

MICHIGAN STATE

UNIVERSITY

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



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

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



Project Design Specifications

- “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



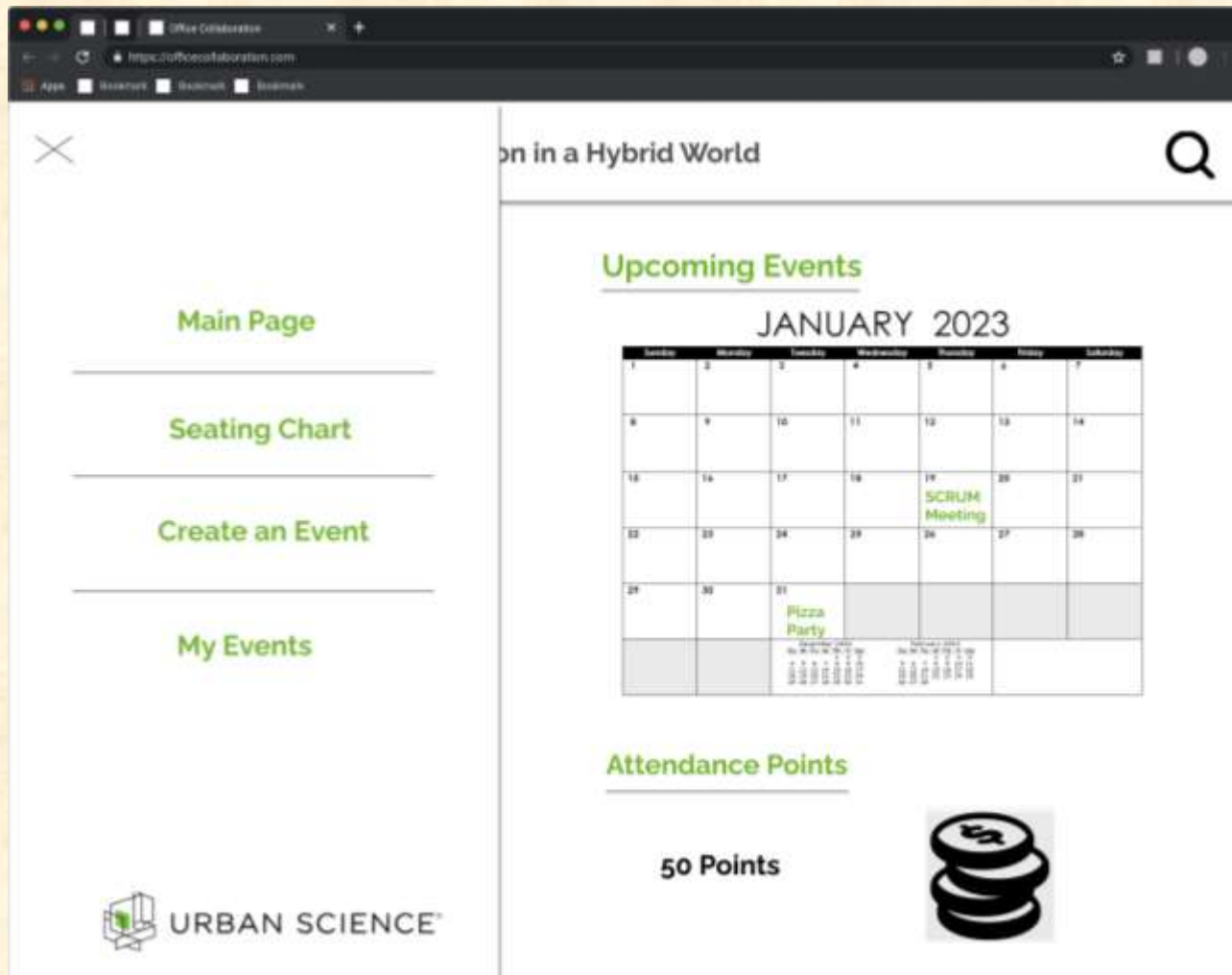
Home Page

The screenshot shows a web browser window with the URL <https://officecollaboration.com>. The page title is "Fostering Office Collaboration in a Hybrid World". The main content is divided into four sections:

