

MICHIGAN STATE

U N I V E R S I T Y

Beta Presentation

Medications Shortages Dashboard

The Capstone Experience

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*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

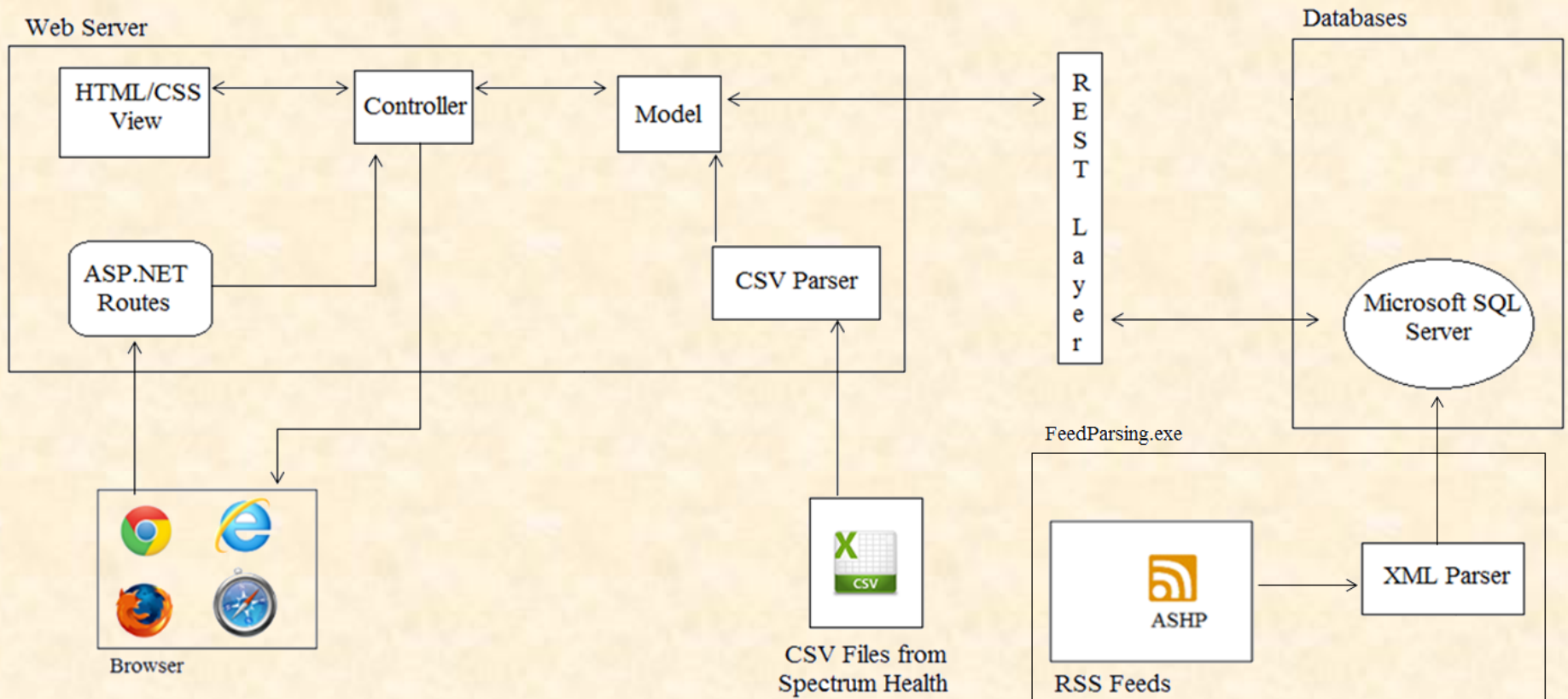


Project Overview

- Solution: Medication Shortages Dashboard
 - Collects shortage and current inventory information
 - Logged in users have personal watch lists
 - Allows pharmacists to collaborate/discuss shortages
 - With each other
 - With pharmacist administrators



