TimeScape: Final Presentation

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Problem

Problem Statement

- It can often be difficult to determine optimal times that work for everyone when scheduling group meetings
- This can lead to:
  - People missing important meetings
  - Deadlines being missed
  - Meeting at early/late hours
  - Hassle with tracking changing availability from participants

Related Work

- *A Survey on Web-based Meeting Scheduling Application (2021)* by Thalawattha and Vidanagam discovered the following:
  - Failures preventing successful meetings comes from relying on software that doesn't properly inform and remind participants, as well as not being able to find a suitable time for most participants
  - 46.3% of meeting applications and users want a tool that can generate the most convenient time(s)
  - 43.2% and 23% of users want reminders through SMS and emails respectively
- Existing tools include Google Calendar, when2meet, and Microsoft 365
  - Lacking in their ability to convey information visually in an understandable and neat way
  - Missing the feature of taking in availability times of participants, and having an algorithm determine optimal slots for everyone
- Subsequently, the study found that there is yet to be a tool that solves all of these problems…

Our Solution

Solution

- To solve the aforementioned problems, TimeScape aims to:
  - Provide organizers with a streamlined way to send out, monitor, and confirm meeting times based on real-time feedback
  - Provide users with a simple way to block out their respective availability times and change as needed
  - Calculate the most optimal meeting times accommodating the most amount of people
  - Visually display the results in a comprehensive format to all parties involved

Rationale

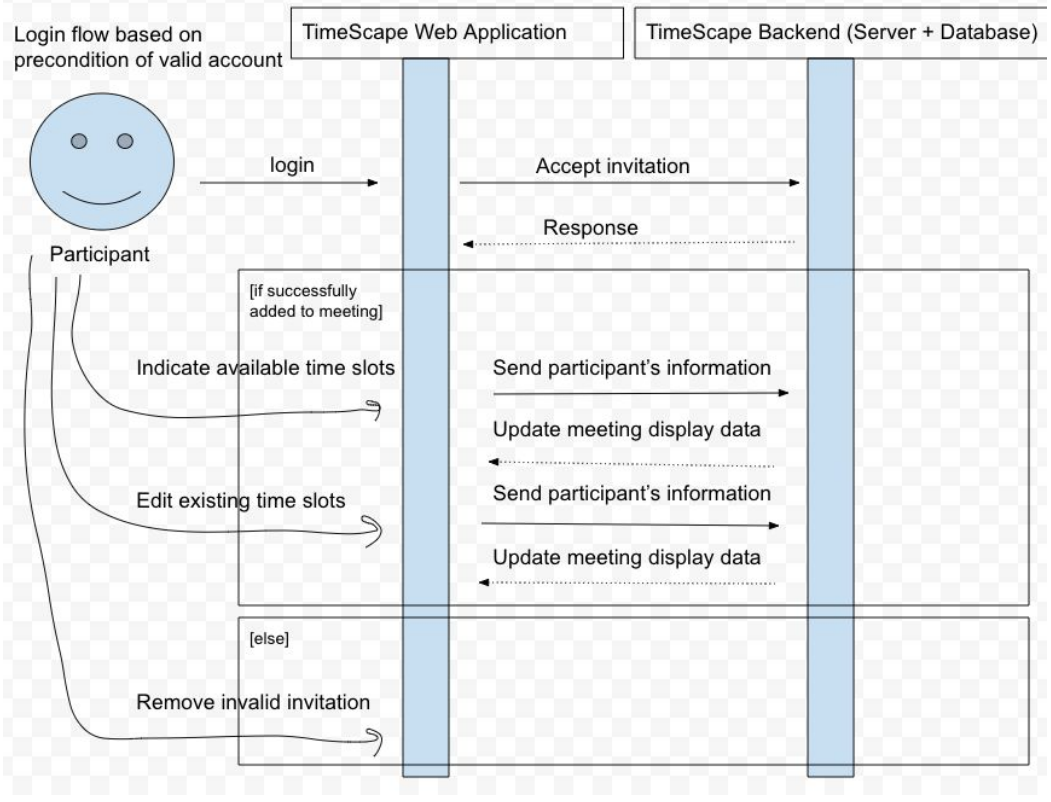
- TimeScape accomplishes our goal by:
  - Event Creation
    - Streamlines meeting planning for our users by providing efficient event creation
  - Availability
    - Effectively displays the availability of users
    - Suggests optimal times for meetings
  - Ease of Use
    - Guides users in event creation and using platform

