

**TEAM NAME:** PIXEL PALS

TEAM MEMBERS: BRANDON GALICH,

CARINE GORDILLO

SARAH SANTOS

JASON LAM,

SARAH PHAN

TEAM LEADER: KAY KAYALE

**DATE:** SEPTEMBER 11, 2023

GITHUB: GITHUB.COM/CARINEGORDILLO/CECS491

# **TABLE OF CONTENTS**

Product Overview	3
Goals	3
Target Audience	4
<u>Scope</u>	4
User Type	5
Competitors	8
Core Components	8
Features	10
Phase 1 Features	10
Phase 2 Features	21
Dependency Unknowns	26
<u>Budget</u>	26
<u>Vision</u>	27
Glossary	28

### **Product Overview**

SpaceSurfer is a tool used for accelerating productivity for users ranging from employees at a company, to everyday individuals. For public users, SpaceSurfer provides seamless access to a wide range of spaces, offering a convenient way to plan and utilize public amenities. For employees, the application offers specialized features which enables them to make reservations within their office environment, ensuring a productive and organized workspace, both in person and virtually. With customizable access levels and tools for responsible usage, SpaceSurfer provides effective administrative control tailored to individual management needs. By streamlining the reservation process, SpaceSurfer eliminates the need for time-consuming searches and promotes collaboration and teamwork. Empowering organizations to make the most of their resources, SpaceSurfer contributes to a more productive and well-coordinated environment, whether for work or leisure.

# **Goals**

- Enhancing Productivity: Offer an all-in-one user friendly platform that
  provides tools and features that not only accelerate daily productivity for
  both employees and individuals but also streamline the reservation process,
  eliminating time-consuming searches and ensuring hassle-free bookings.
- Effective Administrative Control: Offer tools and controls that enable effective administrative oversight and management of reservations and floor plans.

- Specialized Features for Employee Reservations: Equip employees with specialized features for reserving spaces, utilities within their office environment, both in-person and virtually.
- Facilitating Access and Convenience for Public Users: Ensure that public
  users can effortlessly discover and reserve a wide range of amenities,
  providing them with a convenient and seamless experience when planning
  their activities.
- Promoting Collaboration: Cultivate a collaborative environment among remote and in-person employees resulting in heightened productivity and teamwork.

# **Target Audience**

SpaceSurfer caters to a diverse range of users, from individuals seeking seamless access to public amenities, to employees and facility managers looking to optimize their workspace reservations whether they work in-person or remotely.

# Scope

SpaceSurfer is a web-based application designed to streamline facility management for various organizations, spanning from office spaces to public amenities like restaurants, libraries, and parks. With a focus on user-friendliness, SpaceSurfer prioritizes reservation accuracy and respects time constraints. Focusing on security, SpaceSurfer implements robust measures in place to safeguard sensitive data across all facility types, ensuring compliance with privacy regulations. SpaceSurfer seeks to improve user experience, organize and optimize

resources, and improve time management. SpaceSurfer cannot be used to directly communicate between employee and manager. The product will be compatible with the desktop and mobile version of Google Chrome and end development by May of 2024.

# **User Type**

	Super Admin	Company Manager	Public Facility Manager	Employee	Public User
Add/delete floor plans	Yes	Yes	Yes	No	No
Add/delete inventory	Yes	Yes	No	No	No
Delete/Modify users' reservations	Yes	Yes (only reservations within the office building)	Yes	No	No
View all bookings	Yes	Yes (only bookings within the office building)	Yes (only bookings in corresponding facility)	No	No
Delete other user's account	Yes	Yes (only employees)	No	No	No
Manage user permissions	Yes	No	No	No	No
Reserve available spaces	Yes	Yes	Yes	Yes	Yes
Delete/modify personal reservations	Yes	Yes	Yes	Yes	Yes
Add/delete rentable inventory for employees	Yes	Yes	No	No	No
Add/delete reservable parking spots	Yes	Yes	No	No	No
Delete account and all saved	Yes	Yes	Yes	Yes	Yes

information					
View floor plan	Yes	Yes	Yes	Yes	Yes
Rent out inventory	Yes	Yes	No	Yes	No
Provide feedback about reserved space	Yes	Yes	Yes	Yes	Yes
Provide employees code to join company office building	No	Yes	No	No	No

1. **Super Admin** oversees security measures, and makes high-level decisions to optimize the user experience and facility management process.

**Impact:** Super Admin is the highest level of authority in the system and has the most extensive access. They oversee the data management, user security, user accounts and more. Super Admin impacts the overall success of the product by taking responsibility for maintaining the system, security, and efficiency.