System Architecture



Current Shortages Page - Guest

The screenshot displays a web application titled "Current Shortages" for a guest user. The interface is organized into four columns based on the severity of shortages: Severe, Warning, Good, and Recent. Each column contains a list of medications. The "Severe" column lists Cayston 750mg and Tylenol 400mg. The "Warning" column lists APP Leucovorin Calcium Injection 200 mg, Apsonal 50mg, Brilinta 80mg, Eliphos 667 mg, and Tylenol 200mg. The "Good" column lists Actos 500mg, Champix 10mg, Foradil 5mg, Gilenya 450mg, and Hydreia 15mg. The "Recent" column lists Tylenol 400mg, APP Leucovorin Calcium Injection 200 mg, Cayston 750mg, Test Brand 20mg, Micardis 75mg, Tylenol 200mg, Saphris 350mg, Eliphos 667 mg, Tylenol 800mg, and Foradil 5mg. The browser's address bar shows "localhost:60705". The page includes a search bar and navigation links like "Home", "Login", and "Debug Login".

Severe	Warning	Good	Recent
Cayston 750mg	APP Leucovorin Calcium Injection 200 mg	Actos 500mg	Tylenol 400mg
Tylenol 400mg	Apsonal 50mg	Champix 10mg	APP Leucovorin Calcium Injection 200 mg
	Brilinta 80mg	Foradil 5mg	Cayston 750mg
	Eliphos 667 mg	Gilenya 450mg	Test Brand 20mg
	Tylenol 200mg	Hydreia 15mg	Micardis 75mg
			Tylenol 200mg
			Saphris 350mg
			Eliphos 667 mg
			Tylenol 800mg
			Foradil 5mg



Current Shortages Page – Logged In

The screenshot shows a web browser window with the URL `localhost:60705/DrugEntriesList/`. The page title is "Current Shortages" and the user is logged in as "Cam". The page is divided into four columns: Severe, Warning, Good, and Recent. Each column contains a list of drugs with their respective shortage levels and star ratings. The "Severe" column has two items: Cayston 750mg (star) and Tylenol 400mg (star). The "Warning" column has five items: Brilinta 80mg (star), Eliphos 667 mg (star), APP Leucovorin Calcium Injection 200 mg (no star), Apsonal 50mg (no star), and Tylenol 200mg (no star). The "Good" column has six items: Actos 500mg (star), Gilenya 450mg (star), Saphris 350mg (star), Tylenol 800mg (star), and Champix 10mg (no star). The "Recent" column has ten items: Tylenol 400mg (star), APP Leucovorin Calcium Injection 200 mg (no star), Cayston 750mg (star), Test Brand 20mg (no star), Micardis 75mg (no star), Tylenol 200mg (no star), Saphris 350mg (star), Eliphos 667 mg (star), Tylenol 800mg (star), and Foradil 5mg (no star). The page also features a search bar and navigation links for Home and Admin.

Severe	Warning	Good	Recent
• Cayston 750mg ★	Brilinta 80mg ★	Actos 500mg ★	Tylenol 400mg ★
Tylenol 400mg ★	Eliphos 667 mg ★	Gilenya 450mg ★	APP Leucovorin Calcium Injection 200 mg ★
<< < 1 > >>	APP Leucovorin Calcium Injection 200 mg ★	Saphris 350mg ★	• Cayston 750mg ★
	Apsonal 50mg ★	Tylenol 800mg ★	Test Brand 20mg ★
	Tylenol 200mg ★	Champix 10mg ★	Micardis 75mg ★
	<< < 1 > >>	<< < 1 > >>	Tylenol 200mg ★
			Saphris 350mg ★
			Eliphos 667 mg ★
			Tylenol 800mg ★
			Foradil 5mg ★