Use cases

Use Case: Participant accepts invite and indicates availability

1. **Preconditions**
   a. Participant must have received a valid invitation from the organizer
   b. Participant must have a registered TimeScape account
2. **Main Flow**
   a. [S1] Participant logs in and accepts the invitation sent by the organizer to join the meeting
   b. [S2] Participant indicates their available time slot(s) within the organizer's created meeting plan
   c. [S3] TimeScape processes the request and updates the display to show the participant's indicated slots
3. **Subflows**
   a. [S1] Participant is either logged into their TimeScape account within the web application to accept, or clicks on the invite within their email to accept
   b. [S2] Participant inputs their available time slot that falls within the meeting time range. Can edit or change as needed.
4. **Alternative Flows**
   a. [E1] Participant has no available time slots within the meeting range set by the organizer
   b. [E2] Not a valid invitation

Use Case: Participant accepts invite and indicates availability



Use Case: Finding Optimal Meeting Times

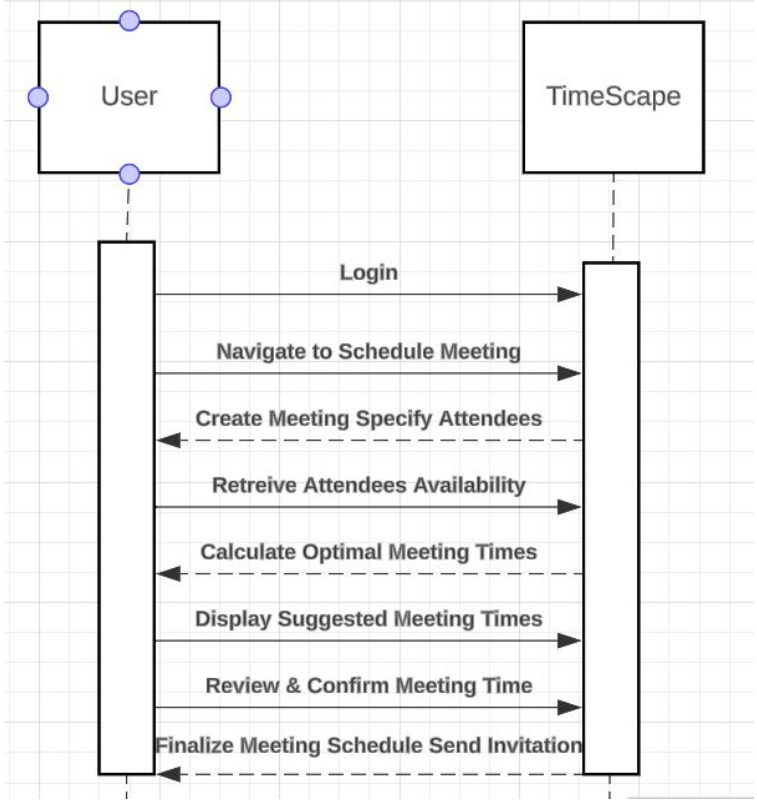
1. **Preconditions**
   a. Users have registered accounts on TimeScape.
   b. Users have inputted their availability data for each day of the week
2. **Main Flow**
   a. User logs in to the TimeScape application.
   b. User navigates to the "Schedule Meeting" feature within the application.
   c. User selects the option to create a new meeting and specifies the list of attendees for the meeting. [S1]
   d. TimeScape processes the request and displays suggested list. [S2]
3. **Subflows**

   a. [S1] User provides the list of attendees for the meeting.

   b. [S2] User confirms the preferred meeting time from the list of suggested options.
4. **Alternative Flows**

   a. [E1] If none of the listed attendees have overlapping availability, TimeScape notifies the user that no suitable meeting times could be found.