- Favorites in the Office Today:** A green box containing the names: Puyu Cai, Baraa Hegazy, Josie Beach, Nicole Schneider, Jacob Miller, and Will Wyrick. A plus sign is in the bottom right corner.
- Upcoming Events:** A calendar for January 2023. Events include "SCRUM Meeting" on January 19th and "Pizza Party" on January 31st.
- My Groups:** Two group icons. The first is labeled "Board Game Club" and the second is labeled "My Team".
- Attendance Points:** A section showing "50 Points" next to an icon of three stacked coins.



Home Page Drawer



My Events Page

The screenshot shows a web browser window with the URL <https://officecollaboration.com>. The page title is "Fostering Office Collaboration in a Hybrid World". Below the title is a search icon. The main content area is titled "My Events" and displays a calendar for "JANUARY 2023". The calendar grid shows the following events:

- SCRUM Meeting** on Thursday, January 19, 2023.
- Pizza Party** on Tuesday, January 31, 2023.

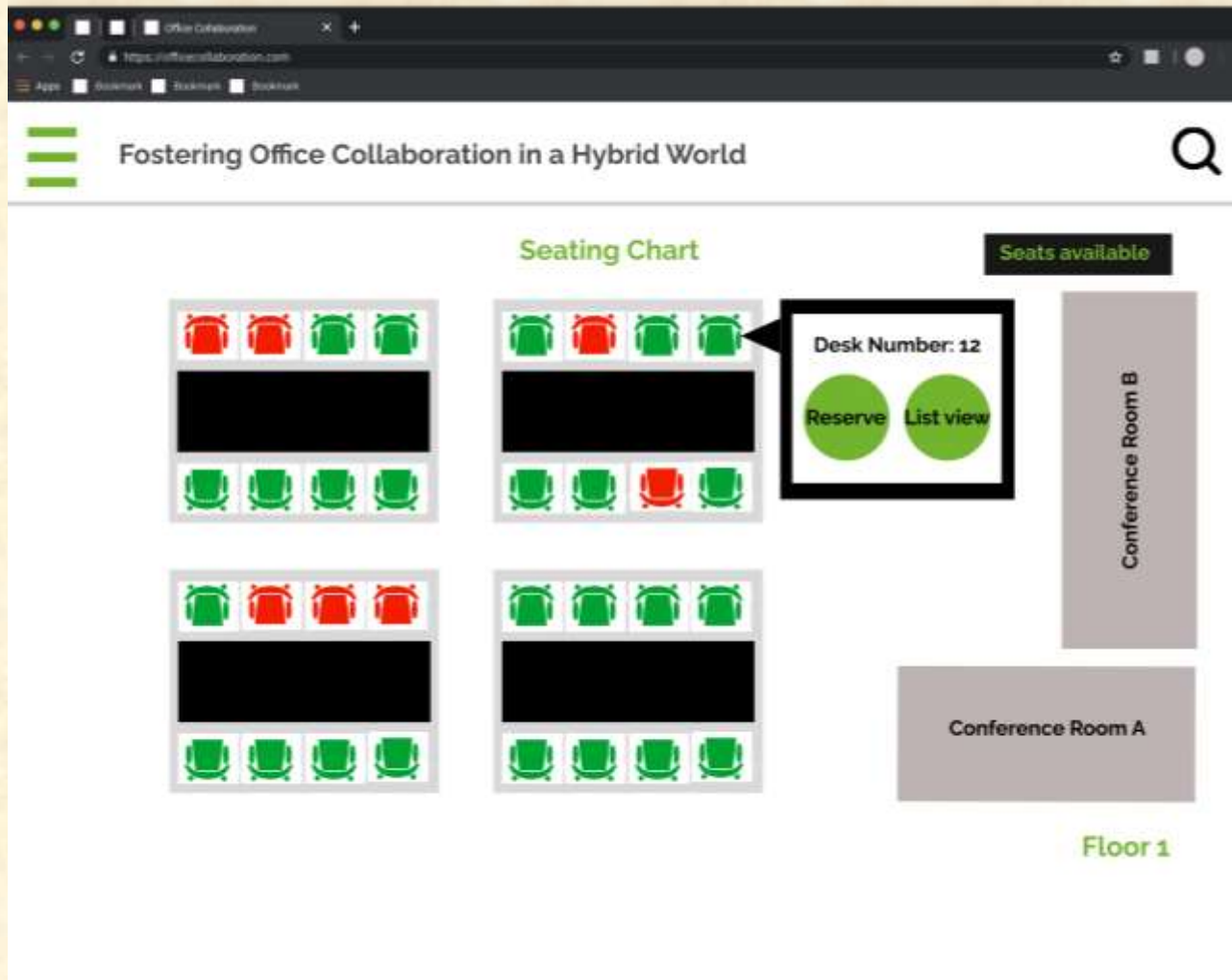
A callout box provides details for the SCRUM Meeting:

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

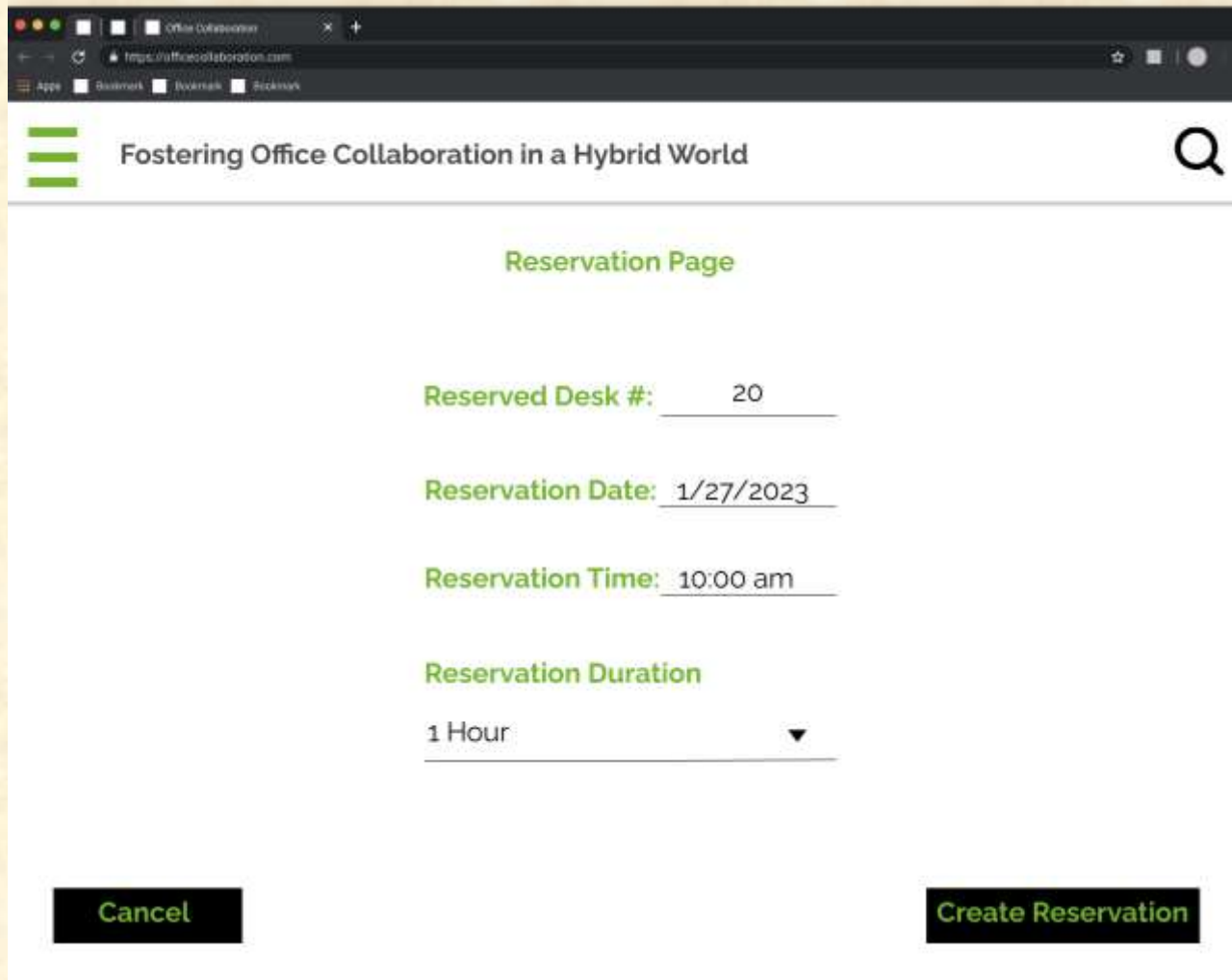
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19 SCRUM Meeting	20	21
22	23	24	25	26	27	
28	29	30	31 Pizza Party			