2. **Office building owners** responsible for overseeing and managing office space, utility, and parking spot reservations within their organization. Office building owners are responsible for generating unique access codes for each building, which they then distribute to employees for secure entry.

**Impact:** Office building owners play a critical role in ensuring efficient resource allocation and resolving any scheduling conflicts. Their actions impact the overall organization's productivity and resource utilization, as they maintain order within the office space reservation system, making it an integral part of their daily workflow.

**3. Public Facility managers** are responsible for overseeing and managing space reservations within their organization.

**Impact:** Facility managers oversee and manage all reservation needs for spaces used by the general public. In addition to making sure that all floor plans are available and up to date, they will ensure that bookings go smoothly and are made without conflicts. In situations where there are mishaps, facility managers will have the tools necessary to make changes needed for operations to run as expected.

4. **Employee** who works in organizations, remotely or in-person, that want to efficiently manage and reserve office spaces, cubicles, and utilities.

**Impact:** Employees impact OfficeSurfer, as their engagement with the platform drives daily resource bookings and reservations. By utilizing the platform to access and reserve available spaces, they contribute to the efficient utilization of resources. Their interactions enhance the overall productivity of the workspace by ensuring that employees have access to the spaces they need when they need them, fostering a more coordinated and productive work environment.

5. General public users who need to seek to reserve spaces outside of a professional work environment.

Impact: General public users allow SpaceSurfer to cater to all types of users, not just those who seek reservations in a professional setting. Extending SpaceSurfer's features and capabilities to both private and public avenues

increases our scope of outreach since more people can experience the conveniences that our website provides.

# **Competitors**

Many of our competitors such as Officernd and Skedda provide a way for admins to create their floor plan and reserve spaces.. Another competitor Planyo provides an online reservation system that allows its users to rent and reserve spots that are for general purpose. The way that Office Surfers differentiates from this competitor is by not generalizing our reservations and places, but instead focus mainly on boosting the productivity of the users that are in need of resources as a solution for their desired work environment and mental focus. Office Surfer also takes in user feedback to better increase the overall quality of what we provide as well as recommendations on what we suggest is needed to suit the user's needs.

# **Core Component Features:**

- Protection of user privacy and user data (CPRA):
  - Description: Implement a user-initiated data deletion feature that allows users to request the removal of their personal information and reservation history within the platform. Allow users to request all PII data collected.
  - Value: This feature prioritizes user data privacy and compliance with regulatory requirements, ensuring that users have control over their personal information. It enhances user trust and demonstrates a commitment to data protection.

 Constraints: If a company or public facility manager wishes to delete all of their user data, it will also delete all information associated with the business.

#### - Registration:

- Description: Registration is the crucial initial step for users, granting them access to our platform. Through this process, users can establish their individual accounts by providing a unique email, username, and password.
- Value: This establishes a foundation for user access, allowing users to create secure and personalized accounts. This core functionality not only safeguards user data but also lays the groundwork for tailored experiences, ultimately enhancing user satisfaction and engagement.
   Users who do not register are unable to use the application.

#### - Login/Logout:

- Description Encompasses authentication and authorization.
   Authentication verifies user identities through a secure username and password system. Authorization regulates user permissions and roles, ensuring that individuals interact with the platform within their designated boundaries.
- Value: Establishes a defense against unauthorized access. This
  ensures that users are granted access based on their roles,
  significantly enhancing platform security.

# - User Profile Update:

- Description: Enables users to manage and personalize their profiles.
   This feature allows users to update their information and settings within the platform.
- Value: Keeps user profiles up-to-date, reducing the likelihood of outdated or incorrect information.
- User Account Deletion/Recovery:
  - Description: Provide users with the ability to delete their account or recover it if needed. This feature ensures that users have control over their account status.
    - Users are able to delete their accounts, yet their information is still stored for easy recovery
  - Value: Enables users who accidentally deleted their account to initiate a recovery process.

#### **Features**

#### Phase 1:

- 1. Add Reservable Spaces (medium-high complexity):
  - Description: Enable public facility managers and company managers to add reservable spaces within the platform. They can manage these spaces with careful consideration of unique business rules:
    - Space ID Assignment: Specify unique space IDs, which should adhere to predefined naming conventions, such as "CR-101"

