Project Plan Presentation
Fostering Office Collaboration in a Hybrid World

The Capstone Experience
Team Urban Science

Josie Beach
Puyu Cai
Baraa Hegazy
Jacob Miller
Nicole Schneider
William Wyrick

Department of Computer Science and Engineering
Michigan State University
Spring 2023
Project Sponsor Overview

- Global consulting firm that utilizes data to solve complex problems in the automotive industry
- Started by Jim Anderson, a Wayne State Graduate, in 1977
- HQ is in Detroit, 21 offices worldwide. (Brazil, China, France, Italy, Japan, and Mexico)
- Work with Aston Martin, BMW, Ferrari, Lotus, Lamborghini, Maserati, and Mercedes-Benz
Project Functional Specifications

• Encourages collaboration in the workplace
• Enables flexibility with coming into the office
• Allows for easy event and meeting generation
• Recognizes employees with high participation
• Employees know when their groups or favorites are going into the office
“Fostering Office Collaboration in a Hybrid World” is a web and mobile application that will facilitate the socialization of employees in the workplace. Employees can have 1 of 3 roles within the app: User, Manager, or Admin.

User functionality includes:
- Schedule events (or meetings) and reserve seating and rooms within the office building to hold these events in
- See what coworkers will be in the office on what days
- Create groups of their coworkers to allow for easy access when sending event invitations to multiple coworkers
- Receive points for scheduling and attending events in their office

Managers have all the functionality that Users do with the addition of:
- Can see who has the most points and is participating the most in office activities
- Can move/remove events that Users make
- Can set minimum attendance for employees

Admin has all the functionality of the Managers, but can also edit the layout of the office and what rooms/seats are available for reservation.
Home Page

Fostering Office Collaboration in a Hybrid World

Favorites in the Office Today
- Puyu Cai
- Baraa Hegazy
- Josie Beach
- Nicole Schneider
- Jacob Miller
- Will Wyrick

Upcoming Events

JANUARY 2023

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SCRUM Meeting
Pizza Party

Attendance Points

50 Points
Home Page Drawer

- Main Page
- Seating Chart
- Create an Event
- My Events

Upcoming Events

JANUARY 2023

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- SCRUM Meeting
- Pizza Party

Attendance Points

50 Points
The Capstone Experience

Team Urban Science Project Plan Presentation

My Events Page

Fostering Office Collaboration in a Hybrid World

My Events

JANUARY 2023

- **SCRUM Meeting**
  - Date: 1/19/2023
  - Time: 9:00 am
  - Location: Conference Room D

- **Pizza Party**
  - Date: 1/31/2023
  - Time: 6:00 pm
  - Location: Conference Room B
Seating Chart Map
Seating Chart – Reservation Page

Fostering Office Collaboration in a Hybrid World

Reservation Page

Reserved Desk #: 20

Reservation Date: 1/27/2023

Reservation Time: 10:00 am

Reservation Duration

1 Hour

Create Reservation
Fostering Office Collaboration in a Hybrid World

Seating Chart List View

<table>
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<tr>
<th>Desk Number</th>
<th>Desk State</th>
<th>Reserve Now</th>
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<td>Desk 18</td>
<td>Open</td>
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</table>
Create an Event – Month View
Create an Event – Week View
Create an Event – Reservation Page

Reservation Page

Reservation Date: 1/27/2023
Reservation Time: 10:00 am
Reservation Duration: 1 Hour
Select Available Location: Conference Room D

Event Name
Type Name Here

Invite Guest
Josie Beach, Puyu Cai

Event Description

Private Event
Public Event

Cancel
Create Event
Project Technical Specifications

• Front end is handled by the Angular framework that will utilize HTML, CSS and TypeScript
• Middleware will consist of Dapper, C# and .NET Core
• Backend will use Azure and SQL
Project System Architecture
Project System Components

• Frontend Software:
  ▪ Angular
    o Angular Material
    o JavaScript
    o TypeScript
    o HTML
    o CSS

• Backend Software:
  ▪ .NET Core - A version of .NET that allows for Cloud compatibility and is meant for server-side, cross-platform applications
    o C#
    o SQL
    o Dapper
  ▪ Azure - A cloud platform run by Microsoft that we are using to host a secure server, hold our relational database, and auto-deploy our backend code as changes are pushed to GitHub
Project Risks

• Adding Map Seats to Application
  ▪ Navigate, view, and reserve seats
  ▪ Many layouts of buildings, rooms, and seating available in different offices
  ▪ Implementing a robust system for maintaining and updating the map layout and asking client

• Incorporating Gamification Elements
  ▪ Incorporate some level of gamification to reward the largest participation, event creation and generation of in person attendance.
  ▪ Design gamification system that rewards user while not taking away from participation of events. Look at possible pre-built gamification libraries

• Implementing User Authentication and Authorization
  ▪ Managing user access and permissions and assigning users their correct roles.
  ▪ Authentication through cookies or tokens. System that can easily be managed and updated. Role-based access control can help to simplify user management and improve security.

• Database Storage
  ▪ Choosing a system for this project that can handle a large data, high number of concurrent users, and the data and transactions' complexity.
  ▪ Choosing a DBMS that supports multiple data storage options, keeping the database architecture simple and modular and communicating with the client to determine the appropriate storage option.
Questions?