TRILLIUM DAY HEALTH PROGRAM

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Sponsor – AJ Blythe

SE Department Senior Project - 2015

R·I·T

Software Engineering
Rochester Institute of Technology

Trillium HEALTH

Motivation

Assist Trillium Day Health staff in providing effective Patient care
• Digitize currently physical artifacts (Assesssments, Care Plans, Attendance)
• Provide a web application to view these artifacts
• Provide a database to store the artifacts
• Provide and application to log and verify attendance with fingerprint scans
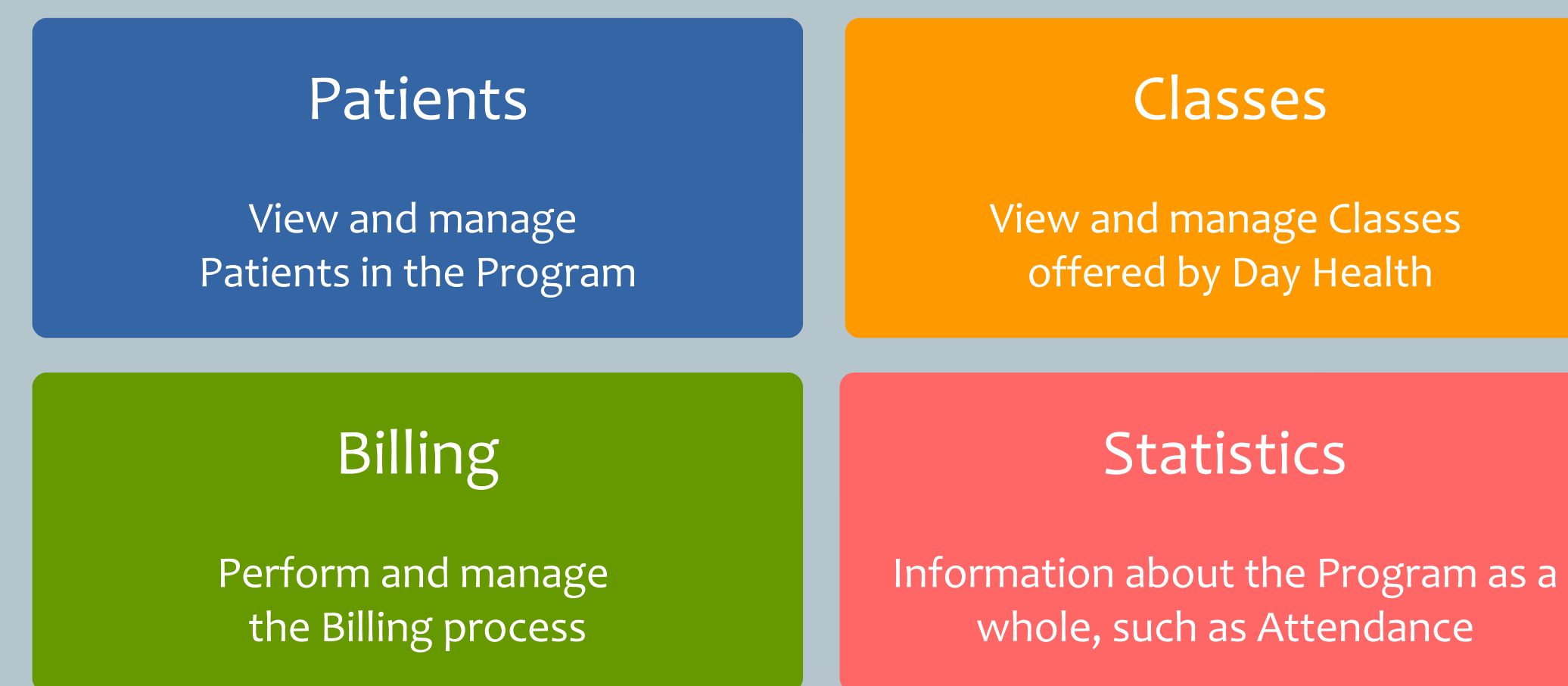
More Time for Clinic Workers