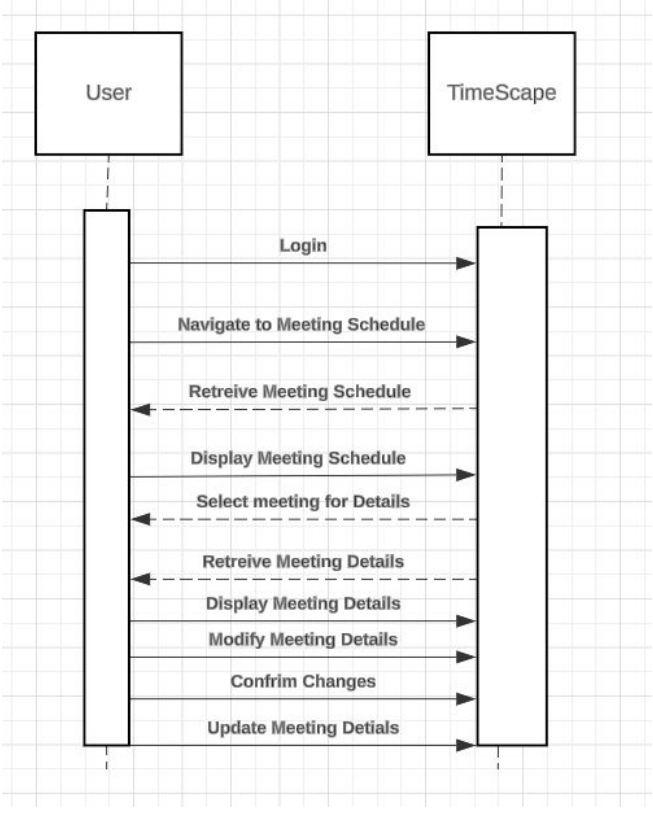
Use Case: Finding Optimal Meeting Times



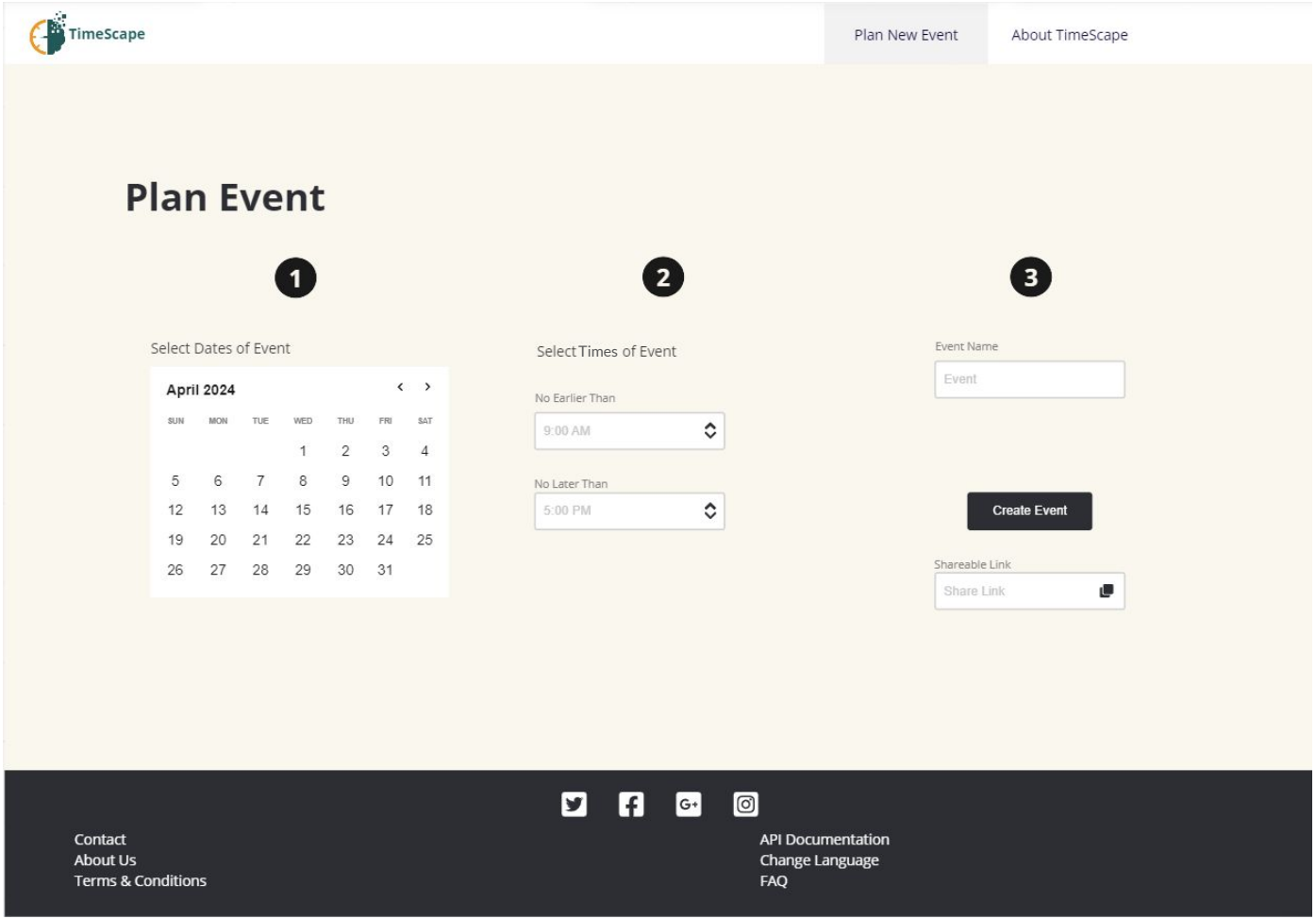
Use Case: User Views Meeting Schedule

1. **Preconditions**
   a. User has registered an account on TimeScape
   b. User is logged into the TimeScape Web App
   c. User has previously scheduled meetings or has been invited to meetings by others
2. **Main Flow**
   a. User navigates to the “Meeting Schedule” section within the TimeScape application
   b. System retrieves the user’s meeting schedule from the database [S1]
   c. User selects to review the details of each meeting (e.g. date, time, attendees, and topic)
   d. System provides options for the user to edit the meeting details, cancel the meeting, or join the meeting [S2]
3. **Subflows**
   a. [S1] System retrieves the user’s meeting schedule from the database
   b. [S2] User selects a specific meeting from the schedule to view more details
4. **Alternative Flows**
   c. [E1] If the user has no upcoming meetings scheduled, the system displays a message indicating that there are no meetings scheduled at this time
   d. [E2] If the user encounters any issues while viewing the meeting schedule, the system notifies the user and suggests retrying the action later

