Biomedical Plate, Assay, and Results Management System

MILESTONE 1

WE99: West-East Team

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WE99 Team Vision

The team focus is providing outstanding tools to assist in analyzing the dose response characteristics potential drugs.

We will provide beautiful interactive visualization tools that will assist the scientist in:

• Creating and managing experimental plate sets for dose response experiments
• Performing quality control checks on plate results and plate controls
• Performing Interactive analysis of dose response results.

The team will store the experimental results and the analysis of the results so that the historic experimental analysis can be reviewed or reproduced at any time.

Scientists will be able to save the results for further analysis or publish their analysis, making it available to all other users.

Business Opportunity

- High throughput screening tests millions of potential drugs.

- Commercial software is expensive

- Enable Scientists to be organized and efficient when screening potential drugs.

- Dynamic analysis tools help reduce the number of experiments.

- Eliminate compounds earlier in the discovery cycle.

Presentation Outline

Overview of Presentation

- Plate Editing and Creation – Alex
- Results Analysis – Sean
- Architecture – Mark
- Front End / Risks – Tim
- Project Planning/Estimates - Alan

What "we99" are Delivering – Plate Map Editor
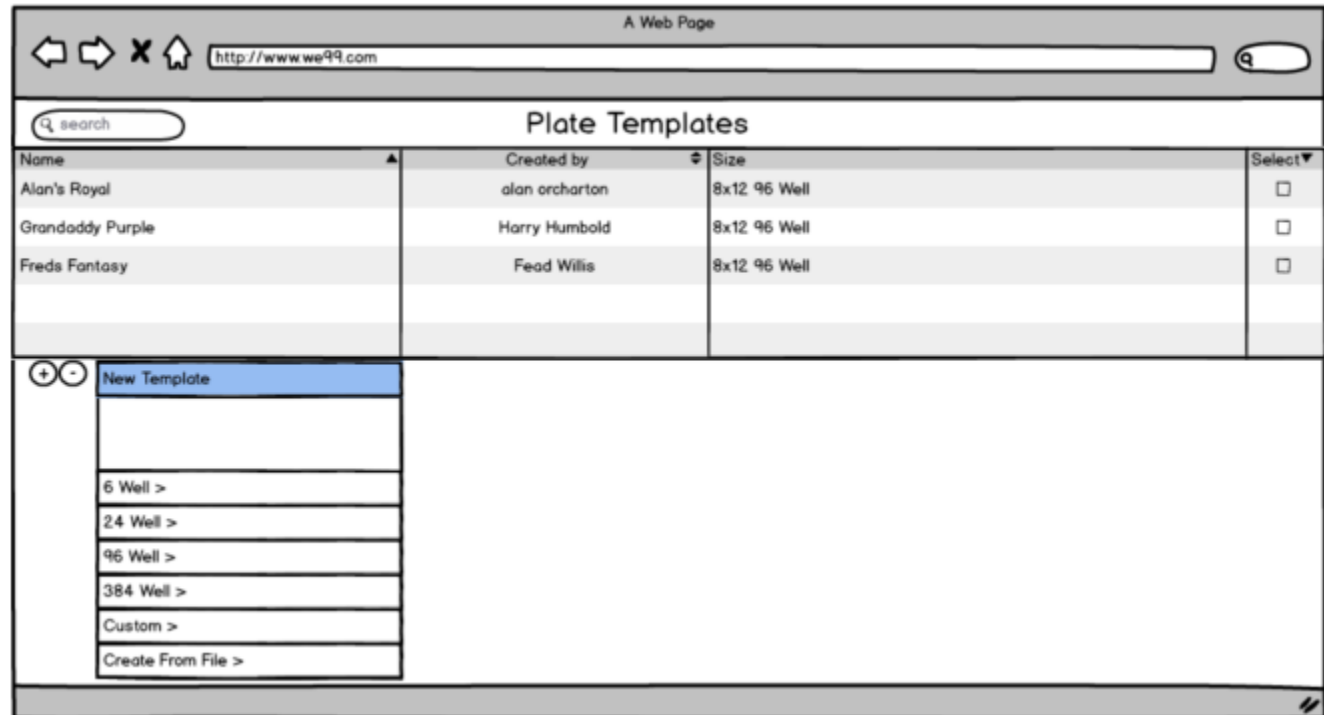
Plate Manager / Import – Export

- Import to take data from json file.

