

**MICHIGAN STATE**  

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**UNIVERSITY**

# Project Plan Presentation

## Review Aggregator for Educational Programs

### The Capstone Experience

#### Team Malleable Minds

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

# Functional Specifications

- Malleable Minds (MM) is a web application review aggregator with a collection of PreK-12 programs, from the arts to the sciences
- MM is similar to a Yelp, TripAdvisor, or Angie's List but for educational programs
- Parents and educators review and compare educational programs on the website
- The site provides users with recommendations
- Users can track kid's progress and earn a reputation for being a solid contributor

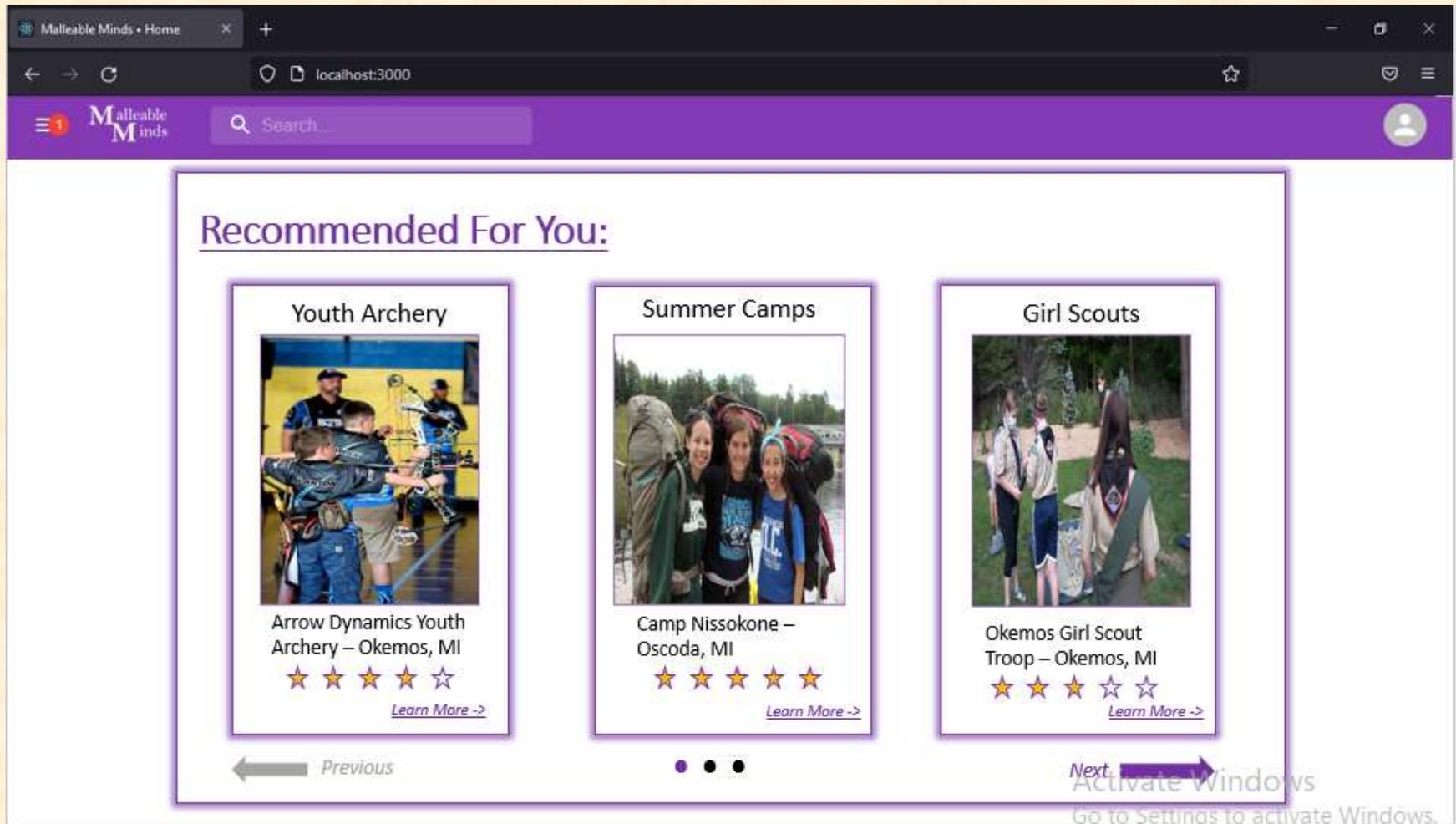


# Design Specifications

- Overall Design: Web app in which users may browse and rate educational programs
- Recommendation Engine: Takes data to create personalized content
- Skill System: System for users to keep track of progress towards learning skills
- User Activity Dashboard : Port user activity dashboard from React to New Relic
- Status Feature : System for users to get special statuses on website based on contribution



