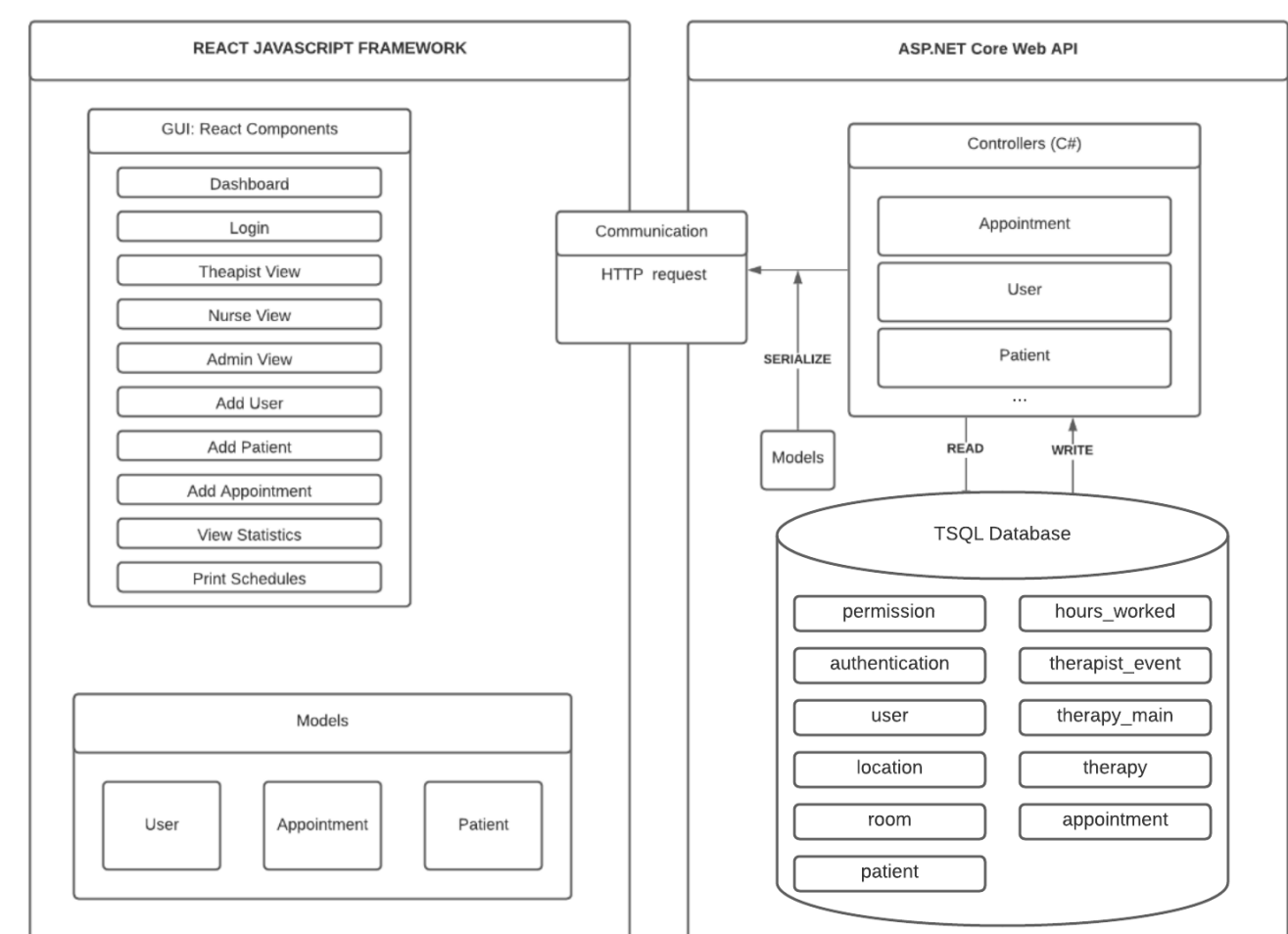
Security Concerns

- HIPAA Standards: Patient data is secure
- Nurses can not alter schedules
- Sensitive information must be hashed before storing

Technical Stack

- ReactJS
- C#
- T-SQL
- .NET

Architecture Diagram



First Name	Last Name	Username	Edit
Kate	Johnson	katUch	
James	Taylor	jtmTay	
Andrew	Swenson	asvenson2	

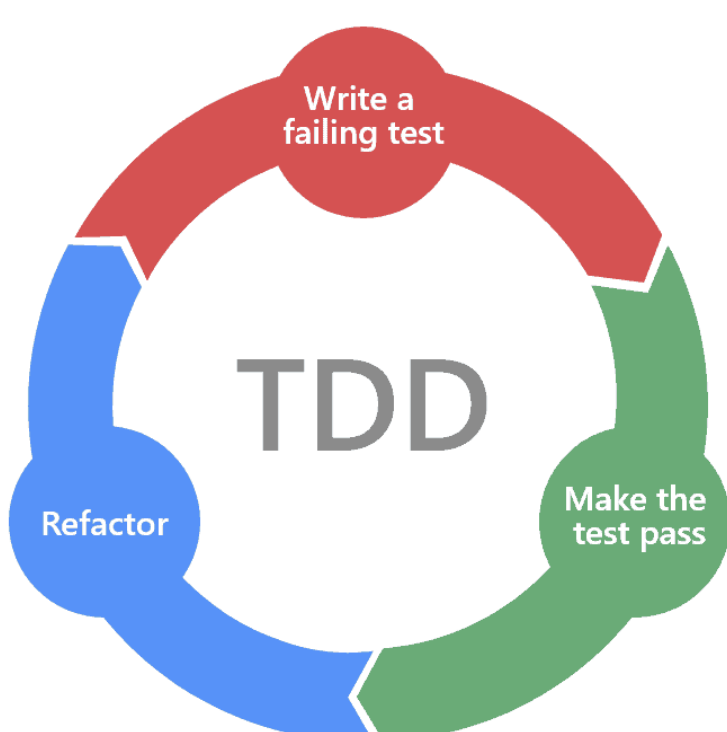
Add a Therapist

Physical Therapy
 Occupational Therapy
 Speech Therapy

By clicking the button, an email will be sent to the Therapist with their login information.

Create

Testing



Test Environment:

- React Testing Library
- Visual Studio Testing Tools

Test Strategy:

- Unit Testing
- Acceptance Testing with UnityPoint Health – DSM

Test Results:

- Over 530 passed test