Seating Chart Map



Seating Chart – Reservation Page



The screenshot shows a web browser window with the URL <https://officecollaboration.com>. The page title is "Fostering Office Collaboration in a Hybrid World". The main heading is "Reservation Page". The form contains the following fields:

- Reserved Desk #:** 20
- Reservation Date:** 1/27/2023
- Reservation Time:** 10:00 am
- Reservation Duration:** 1 Hour (dropdown menu)

At the bottom of the form, there are two buttons: "Cancel" and "Create Reservation".



Seating Chart List View

Office Collaboration
https://officecollaboration.com

Fostering Office Collaboration in a Hybrid World

Seating Chart

Open | Start Date | End Date | Search

	Desk Number	Desk State	
1	Desk 20	Open	Reserve Now
2	Desk 21	Open	Reserve Now
3	Desk 23	Open	Reserve Now
4	Desk 24	Open	Reserve Now
5	Desk 25	Open	Reserve Now
6	Desk 26	Open	Reserve Now
7	Desk 15	Open	Reserve Now
8	Desk 16	Open	Reserve Now
9	Desk 17	Open	Reserve Now
10	Desk 18	Open	Reserve Now

Cancel

◀ 1 ▶



Create an Event – Month View

Office Collaboration
https://officecollaboration.com

Fostering Office Collaboration in a Hybrid World

Create an Event Select an Available Date and Time Month Week

JANUARY 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

December 2022 February 2023

Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
4	5	6	7	8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	25	26	27	28	29	30	31



Create an Event – Week View

The screenshot shows a web browser window with the URL <https://officescollaboration.com>. The page title is "Fostering Office Collaboration in a Hybrid World". Below the title, there are two main options: "Create an Event" and "Select an Available Date and Time". The "Week" view is selected, showing a calendar for January 2023. The calendar grid has columns for days of the week and rows for time slots from 8am to 5pm.