# Screen Mockup: Recommendation Engine, Main Web View



# Screen Mockup: Recommendation Engine, Expanded Web View

The screenshot displays a web browser window with the address bar showing 'localhost:3000'. The page header is purple and contains the 'Malleable Minds' logo, a search bar, and a user profile icon. The main content area features a recommendation card for 'Camp Nissokone'. The card includes a title, a rating of 5.0/5.0 with five stars, and a description box. To the right of the description is a photograph of three young women with large backpacks. Below the photo is a 'Contact Info' section with a button that says 'Click Here to Learn more!' and contact details for Tel, Email, and Web. A 'Back' button with a left-pointing arrow is located at the bottom left of the card. A watermark for 'Activate Windows' is visible in the bottom right corner of the browser window.

Malleable Minds • Home

localhost:3000

Malleable Minds

Search

## Camp Nissokone

Rating: 5.0/5.0

★★★★★

Description:

Our programs are focused on developing self-confidence, and based on our four core values: caring, honesty, respect and responsibility. Great camps are built on tradition. Since 1914, campers from around the world have come together to experience adventure, friendship, and laughter on our shores, in our cabins, and in our woods. Discover 100 summers of tradition. Discover summer at its best.

[Click Here to Learn more!](#)

Contact Info:

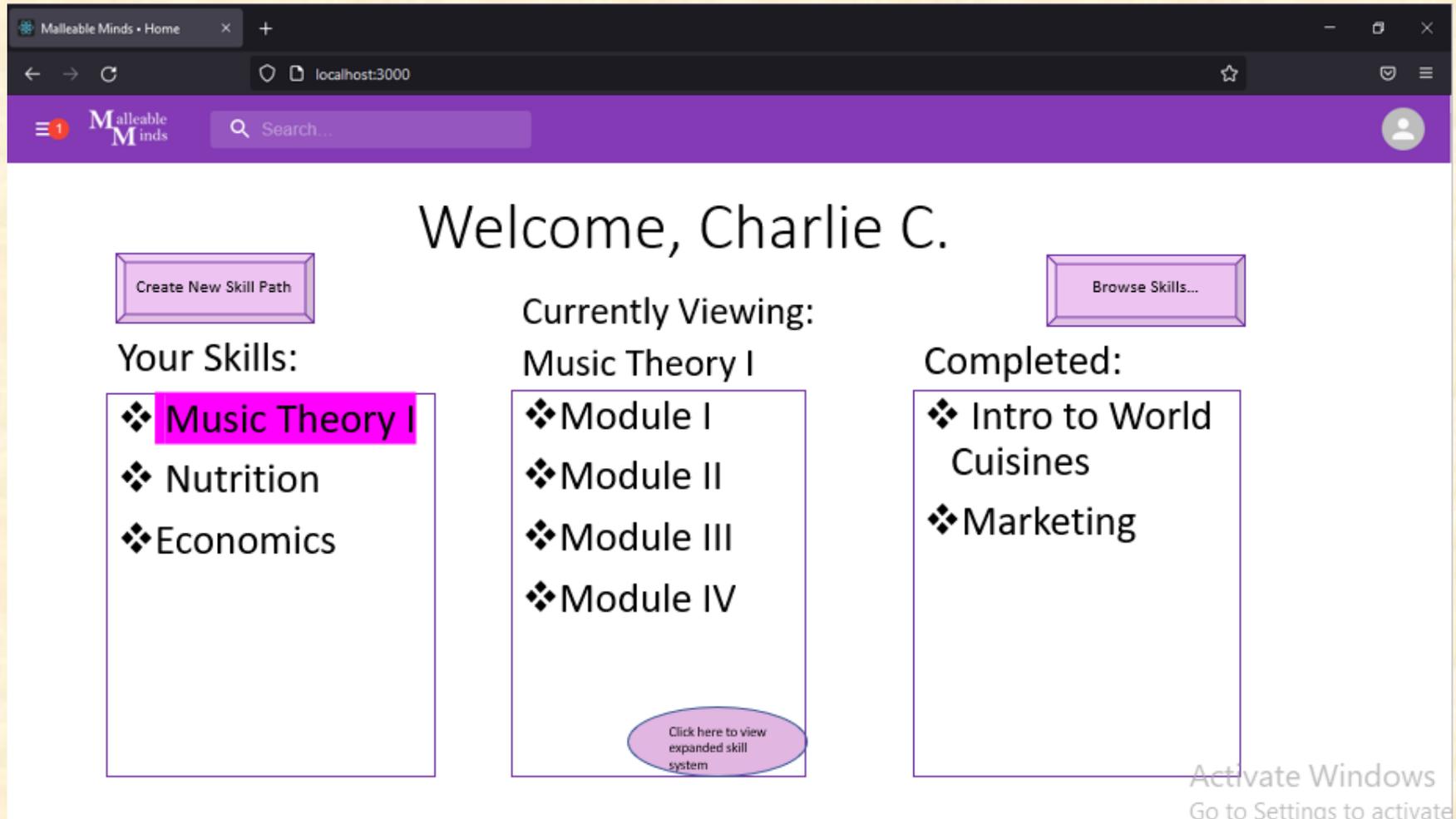
Tel: n/a  
Email: n/a  
Web: <https://ymcadetroit.org/contact-the-ymca/>