- for a conference room or "CB-201" for a cubicle space. These IDs are important for accurate identification and booking.
- Specify Category Assignment: Administrators are required to categorize each space based on its environment, selecting from predefined categories like "Conference Room," "Phone Booth," or "Outdoor Seating." This categorization ensures that users can easily find spaces that align with their specific needs.
- Floor Plan Integration: The space IDs entered by administrators should correspond with those labeled on the space floor plan.
   This integration streamlines the user experience, allowing users to visually identify and select spaces on the floor plan before making reservations.
- Each reservable space must be added manually for each floor plan; this is due to the unique IDs associated with each space.
- Unique Space IDs: Each designated space on the floor plan image will be labeled with a unique and distinguishable ID. This labeling ensures accurate identification and allocation of office spaces, contributing to an efficient and organized workspace.
- File Upload: Can select one file at a time, but there is no limit to the number of floor plans users can upload. File type must be PNG or JPEG with a file size of 15 MB or less.
- Value: By enabling public facility managers and company managers to upload a visual representation of the space layout and curate the list

of reservable spaces, we establish an environment where users can easily identify and select spaces tailored to their specific needs. This not only streamlines the reservation process but also optimizes the overall utilization of workspace resources.

- Constraints: Users can upload a single floor plan per transaction and must list the spaces before adding the next floor plan. Limit adding up to 30 spaces per floor plan.
- 2. Add Inventory (medium-high complexity):
  - Description: Enable super admins and company managers to upload a comprehensive list of utilities or tools available for rent by employees. Super admins and company managers can oversee the inventory with careful consideration of unique business rules:
    - Inventory Availability: Super admins and company managers are tasked with accurately specifying the quantity of each utility or tool available for rent. This will ensure an exact amount of items that can be lent to employee users.
    - Additional Inventory Logging: Super admins and company managers must log all inventory additions, who added it, and when it was added. The logging system is important for any additional items added to the inventory and updating the inventory availability.
    - Inventory Categorization: Super admins and company
       managers must categorize inventory items based on their

- usage, such as laptops for remote work and electric fans for office appliances. This categorization allows for an easy and organized inventory search by the employee users.
- Value: Provides employees with a convenient way to check the
  availability of utilities and tools. Ideal for remote workers, who would
  require additional resources for their remote work setup. By
  streamlining access to essential resources, it contributes to
  heightened workplace efficiency and productivity.
- Constraints: The inventory list should be kept up-to-date to reflect any changes in item availability. For example, if an item breaks, managers must remove the item from stock.
- 3. Utility Rental (medium-high complexity):
  - Description: Enable employees to rent specific utility items for their use within the organization. Employees can select the item they need from the inventory list, specify the date and time of their reservation, and indicate the duration of the reservation.
    - Availability Check: The system checks the availability of the requested item at the specified date and time, preventing double bookings.
    - Future Reservations: Users can only rent items for future dates and times, preventing reservations for past time slots.
  - Value: Provides necessary resources for employees who might need a product that will aid in getting their work done. Ideal for remote

- workers, who would require additional resources for their remote work setup. This ultimately enhances overall workplace efficiency and productivity.
- Constraints: Users must assume the time slot for utility rental is the time-zone of the location of the facility. System assumes that the user has returned the item at the end of the time slot.
- 4. List of Reservable Spaces (low-medium complexity):
  - Description: Allow users to view a comprehensive list of reservable spaces conveniently located below the floor plan image.
    - Clear Space Identification: Guarantee that each space is labeled with a unique and easily recognizable ID for accurate selection.
    - Floor Plan Alignment: We assume that all the space IDs listed align perfectly with the labeled space IDs on the floor plan, promoting consistency and accuracy in space selection.
    - List order: The display order of the list will mirror the sequence
       in which the facility manager added the spaces.
  - Value: By offering users a clear and organized list of available spaces, we aim to enhance their overall satisfaction and efficiency of the booking process.
  - Constraints: Assume all listed space IDs correspond with the labeled floor plan space IDs
- 5. Space Reservation (medium-high complexity):

- Description: Enable users to secure a space that precisely meets their unique requirements from the list associated with each floor plan.
  - Reservation details: prompt users to specify the date, time, and duration of their reservation.
  - Single Reservation: Users can only book one space during the reserved time interval at a time.
  - Availability Check: Users cannot reserve a space if the desired time slot is already booked by another user.
  - Business Hours: Reservations are limited to the organization's standard operating hours.
  - Time Validity: Users cannot reserve a space for a time that has already passed.
- Value: By enabling users to reserve spaces tailored to their specific needs, this feature ensures an efficient and personalized workspace experience, ultimately enhancing their overall productivity and satisfaction.
- Constraints: Users can only book one space during the reserved time interval at a time. Users must assume that the reserved time slot aligns with the time zone of the facility's location.
- 6. Availability Display for Reservable Spaces (medium high complexity):
  - Description: Implement a visual indicator for each item in the list of reservable spaces, indicating whether the space is currently booked or available. Additionally, we will display the booking schedule of that

space for that day so public users and employees can easily find an available time.

