From Students…
…to Professionals

Project Plan
Spectrum Health Symptom Checker
The Capstone Experience

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Functional Specifications

• Symptom Checker
  ▪ Users describe their symptoms (runny nose, cough, rash, joint swelling, etc)
  ▪ User’s input is processed with NLP then mapped to condition and services from Spectrum Health are recommended
    o E-visit, MedNow, Appointment scheduling, Urgent Care & Emergency
Functional Specifications

• Pay My Bill
  ▪ Users are able to view and pay medical bills
    ▪ Payment processing is done through a 3rd party provider
    ▪ Secured over HTTPS connection

• Contact Us
  ▪ Provides users with contact options such as Phone, US Mail, and Fax

• Careers
  ▪ Allows users to apply for careers at Spectrum Health
Screen Mockup: iOS Application

**Spectrum Health**

- **Flu**
  If you're experiencing a runny nose and a cough, you may have the flu. Tap to read more.

**Want to talk to someone?**

- **E-visit**
  E-visits let you video chat now with a Spectrum Health doctor

- **Schedule an Appointment**
  Want to see a doctor in person? Tap here to schedule an appointment

- **MedNow**
  Fill out a simple questionnaire and a doctor will respond in less than 24 hours

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**Flu (Influenza)**
Influenza, commonly known as “the flu”, is an infectious disease caused by an influenza virus. Symptoms can be mild to severe. The most common symptoms include: a high fever, runny nose, sore throat, muscle pains, headache, coughing, and feeling tired. These symptoms typically begin two days after exposure to the virus and most last less than a week. The cough, however, may last for more than two weeks.

- **E-visit**
  E-visits let you video chat now with a Spectrum Health doctor

- **Schedule an Appointment**
  Want to see a doctor in person? Tap here to schedule an appointment

- **MedNow**
  Fill out a simple questionnaire and a doctor will respond in less than 24 hours
Screen Mockup: iOS Application

Contact Us

Note: If you need to discuss private or sensitive information, call your health care provider. For more information, read our Patient Privacy policy. You can also send us a secure message using MyHealth.

By Mail
Spectrum Health
100 Michigan St. NE
Grand Rapids, MI 49503

By Phone
Toll free at 866.989.7999

Important Phone Numbers

Hospitals

Big Rapids Hospital
231.796.8691

Blodgett Hospital
Screen Mockup: Android Application

Spectrum Health

Enter what symptoms you’re experiencing:

I have a cough and a runny nose

Based on your symptoms, we suggest:

Visiting a nearby Spectrum Health Urgent Care facility.

Nearby Locations

Hold my place in line

Enter what symptoms you’re experiencing:

I have a cough and runny nose

Based on your symptoms, we suggest:

Visiting a nearby Spectrum Health Urgent Care facility.

Nearby Locations

SHMG Urgent Care - Alpine. 5 min - .9 miles.

SHMG Urgent Care - Beltline Avenue. 14 min - 9.0 miles.

SHMG Orthopedic Urgent Care - Lake Drive. 13 min - 9.3 miles.

Hold my place in line
Screen Mockup: Web Portal (Desktop)
Screen Mockup: Web Portal (Mobile)
Technical Specifications

• Front-End
  ▪ iOS SDK (Swift)
  ▪ Android SDK (Java)
  ▪ Web-based administrative portal
    ○ HTML5, CSS3, ASP.Net Core 2.0

• Back-End
  ▪ Net Core MVC (C#)
  ▪ Entity Framework Core
  ▪ Microsoft SQL Server
System Architecture

[Diagram of system architecture with technologies like .NET Core, Microsoft Azure, SQL Server, and API.ai connected to a central cloud, with interfaces for Admin Portal on mobile devices.]
System Components

• Hardware Platforms
  ▪ iPhone 5 - iPhone X
  ▪ Android devices 4 years old
  ▪ Desktop and Mobile (Web)

• Software Platforms / Technologies
  ▪ iOS 10.3+
  ▪ Android 4.4 (KitKat) - 8.0 (Oreo)
  ▪ Modern web browsers
    □ IE 11, Edge, Chrome, Safari, and Firefox
Testing

• iOS Testing
  ▪ iOS Unit testing and UI testing done with Xcode.
  ▪ Test builds deployed to actual devices with TestFlight

• Android Testing
  ▪ Tests created with Android Testing Support Library.
    o Unit tests built with JUnit and Mockito framework
    o Integration tests built using JUnit with Espresso

• .Net Core Testing
  ▪ Testing done using XUnit and Postman
Risks

• Symptom Mapping/Accuracy
  ▪ Implement a NLP system to take symptoms and map them to a Spectrum Health service as fast as possible with accuracy.
  ▪ A member of our team has done research on algorithms, and has contact with professors in the fields of algorithms and ML.
Risks

- User Testing
  - We will conduct user testing to field test input methods for symptoms.
  - Most of the team has experience creating mobile applications and they are bringing forward UX knowledge from previous jobs.
Questions?