← Back

Activate Windows  
Go to Settings to activate Windows.



# Screen Mockup: Skill System, Main View



# Screen Mockup: Skill System, Expanded View

Malleable Minds • Home localhost:3000

Malleable Minds Search...

## Skill: Music Theory I

Progress : 50%

(Achieve 75% in Module III to Unlock)

Module I: 100%	Module II: 75%	Module III: 25%	Module IV: 0%
<b>To Do:</b>	<b>To Do:</b> <ul style="list-style-type: none"><li>Key Signatures</li></ul>	<b>To Do:</b> <ul style="list-style-type: none"><li>Specific Intervals</li><li>Writing Intervals</li><li>Interval Inversion</li></ul>	<b>To Do:</b> <ul style="list-style-type: none"><li>Intro to Chords</li><li>Triad Inversion</li><li>Seventh Chords</li><li>Seventh Inversion</li></ul>
<b>Completed:</b> <ul style="list-style-type: none"><li>Note Duration</li><li>Time Signatures</li><li>Steps and Accidentals</li></ul>	<b>Completed:</b> <ul style="list-style-type: none"><li>The Major Scale</li><li>The Minor Scale</li><li>Scale Degrees</li></ul>	<b>Completed:</b> <ul style="list-style-type: none"><li>Generic Intervals</li></ul>	<b>Completed:</b>