- Export to put details of the plate into a json file

- Click actions to update status:
  - Mark prepared
  - Send to device
  - Upload analysis
  - View analysis
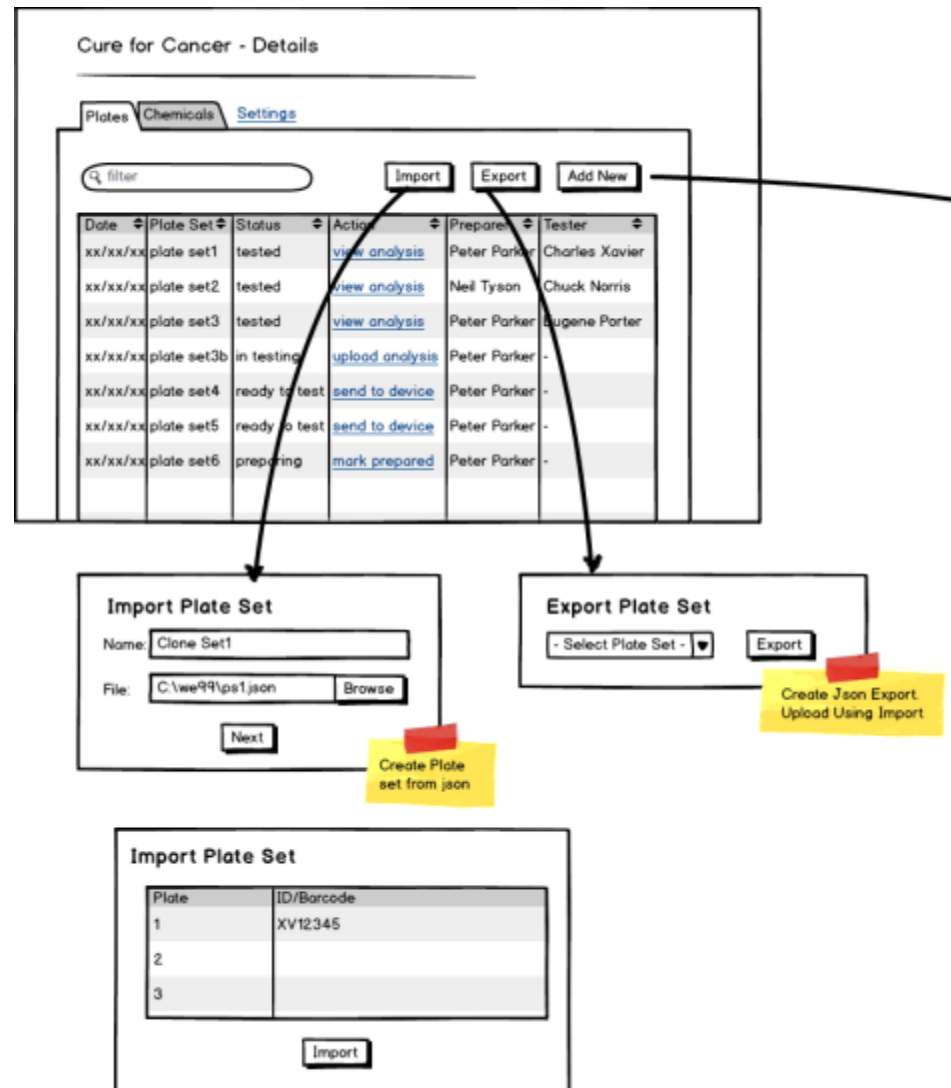
What "we99" are Delivering – Plate Map Editor