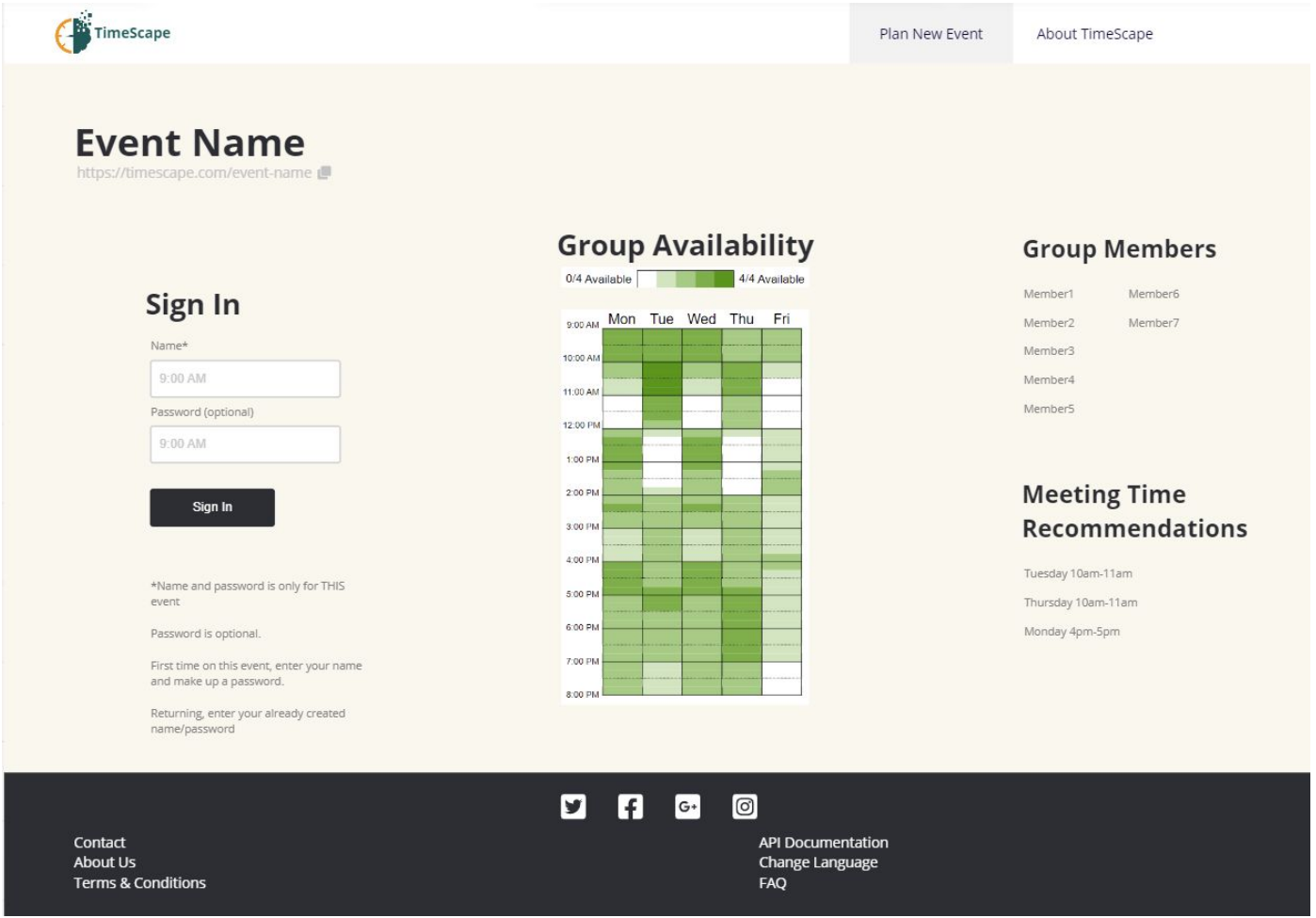
Use Case: User Views Meeting Schedule



Mock User Interface



Landing/Home Page


TimeScape
Plan New Event
About TimeScape
Event Name
https://timescape.com/event-name
Sign In
Name*
9:00 AM
Password (optional)
9:00 AM
Sign In
*Name and password is only for THIS event