Better Care for Patients

Background Info

Trillium HEALTH

• Trillium is a local health care clinic
• The Day Health Program provides patient education and activity
• Day Health Sessions are hosted by Trillium and run by different facilitators
• To manage this program Trillium needs...
  • Medical documentation for the patients
  • Tracking patient progress in the program
  • The ability to record accurate patient attendance

Main Features

Web Portal
An Application to assist Trillium Clinic workers in day-to-day Activities

Patients
View and manage Patients in the Program

Classes
View and manage Classes offered by Day Health

Billing
Perform and manage the Billing process

Statistics
Information about the Program as a whole, such as Attendance

Session App
Fingerprint Validation - Patient Attendance

Patient Fingerprint → Scanner → Attendance

Database
Auditing Support
Configurable Document Types

Delivered Product

Patient ▾

| Submit | Edit | Cancel | Delete |

Daniel Hudy's Status: Registered

Care plan review has not been completed yet.

Document	Status
Nutrition Assessment	✗
Behavioral Assessment	✗
Substance Use Assessment	✓
Nursing Assessment	✓
CCP	✗

| Begin Care Plan Review |
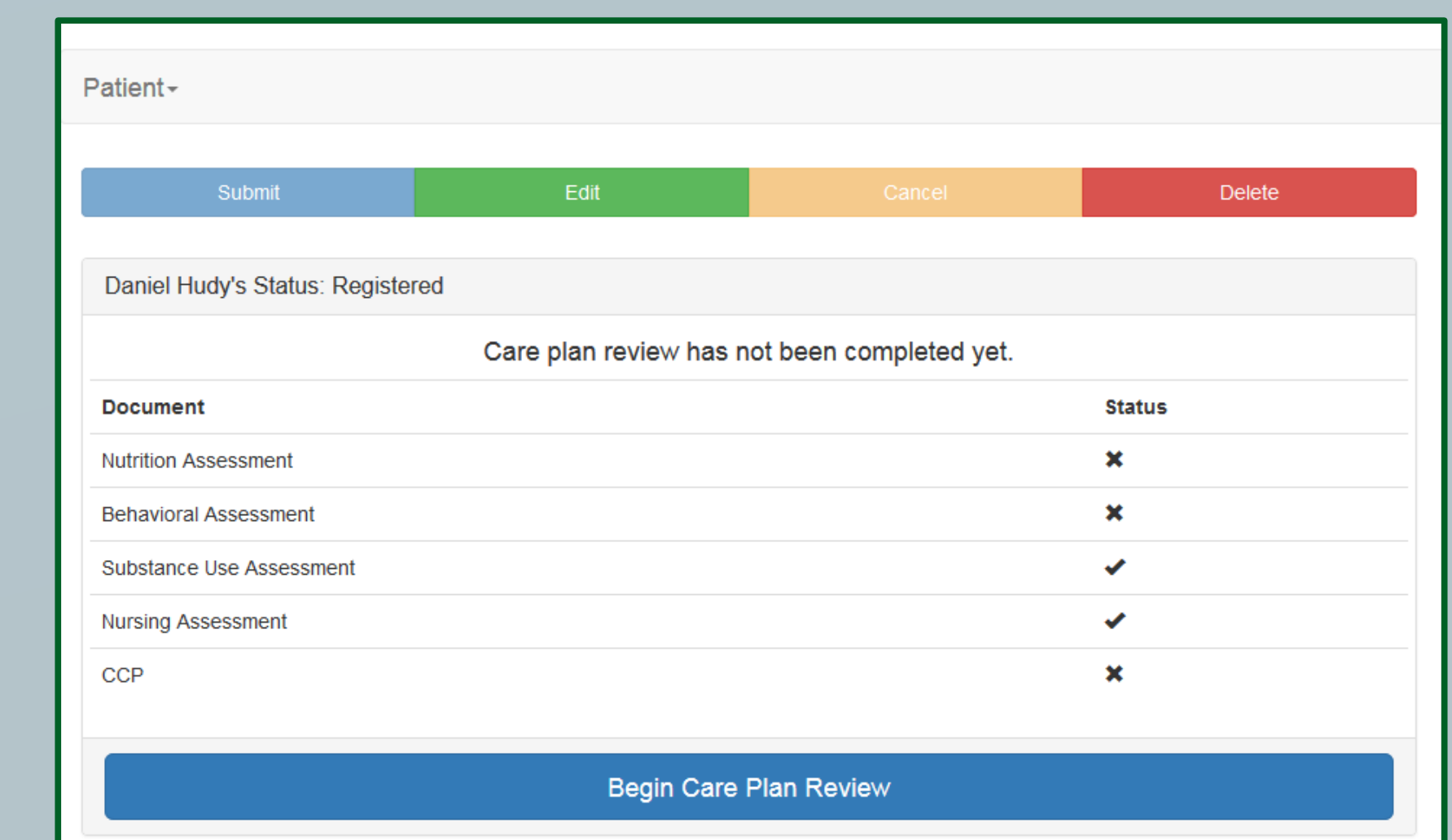
A Patient's Overview
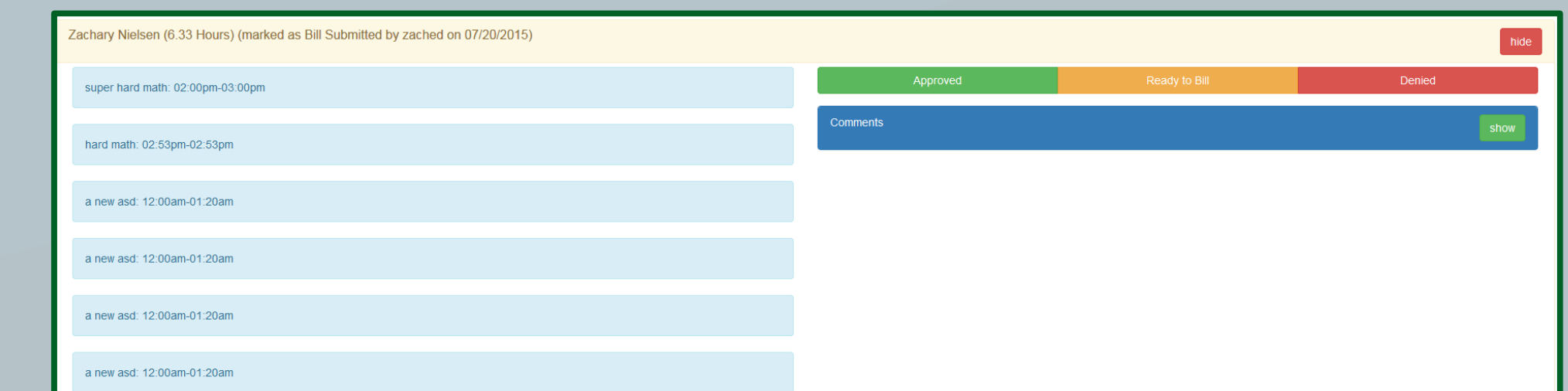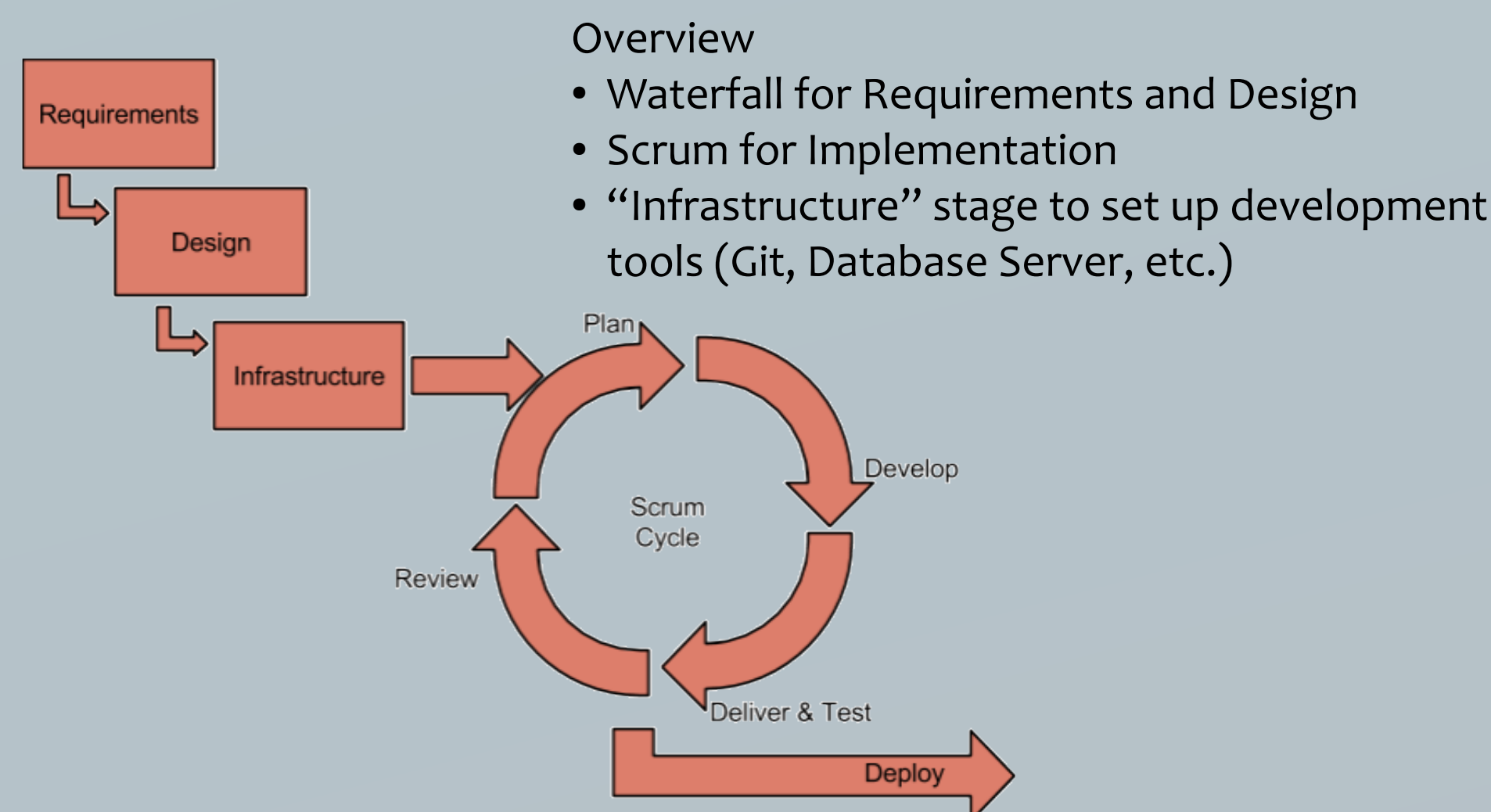
Billing Example