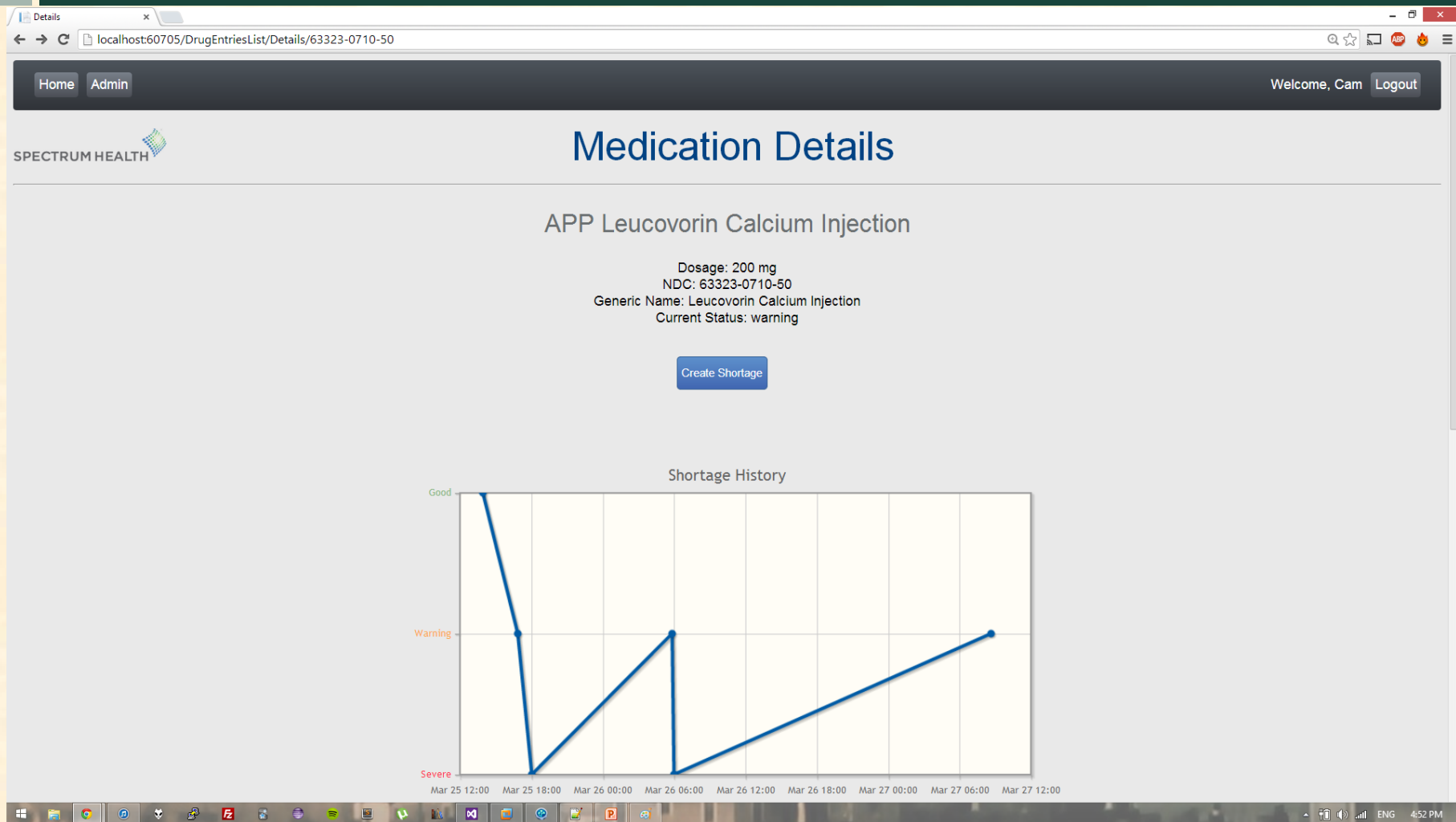


Filtering

The screenshot shows a web browser window with the address bar at localhost:60705. The application header includes 'SPECTRUM HEALTH' and 'Current Shortages' with a search input containing 'tylenol'. The main content area displays four columns of results based on severity:

Severe	Warning	Good	Recent
Tylenol 400mg ★ « < 1 > »	Tylenol 200mg ★ « < 1 > »	Tylenol 800mg ★ « < 1 > »	Tylenol 400mg ★
			Tylenol 200mg ★
			Tylenol 800mg ★

Drug Detail View (1 of 2)



Drug Detail View (1 of 2)

The screenshot shows a web browser window with the URL `localhost:60705/DrugEntriesList/Details/63323-0710-50`. The page content includes a 'Shortage History' table and a discussion section.