Activate Windows  
Go to Settings to activate Windows



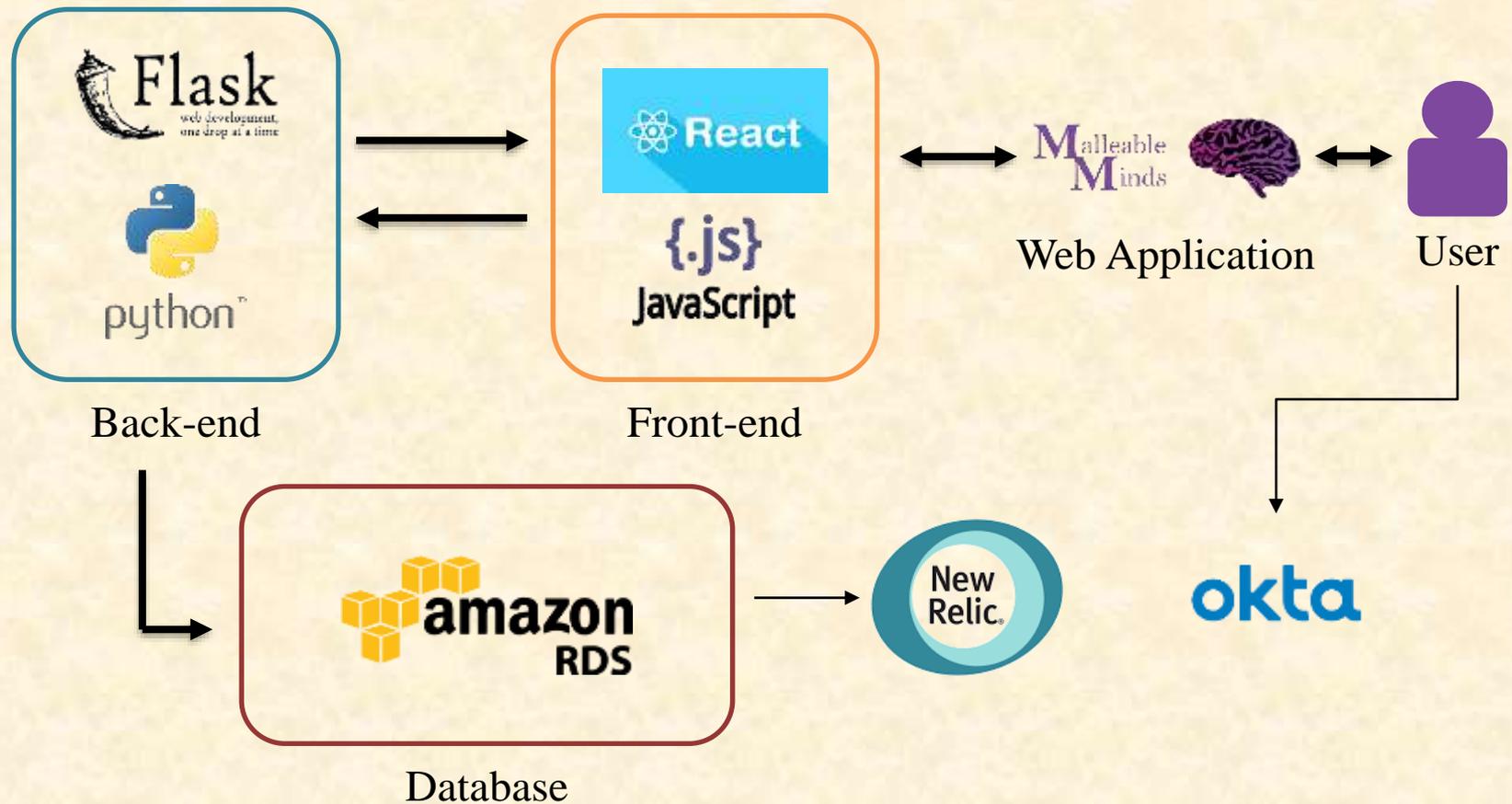
# Technical Specifications

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- Malleable Minds has two services running, our front end (FE) service, and our back end (BE) service
- The FE is developed in JavaScript using React
- The back end (BE) is developed in Python using Flask
- Data is stored in AWS and used to generate the dashboard in New Relic



# System Architecture



# System Components

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- Hardware Platforms
  - PC with any kind of Operating System
- Software Platforms / Technologies
  - React
  - Flask
  - New Relic
  - JavaScript and Visual Studio Code
  - Python and PyCharm
  - AWS Relational Database



# Risks

- Collecting Enough Relevant Data for the Web Application
  - We need to collect enough relevant data to create our recommendation engine
  - We will start collecting data immediately once the client determines what type of data they want
- Creating a Skill System that Accurately Represents Skills that Students Learn
  - It will be difficult to create a skill system that compares skills apples to apples when all educational programs are different
  - Discuss with client and experiment with how broad or unique skills should be categorized
- Developing an Accurate Recommendation Engine
  - We will need to have a large amount of data to create a machine learning model for our recommendation engine
  - Start data collection early and begin creating an initial machine learning algorithm once we have a sample pool of data



# Questions?

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