Changes to Trillium Work-flow
• Easier to review patient attendance
• Easier to look up patient documents
• Session App and Fingerprint scanning provides solid attendance verification
• Updating changes to patients or documents is much simpler

Process and Methodology

Overview
• Waterfall for Requirements and Design
• Scrum for Implementation
• "Infrastructure" stage to set up development tools (Git, Database Server, etc.)

Requirements → Design → Infrastructure

Scrum Cycle: Plan → Develop → Review → Deliver & Test → Deploy
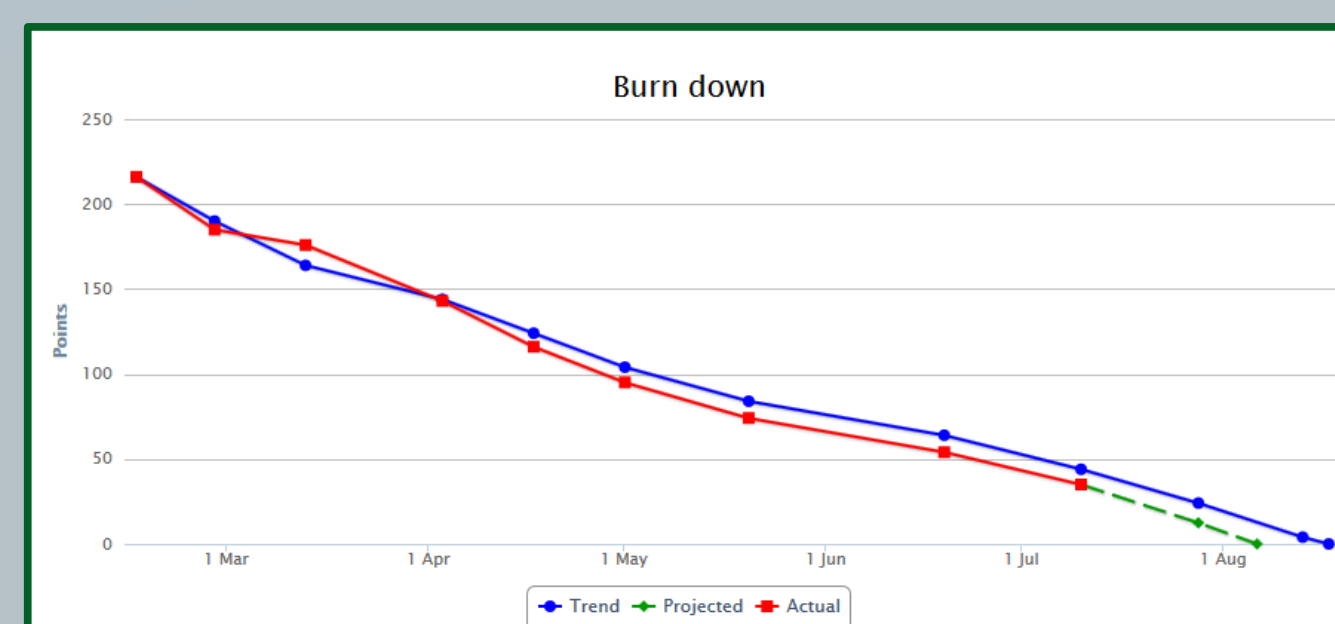
Burn down

