MICHIGAN STATE
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

- <u>Overall Design</u>: Web app in which users may browse and rate educational programs

- <u>Recommendation Engine:</u> Takes data to create personalized content

- <u>Skill System:</u> System for users to keep track of progress towards learning skills

- <u>User Activity Dashboard</u> : Port user activity dashboard from React to New Relic

- <u>Status Feature</u> : System for users to get special statuses on website based on contribution

Screen Mockup: Recommendation Engine, Main Web View
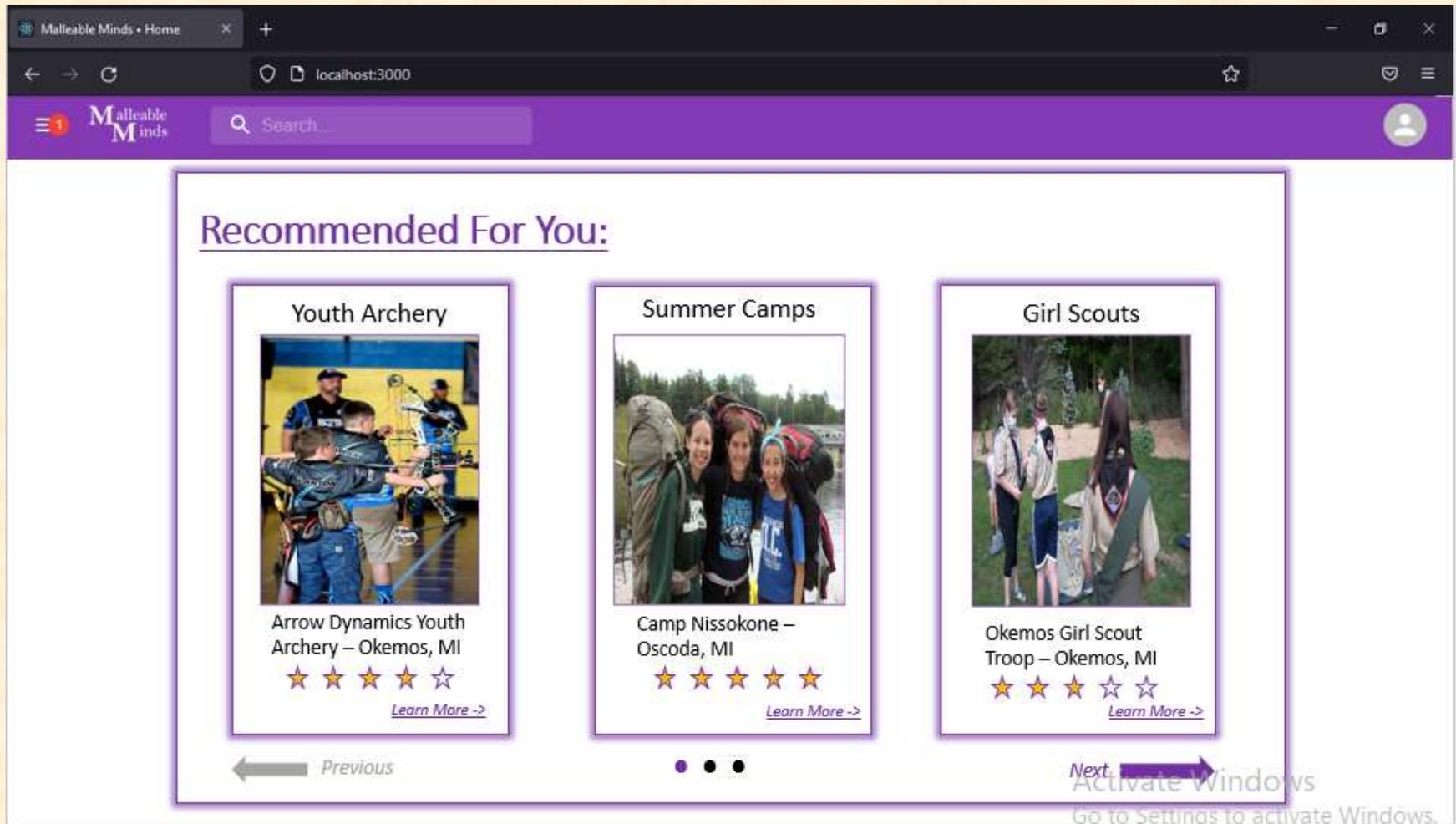
Screen Mockup: Recommendation Engine, Expanded Web View