Password is optional.
First time on this event, enter your name and make up a password.
Returning, enter your already created name/password
Group Availability
0/4 Available
4/4 Available
Mon Tue Wed Thu Fri
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
Group Members
Member1
Member2
Member3
Member4
Member5
Member6
Member7
Meeting Time Recommendations
Tuesday 10am-11am
Thursday 10am-11am
Monday 4pm-5pm
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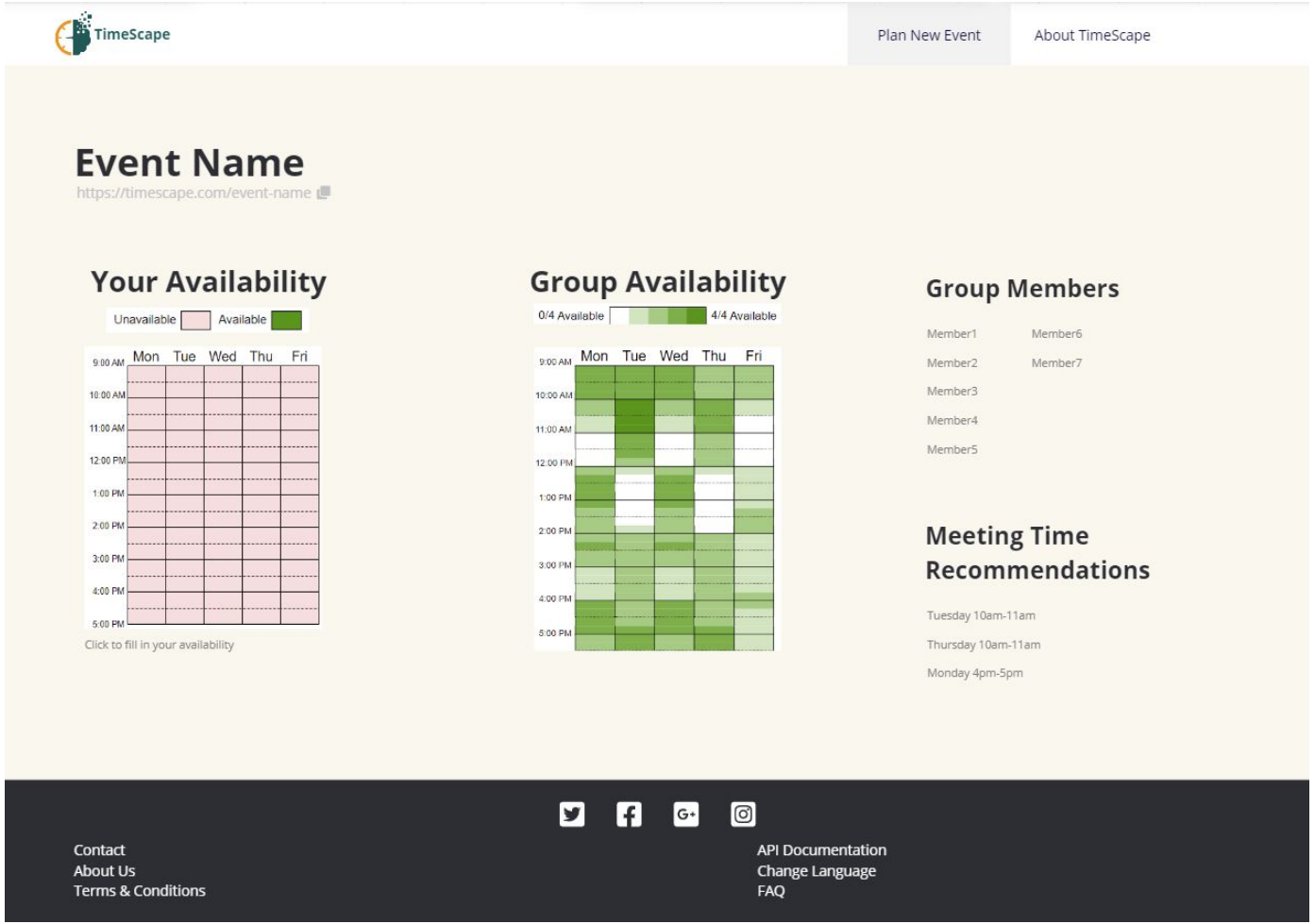
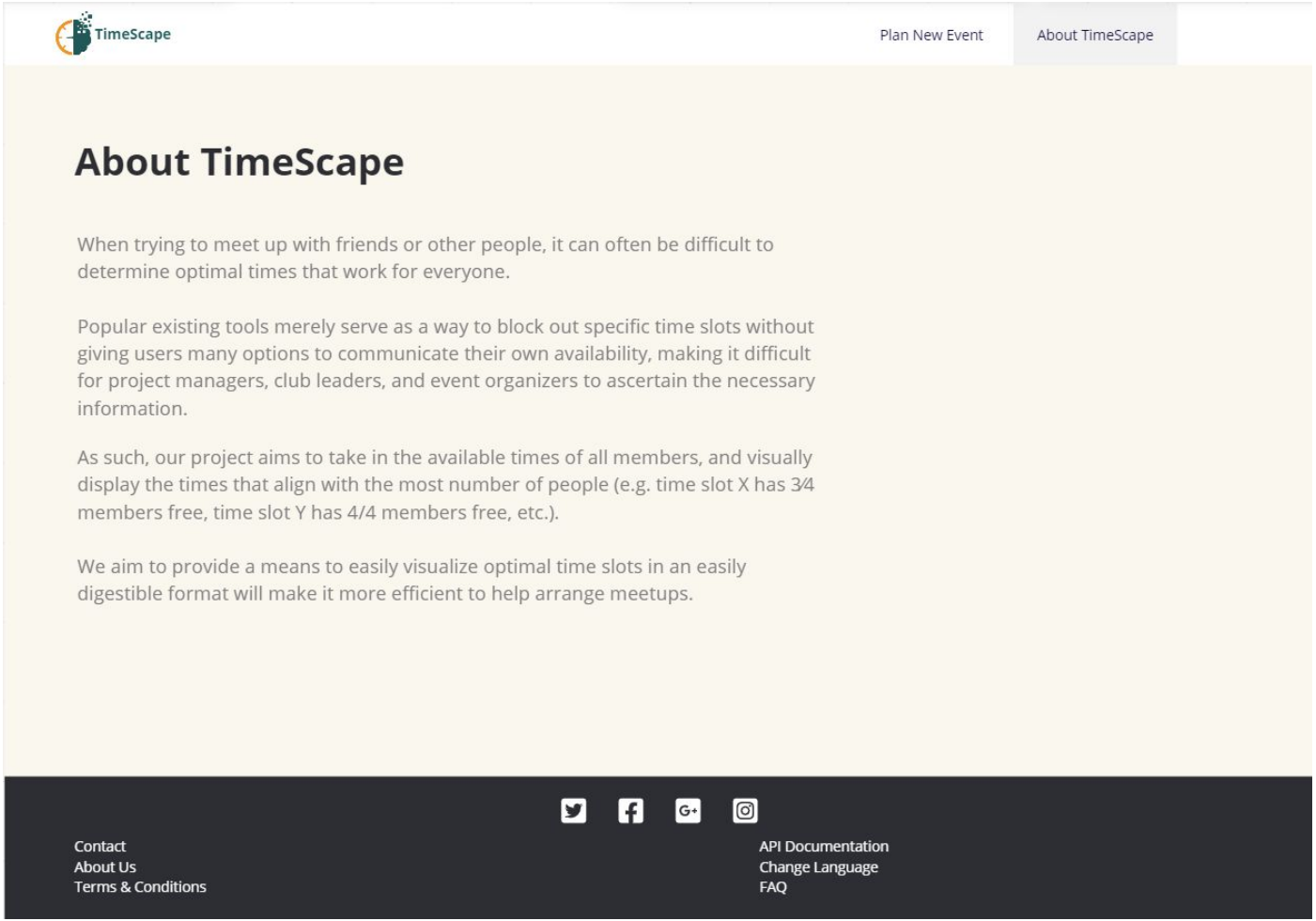
API Documentation
Change Language
FAQ