Plate Templates

• Plate are created from plate templates

What "we99" are Delivering – Plate Map Editor

Add Plate Wizard – Part 1: Wells and Compounds

What "we99" are Delivering – Plate Map Editor

Add Plate Wizard – Part 2: Dosage

What "we99" are Delivering – Plate Map Editor

Add Plate Wizard – Plate Preview

What "we99" are Delivering – Results Analysis

What we99" are Delivering – Results Analysis
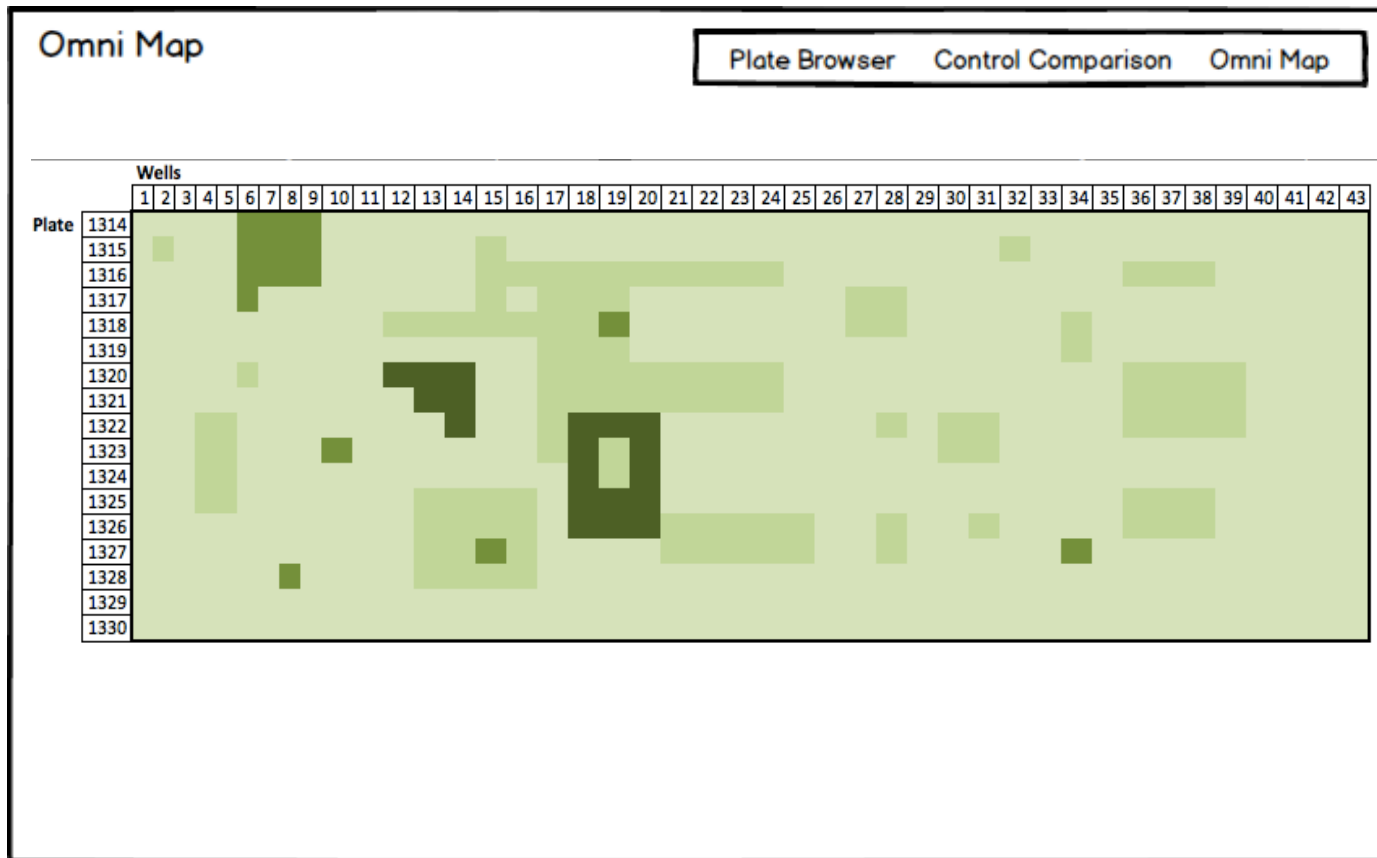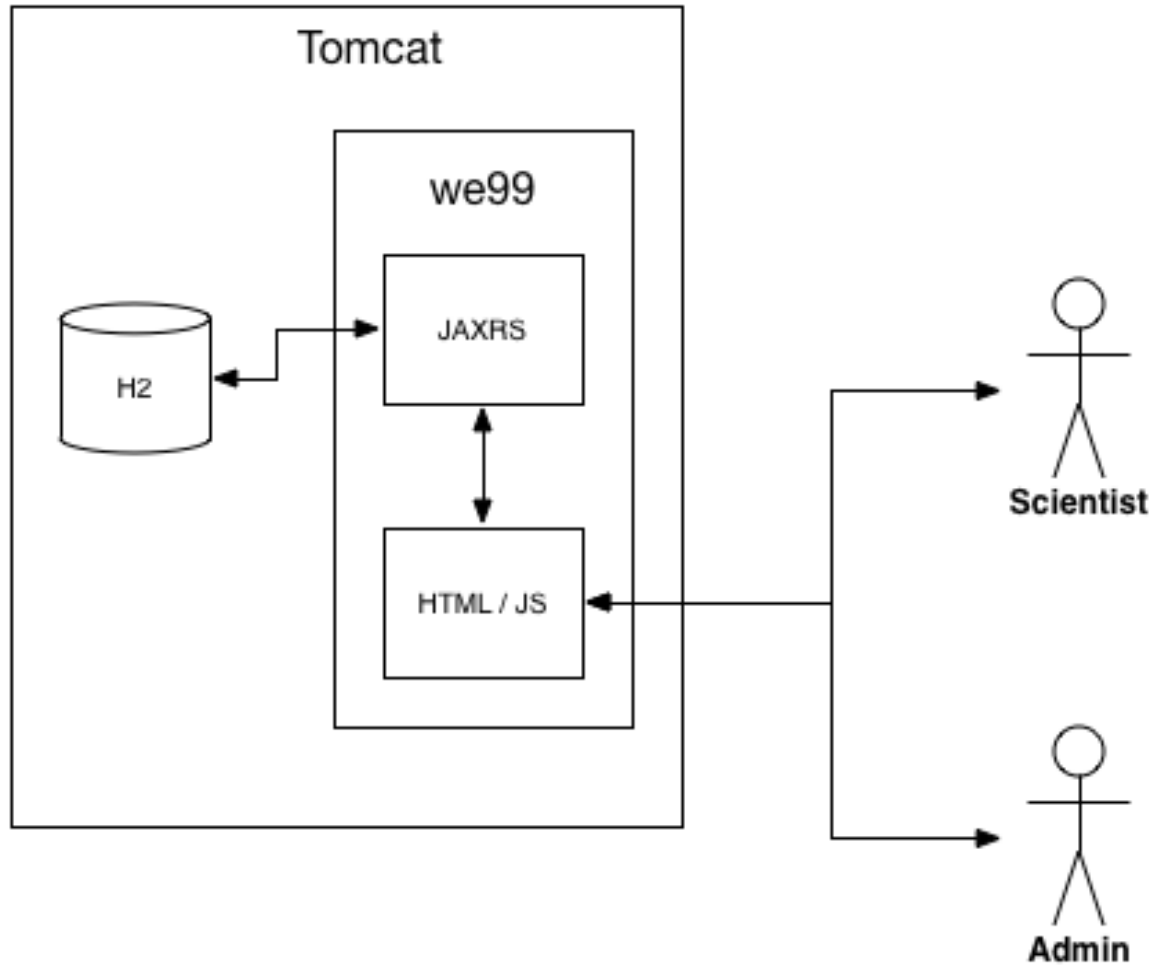
System Architecture