Screen Mockup: Skill System, Main View
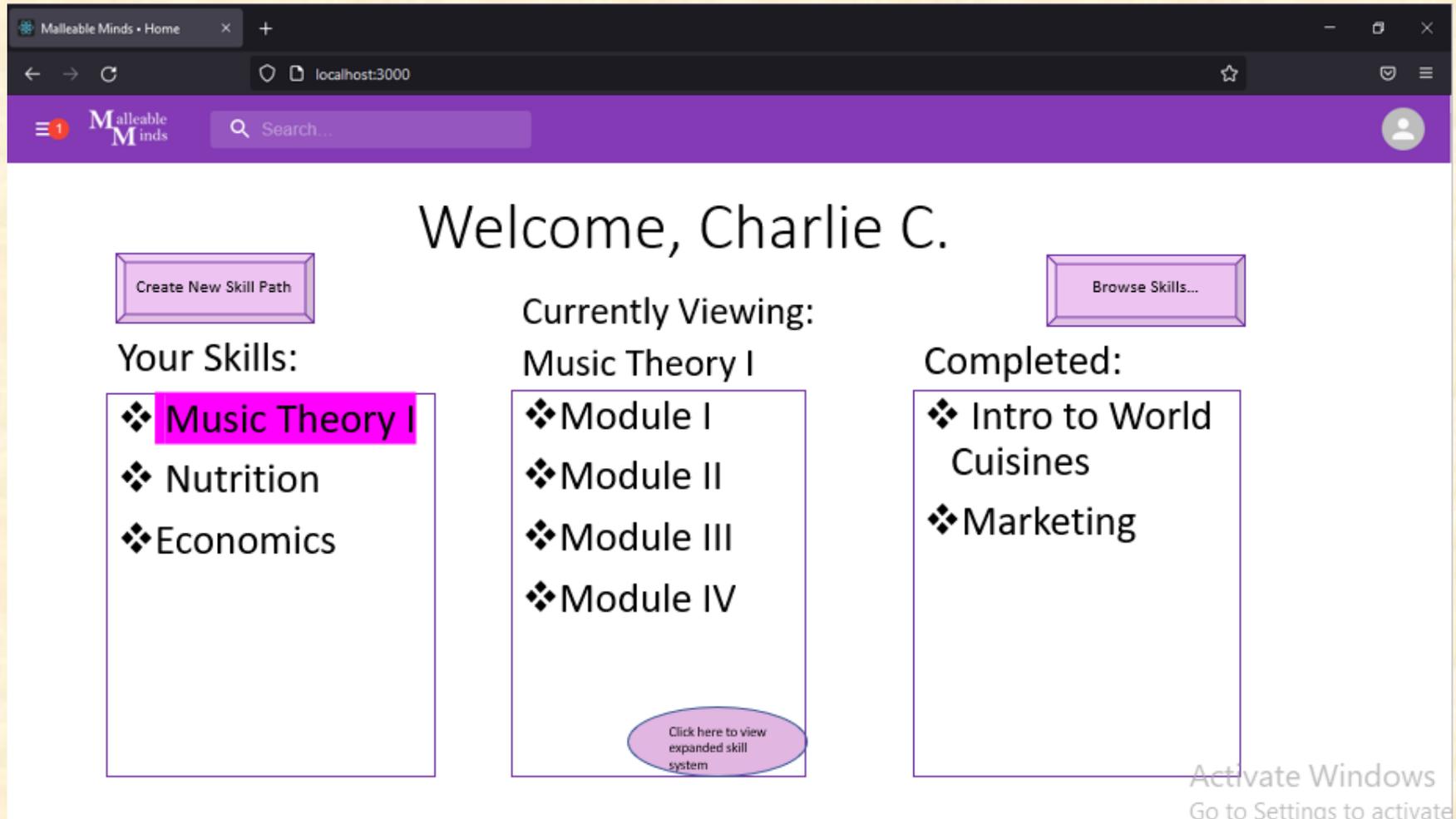
Screen Mockup: Skill System, Expanded View