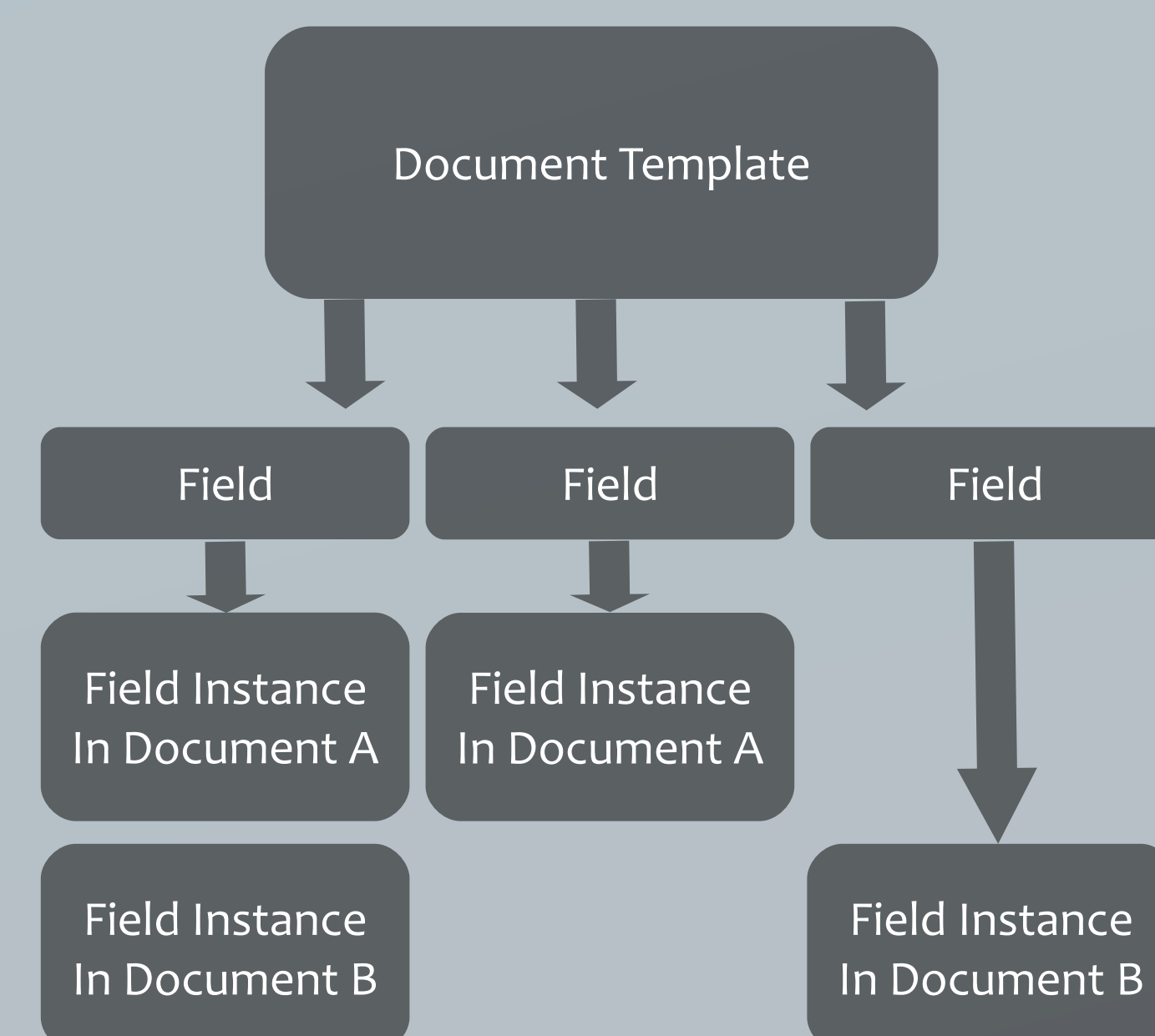Here you see our main metric for measuring progress, story points, in a burn-down chart.

Design

Key aspects of Design
• User friendly and easy to learn
• Patient-Document and Patient-Session relationships
• Document history for Auditing
• Security

Database Design
Allowing variable Document Types

Document Template

Field | Field | Field

Field Instance In Document A | Field Instance In Document A

Field Instance In Document B | Field Instance In Document B
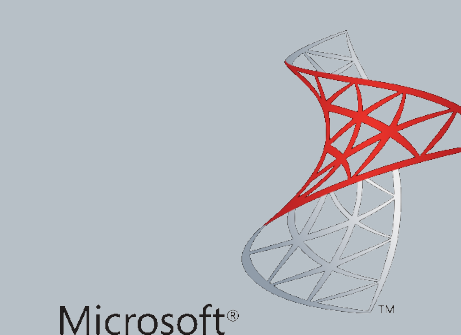
Technologies and Rationale

Angular
• Web Application
• Team member experience
• User-friendly web applications
• Libraries for desired features

node.js
• Web Server
• Prefect for small scale project
• Database Integration
• Replaced Spring

MS SQL Server
• Database
• Already in use at Trillium
• A requirement

Lessons Learned

Process Lessons
• Scrum is ineffective when team and domain are new
• Need time to learn domain and understand requirements

Outsourcing Fingerprint Application to 360Biometrics
• Did not have to spend time learning new technologies
• Experts much more efficient than we could have been.
• Less control over finished product
• Integration risks
• Overhead on requirements communication.

Technology Lessons

spring

Learned to save time by switching to technologies better suited to the project. Changing from Spring to node.js saved the team a lot of time.

slack

Learned the importance of quick and organized team communication. Slack was especially helpful.