System Architecture

Model

The domain model uses the standard JPA annotations in order to be able to create a declarative persistence layer for the application

Controller

The controller portion of the application is implemented via REST services. The service classes are implemented using the JAXRS standard specification

View

The view component of the application is an application based on Angular JS.

Project Risks

Risks

- Integration with other teams
  - Design meetings with other teams planned

- Stories take longer that estimated
  - Keep a burn-up chart and prioritize stories

- Getting of Good Test Data
  - Professor and TA may be able to get more

- Testing Strategy
  - Test Driven Design

Project Planning – Team / Tools
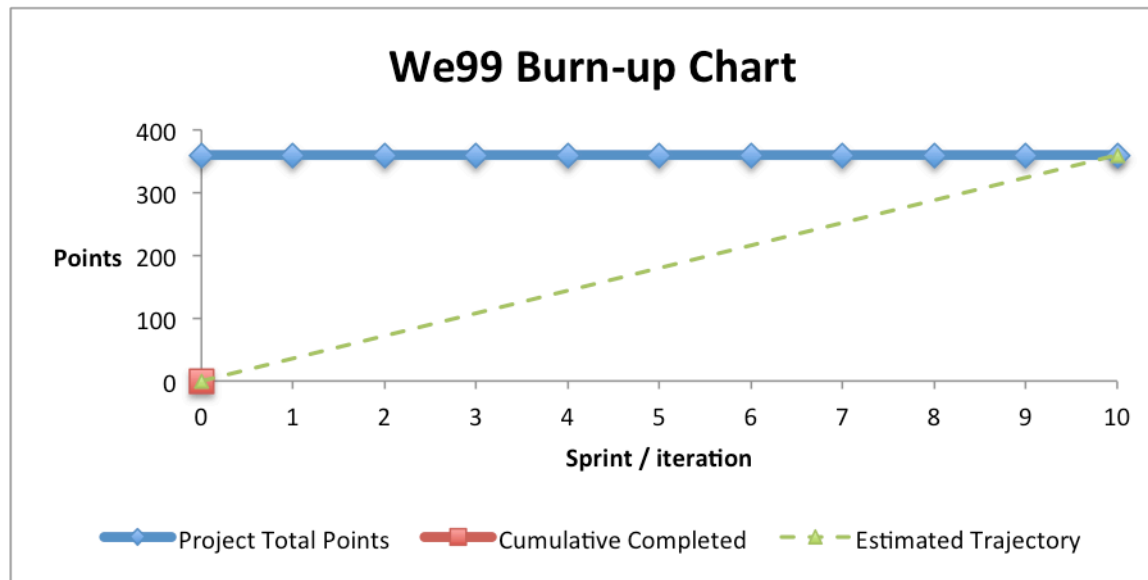
Division of Labor

- 3 People specializing in Front End work
- 2 People specializing in Back End work

Collaborative Tools

- Slack (messaging)
- Git Hub Repository
- JIRA

Project Planning

- 10 Iterations
- 360 Story Points (Project Estimate 720 Hours)
- Burn-up Calculated weekly

We99 Burn-up Chart

Key Milestones

- Milestone 2 Deliverables
  - Screen Process Flow
  - Domain Model
  - Web Service Interfaces
  - Plate Map Editor
  - Web Services for Plate Editor
  - Web Services for QC Results
  - Heat Maps
  - QC Plates / Experiments

- Milestone 3 Deliverables
  - Interactive Analysis
  - Interactive Dose Response Analysis
  - Save or Publish