Technical Specifications

- 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

Back-end

Front-end

Web Application

User
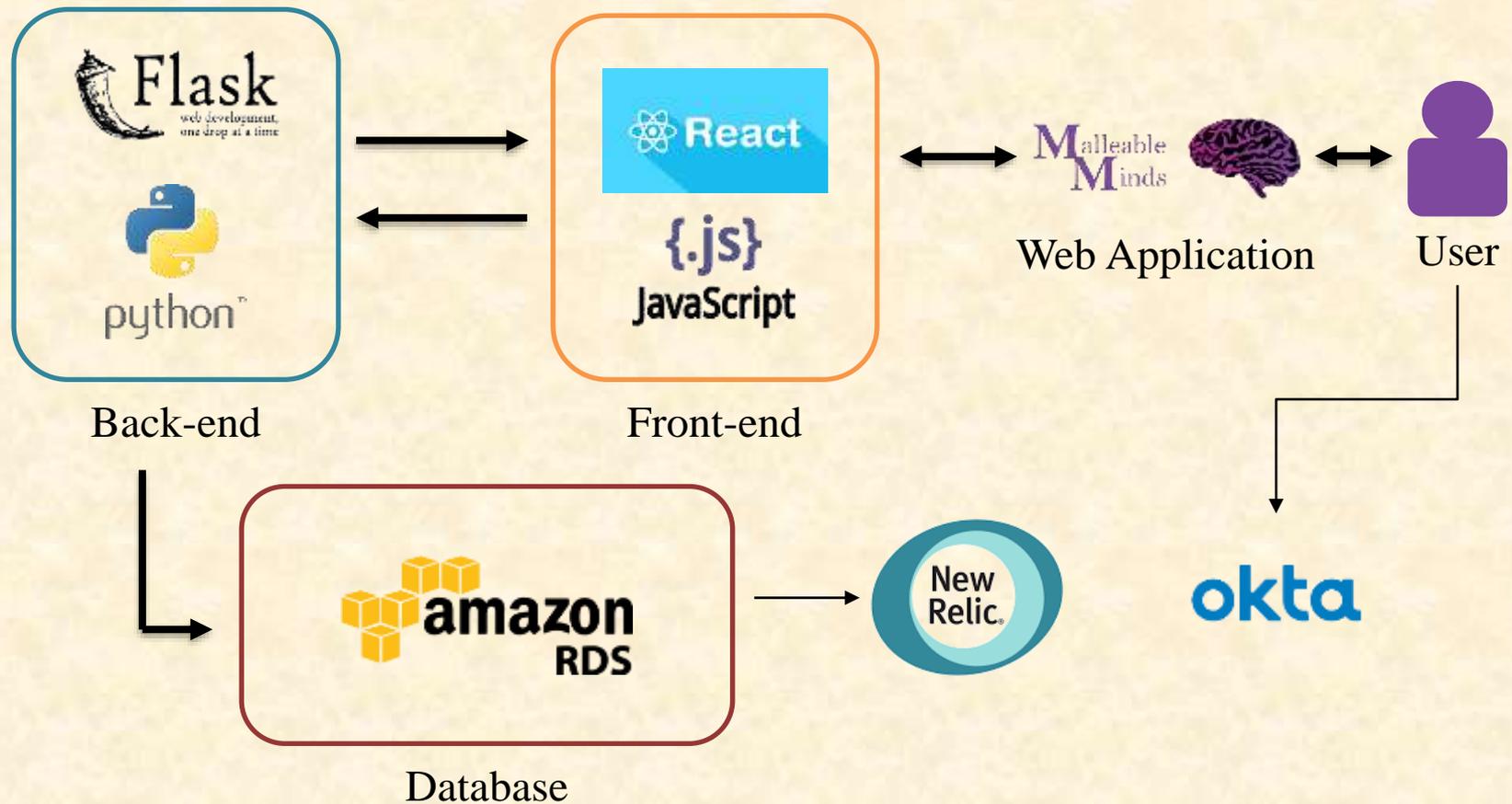
Database

System Components

- 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?