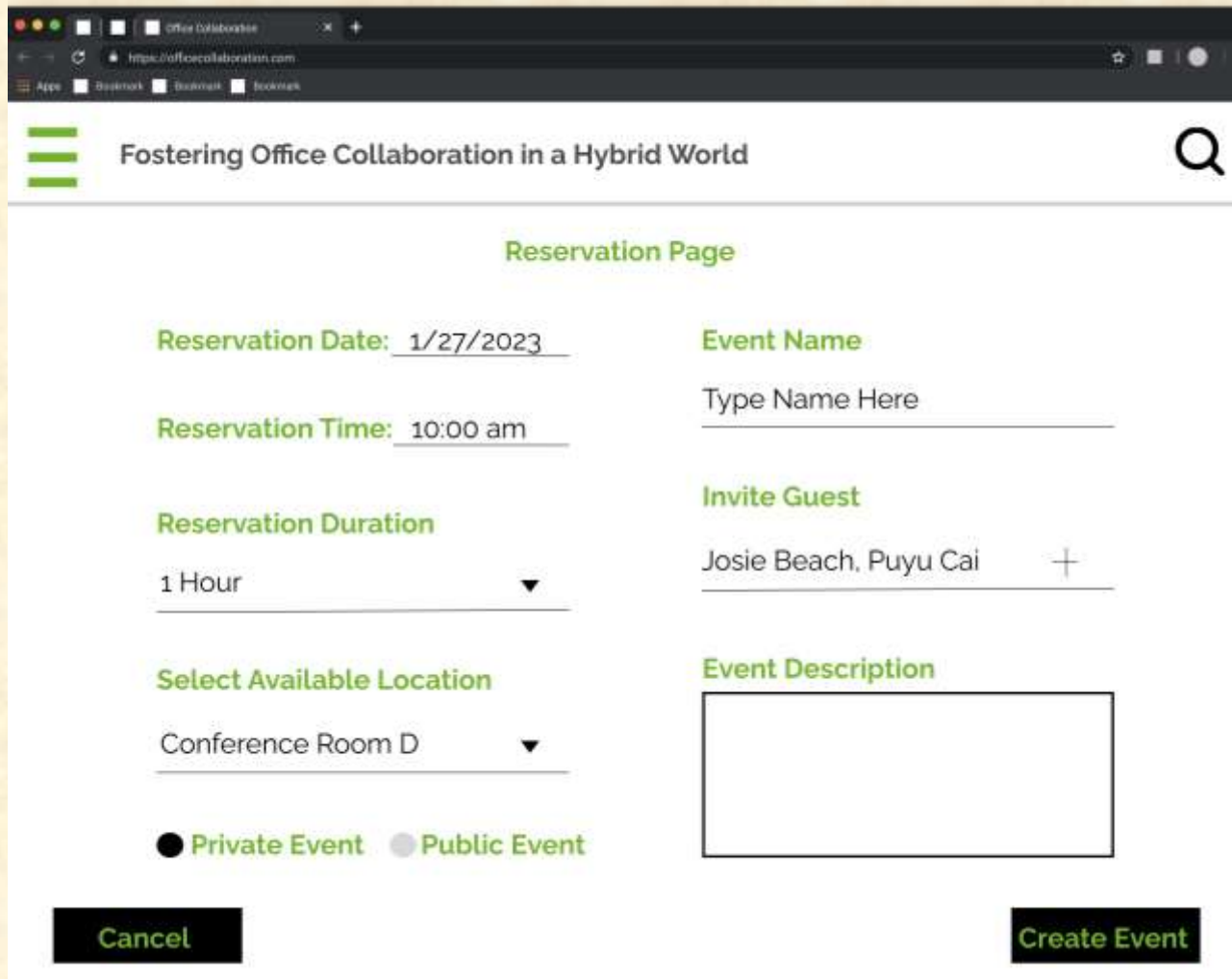
Create an Event **Select an Available Date and Time** **Month** **Week**

JANUARY 2023

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8am	1/22	1/23	1/24	1/25	1/26	1/27	1/28
9am							
10am							
11am							
12pm							
1pm							
2pm							
3pm							
4pm							
5pm							



Create an Event – Reservation Page



The screenshot shows a web browser window with the URL <https://officecollaboration.com>. The page title is "Fostering Office Collaboration in a Hybrid World". The main heading is "Reservation Page". The form contains the following fields and options:

- Reservation Date:**
- Reservation Time:**
- Reservation Duration:**
- Select Available Location:**
- Event Name:**
- Invite Guest:**
- Event Description:**
- Event Type:** Private Event Public Event

At the bottom of the form, there are two buttons: "Cancel" and "Create Event".

