

MICHIGAN STATE
UNIVERSITY

Project Plan

Medications Shortages Dashboard

The Capstone Experience

Team Spectrum Health

Alex Lockwood

Alex Seling

Cam Keif

Department of Computer Science and Engineering
Michigan State University

Spring 2014



*From Students...
...to Professionals*

Project Overview

- Spectrum Health – healthcare organization in Grand Rapids
- Pharmacists must be able to track medication shortages
- Currently no centralized system

Project Overview

- Solution: Medication Shortages Dashboard
 - Collects shortage and current inventory information
 - Each pharmacist has a unique watch list
 - Allows pharmacists to collaborate/discuss shortages



Functional Specifications

- Drug Information Collection
 - Import CSV file
- Shortage Information Collection
 - Automatically parse RSS feeds hourly
- Manual entry of shortage/drug information



Functional Specifications

- Watch List
 - Each user gets personal drug watch list
- Drug Detail View
 - Users can comment on drug's detail view
 - Graph of drug's status history



Design Specifications

- Shortages visible to all users
- Color-coded to indicate level of severity
- Four types of users
- Watch list is a customizable list of drugs



Screen Mockup: Watch list

Medication Shortages Dashboard

http://www.spectrumhealthcapstone.com

Spectrum Health

My Home All Shortages

Username
[Settings](#) | [Logout](#)

Watchlist

search drugs

Name	Dosage	Status
Drug E	1mg	out
Drug C	20mg	warning
Drug A	20mg	good



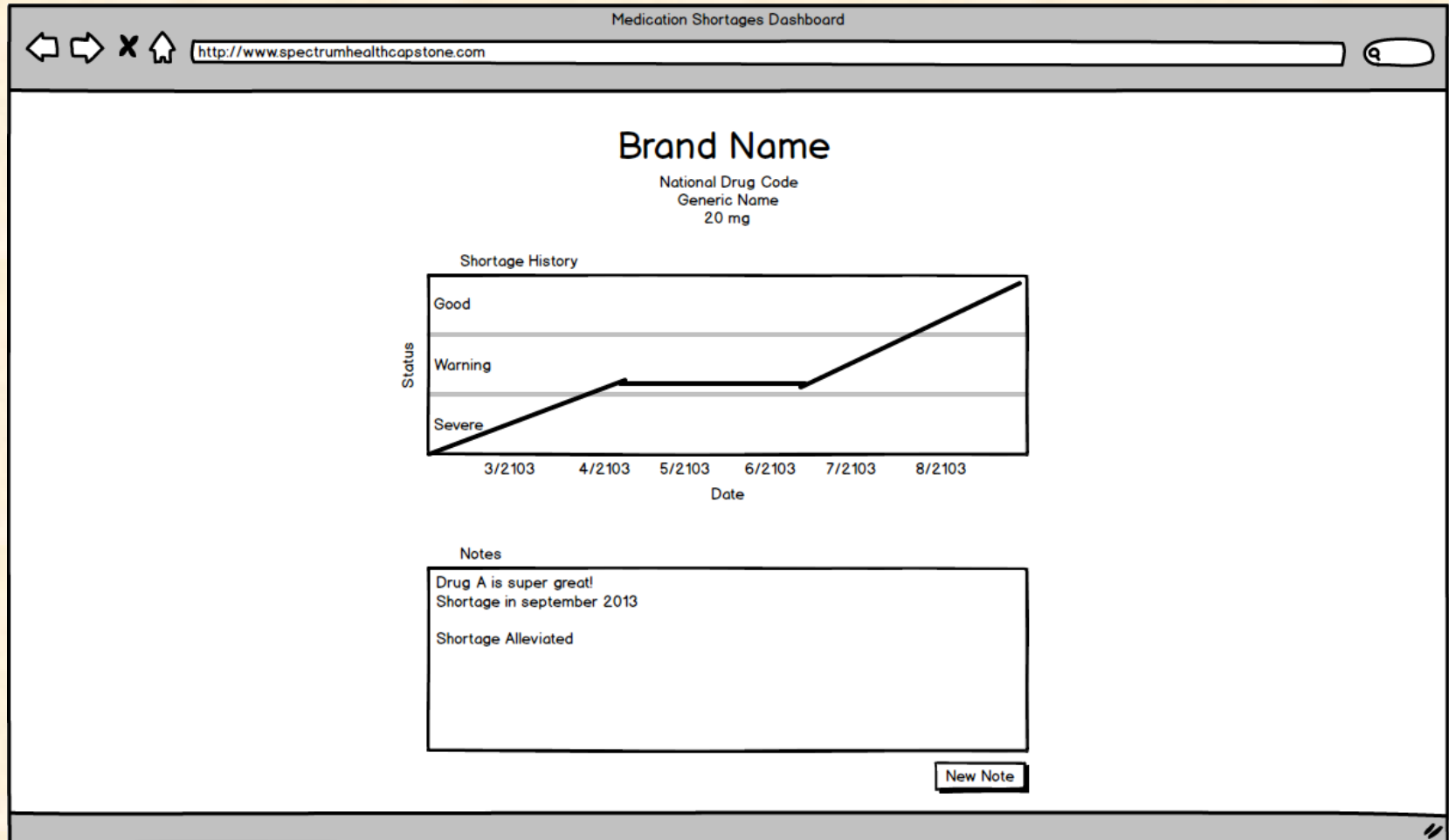
Screen Mockup: All Drugs List

The screenshot shows a web browser window titled "Medication Shortages Dashboard" with the URL "http://www.spectrumhealthcapstone.com". The page header includes "Spectrum Health" and user information: "Username Settings | Logout". A navigation bar has "My Home" and "All Shortages" tabs. Below the header is a "Shortages Information" section with a search bar labeled "search drugs". The main content is a table with the following data:

Name	Dosage	Status	Watchlist
Drug A	20mg	out	<input type="checkbox"/>
Drug B	5mg	warning	<input type="checkbox"/>
Drug C	20mg	warning	<input checked="" type="checkbox"/>
Drug E	1mg	out	<input type="checkbox"/>
Drug F	7mg	warning	<input type="checkbox"/>
Drug G	2mg	out	<input checked="" type="checkbox"/>
Drug I	1mg	out	<input checked="" type="checkbox"/>



Screen Mockup: Login

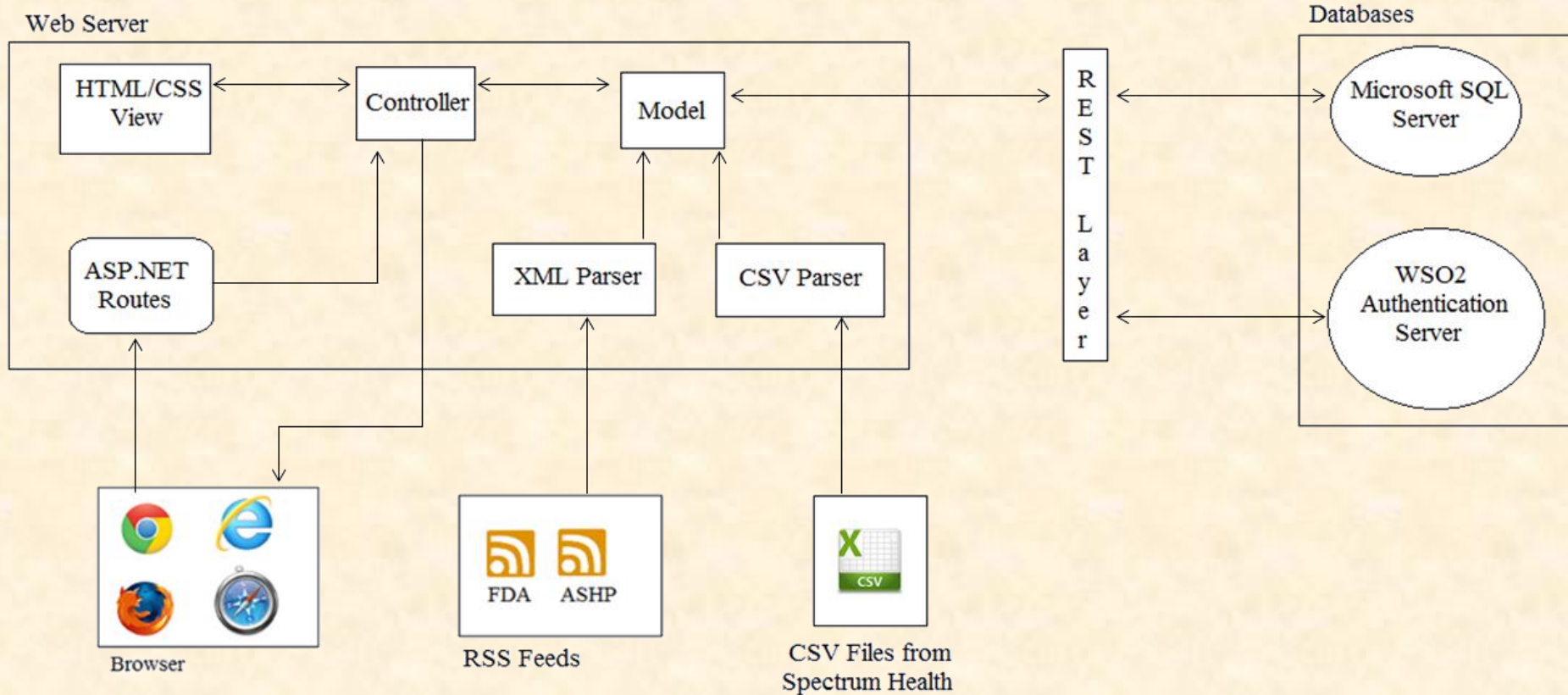


Technical Specifications

- Built primarily with Microsoft technologies
 - ASP.NET, Windows Server, Microsoft SQL Server
- Typical MVC architecture
- RSS feeds from FDA/ASHP parsed hourly
 - using existing XML parsing library
- All interactions with database through REST layer



System Architecture



System Components

- Hardware Platforms
 - Server OS: Windows Server 2008
 - Development machine OS: Windows 7 and 8
- Software Platforms / Technologies
 - Visual Studio 2012 Express for Web
 - ASP.NET 4.5 with C#
 - Private repository on GitHub
 - Microsoft Unit Testing Framework



Testing

- Unit Testing
 - Microsoft Unit Testing Framework
 - 80% code coverage
- Manual Exploratory Testing



Risks

- Unsure how to use Microsoft Server 2008
 - Nobody has experience with Microsoft Server 2008
 - We will learn how to use Microsoft Server 2008
- Creating timed script
 - Shortage information must be collected hourly
 - Stack Overflow
- Getting website online
 - How do we actually get it online?
 - Various tutorials online



Summary

- Web application built on ASP.NET
- Collects and aggregates information for pharmacists
- Automatic and manual data entry