Sign-In Page



Enter Availability Page


TimeScape
Plan New Event
About TimeScape
About TimeScape
When trying to meet up with friends or other people, it can often be difficult to determine optimal times that work for everyone.
Popular existing tools merely serve as a way to block out specific time slots without giving users many options to communicate their own availability, making it difficult for project managers, club leaders, and event organizers to ascertain the necessary information.
As such, our project aims to take in the available times of all members, and visually display the times that align with the most number of people (e.g. time slot X has 3⁄4 members free, time slot Y has 4/4 members free, etc.).
We aim to provide a means to easily visualize optimal time slots in an easily digestible format will make it more efficient to help arrange meetups.
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Terms & Conditions
API Documentation
Change Language
FAQ

About Page

Limitations & Future Work

Limitations

Scheduling Constraints:

- May not be possible to find a time that suits **everybody**, the algorithm will focus on the majority, potentially leaving certain individuals out of consideration
- Must consider various complex constraints such as time zones, recurring events, availability preferences, and conflicts with existing appointments.

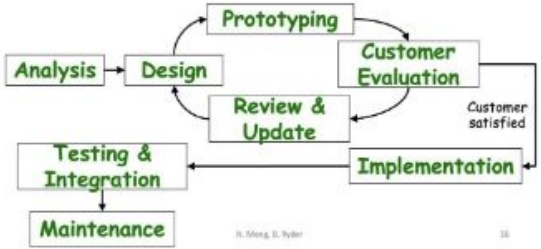
User Trust:

- Concerns about the algorithm's fairness, transparency, and reliability may hinder building and maintaining user trust
- May cause adoption challenges among users accustomed to traditional and familiar scheduling methods

Optimization:

- TimeScape’s algorithm may prioritize certain aspects that do not align with the user’s actual priority
- TimeScape's effectiveness relies heavily on the accuracy and reliability of input data. Inaccurate or outdated data could lead to inefficient scheduling decisions.

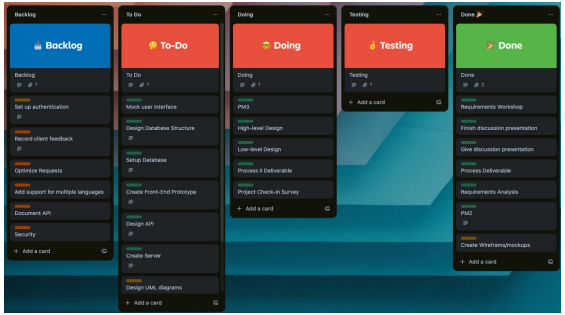
Future Work



- Since we already have the design in place with the wireframe, as well as how our front-end/back-end would interact with each other in our sequence diagrams, the next step is to actually build out working prototypes of TimeScape
- Additional features could include:
  - Linking TimeScape to existing calendar tools (Microsoft Outlook, Google Calendar, etc.) to make it easier for users to integrate it into their workflows
  - Having built-in messaging and/or notes for users to elaborate upon their availability times if needed
  - Allowing for archiving old meetings for book-keeping and reference

Processes & Tools Used

Applied Class Concepts



- Prototyping Model
  - Useful: allowed for changing requirements, room for feedback, and rapid iterations best suited our process
  - Unuseful: it was difficult to schedule working prototypes within the short time-frame of this class
- Agile Development
  - Useful: easy to arrange Sprints around the project milestones, and we used Kanban via a **Trello** board to visually track our progress and assign tasks
  - Unuseful: finding times to meet as a group outside of class on a consistent basis could be difficult to arrange
- Wireframe Design
  - Useful: allowed us to visualize the components of our web application and understand how actions flow from one part to another using **Miro**
  - Unuseful: wasn't able to actually implement the design, so we didn't get a grasp for the feasibility of our design

Things we Learned & Wrap Up

Things we Learned

- Importance of using project management tools like Trello alongside processes to track tasks, progress, and status for all group members
- Developing a foundation for the product through visualization with sequence diagrams (paired with use cases) and wireframing to better understand action flows and interactions
- Applying software engineering principles to break down and analyze our project in different components and perspectives

Questions?