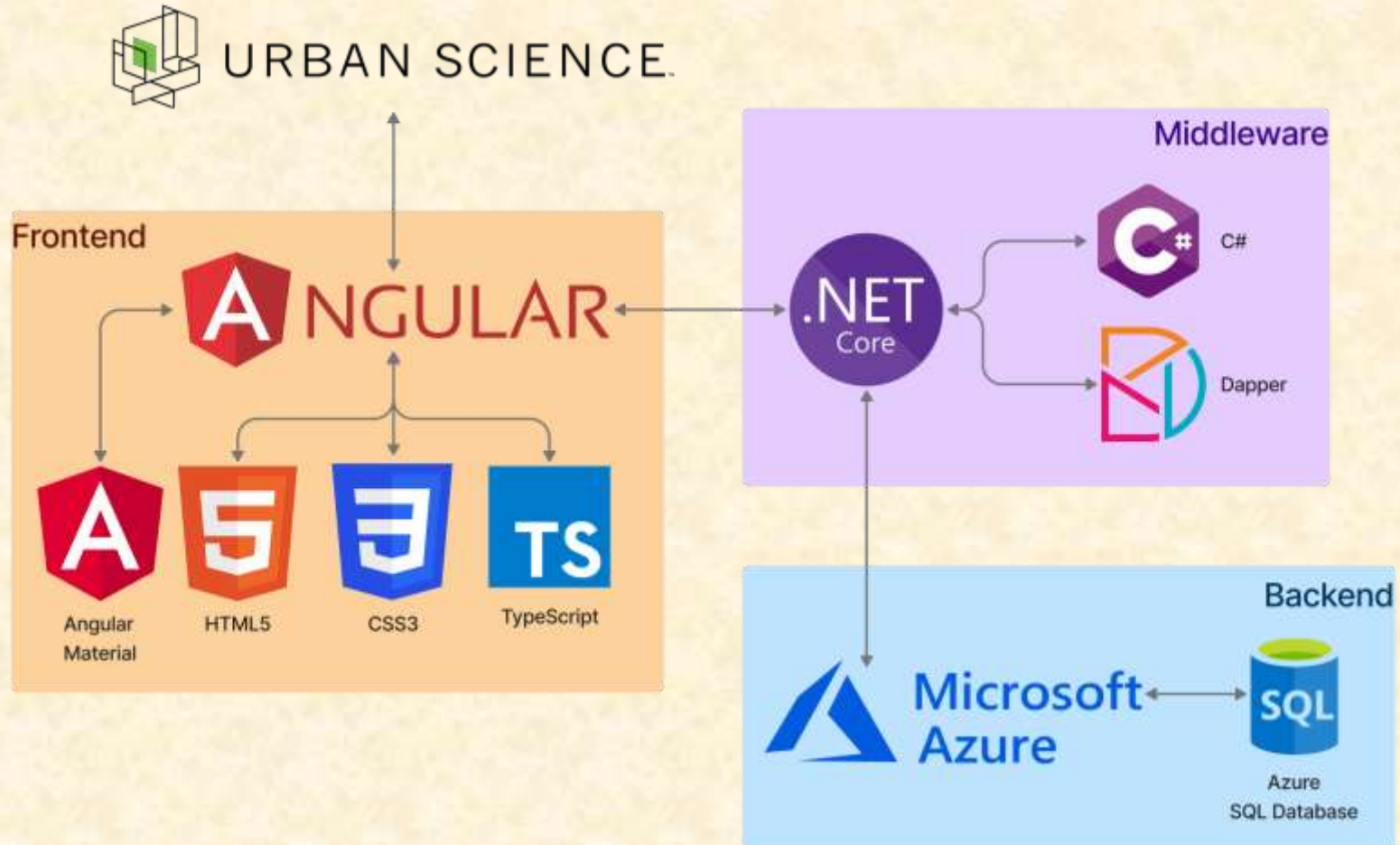


Project Technical Specifications

- 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
 - Angular Material
 - JavaScript
 - TypeScript
 - HTML
 - CSS
- Backend Software:
 - .NET Core - A version of .NET that allows for Cloud compatibility and is meant for server-side, cross-platform applications
 - C#
 - SQL
 - 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?

?

?

?

?

?

?

?

?

?