Shortage History	
warning at 8:38:54 AM on 4/27/2014	Details Edit Delete Upload
severe at 6:00:22 AM on 4/26/2014	Details Edit Delete Upload
warning at 5:51:00 AM on 4/26/2014	Details Edit Delete Upload
severe at 6:03:37 PM on 4/25/2014	Details Edit Delete Upload
warning at 4:52:55 PM on 4/25/2014	Details Edit Delete Upload
good at 1:56:53 PM on 4/25/2014	Details Edit Delete Upload

Below the table is a text input field and a 'Post Discussion' button.

The discussion thread consists of the following messages:

- admin** (8:11:11 AM on 4/27/2014): There's not a lot left, but I think we can manage it.
- Cam** (8:13:33 AM on 4/26/2014): I agree.
- admin** (8:34:25 AM on 4/27/2014): Should we try to place an order soon?
- pharm** (1:11:50 PM on 4/27/2014): That'd be a good idea.
- pharm** (1:13:55 PM on 4/27/2014): When do you think you could have it placed?
- admin** (2:36:40 PM on 4/27/2014): This is a conversation
- admin** (4:48:01 PM on 4/30/2014): Message
- pharm** (4:58:06 PM on 4/30/2014): Response

ASHP Feed

The screenshot shows a web browser window with the URL `localhost:60705/PendingShortagesList/`. The main content area displays a list of pharmaceutical products, including Tuberculin Purified Protein Derivate for intradermal injection, Hydrocortisone Sodium Succinate Injection, Azithromycin Injection, Fluorouracil Injection, Norepinephrine Injection, Doxorubicin Liposomal Injection, Amphotericin B Cholesteryl Sulfate Complex Injection, Isosorbide Dinitrate Immediate Release Tablets, Thiotepea for Injection, Choline Magnesium Trisalicylate, Heparin Sodium Injection, Leucovorin Calcium Injection, and Amikacin Injection. Below the list, the 'Products Affected' section lists 'Amikacin injection, Bedford' with details '250 mg/mL, 4 mL vials, package of 10 (NDC 55390-0226-04)'. The 'Reason for the Shortage' section contains a bulleted list of reasons, with the last one highlighted: 'Heritage launched amikacin injection in March 2014.⁵'. A 'View Full Report' link is present below the reasons. A 'Create Shortage' button is located at the bottom left of the main content area.

The 'Create Shortage' modal form is open, showing the following fields and options:

- NDC:
- Status:
- Radio buttons for status: Good, Warning, Severe
- Seven day supply (250 character limit):
- Seven day usage (250 character limit):
- Mitigation Actions (5000 character limit):

At the bottom right of the modal form, there is an 'Ignore' button. The browser's taskbar at the bottom shows various application icons and system tray icons, including the time '5:03 PM' and language 'ENG'.



Manual Drug Creation

Create Drug

localhost:60705/DrugEntriesList/Create

Home Admin Welcome, Cam Logout

SPECTRUM HEALTH Create Drug

[Manage Feeds](#) | [Upload Formulary](#) | [Create Drug](#)

NDC:

Dosage:

Brand Name:

Generic Name:

Create Drug



Shortage Creation

The screenshot shows a web browser window with the URL `localhost:60705/ShortagesList/Create/80808-8080-8`. The application header includes navigation links for `Home` and `Admin`, and a user greeting `Welcome, Cam` with a `Logout` button. The main content area is titled `Create Shortage` and features the `SPECTRUM HEALTH` logo. The drug name `Brilinta` is displayed prominently, along with its `NDC: 80808-8080-8`, `Dosage: 80mg`, and `Generic Name: ticagrelor`. Below this, a `Status:` section offers three radio button options: `Good`, `Warning`, and `Severe` (which is selected). There are four text input fields for `Seven day supply (250 character limit)`, `Seven day usage (250 character limit)`, `Mitigation Actions (5000 character limit)`, and `Backorder Information (5000 character limit)`. The browser's taskbar at the bottom shows various application icons and system tray information including `ENG` and `5:13 PM`.

What's left to do?

- Change CSV parsing to match formulary format
- Clean up UI
 - Everything should match Spectrum Health style guide
 - Better mobile/tablet interface
- Unit Tests
- Bug fixes