- Space availability Categorization: The spaces will be color coordinated, red for unavailable at the indicated time, green for available at the indicated time.
- Value: This feature provides users with real-time information about space availability, allowing them to make informed decisions when selecting and reserving spaces. Users can quickly identify which spaces are currently in use and plan their bookings accordingly.
- 7. Space Time Limit (low-medium complexity):
  - Description: Allows company and public facility managers to upload the time limit for each space throughout the office.
    - Time limit will be displayed when a user begins the reservation process.
  - Value: This feature ensures that spaces are used for the appropriate amount of time and promotes fair and efficient usage for all employees.
  - Constraints: Only company and public facility managers are allowed to upload the time constraints as intervals and will be displayed in minutes - for example, Time Limit: 120 minutes. These Time constraints must be applied to each room individually.
- 8. Notifying User Error: (low-medium complexity):

- Description: Implement a popup message denying booking when users attempt to:
  - Reserve a space that is already booked for the selected date and time
  - The reservation falls outside of designated work hours
  - The reservation duration exceeds the specified limit
  - For employees, reserve an inventory item that is already booked for the selected date and time or exceeds the time limit.

The error message will be a pop-up modal that you can exit out of and will not require the user to refresh or reload the page.

- Value: This feature prioritizes user experience by delivering helpful error messages that guide users when their reservation requests do not align with workspace policies, ultimately improving overall user-satisfaction.
- 9. Layout Switch (low-medium complexity):
  - Description: This feature will allow public facility and company
    managers to switch the layout of the website to that which will align
    with their aim-of-use. They will access a specialized layout tailored for
    managing reservations within an organization. On the other hand,
    public users and employees will experience a layout featuring a wider
    range of reservable spaces, including restaurants, park tables, public
    libraries, and office spaces.

- Authorized User Access: Super admins, public facility managers, and company managers are the only authorized users permitted to switch between different layouts.
- Clear Indication of Current Layout: Always indicate to the user
   which layout they are currently using to avoid any confusion.
- Value: This feature allows for a cleaner website look and greater user experience since it separates the features catering to the unique needs of both company employees and the broader public user base.
- Constraints: Public facility managers cannot view employee role layout.

### 10. Schedule Download (Export) (low-medium complexity):

- Description: The platform allows users to export the entire schedule of reserved spaces into a single ics file.
  - Export: A download prompt will be added to the platform and when selected, it generates an ics file that contains the date, time, location, links, and description of each reservation.
- Value: The ics file can then be imported into the user's preferred
  calendar application, such as Google Calendar, Outlook, Samsung
  Calendar, and more. Users can view all their reservations on their
  preferred calendar without the need of entering the details of the
  reservation manually. Users can access their complete schedule of
  reservation details offline.

 Constraint: An ics file size can pose a challenge if a user's reservation schedule is too large which can lead to problems when importing to the preferred calendar application.

#### 11. Data analytics (medium-high complexity):

- Description: Company managers and public facility managers will
  have the ability to view analytical data on the reservations made for
  their provided spaces. Through data that our website will visualize
  through charts and graphs, admin users will be able to see the
  following:
  - How many spaces are reserved in a particular day/week/month
  - Which days of the week have the most reservations
  - How many cancellations are made in a particular day/week/month
- Value: Having the ability to collect this sort of data will help admin
  users keep track of their reservations and make revisals as necessary.
   With the additional feature of this data being translated into charts
  and graphs, admin users will have an easier time reading and
  interpreting such data.
- Constraints: Admin users will not be able to delete the data provided from this feature. This data will only be removed if the company/facility space is removed from our site.

# 12. Booking History (low-medium complexity):

- Description: Enables any user who previously booked a space reservation to view their booking history. This enables users to look over what spaces they reserved in the past with careful consideration of unique business rules:
  - Booking Description: Users are given a description of each past reservation which includes details of where the reservation was booked, the date it was booked and for when it was reserved, and who else was in the reserved space, if applicable. This provides a detailed overview of the past reservation for the user to recall.
  - Rebook Space: Allows users to rebook the same space they
    previously reserved. This streamlines user experience,
    providing users an easy rebooking process for the same space
    they reserved in the past.
- Value: Provide recorded data and an easy rebooking process for users through the booking history. The booking history contributes to the user experience by streamlining access to data information.
- Constraint: Users cannot delete their booking history. The booking history is only removed when the user account is deleted.

# 13. Modification of Existing Reservations (medium-high complexity):

- Description: Enables users to make adjustments to their existing reservations or orders for inventory items.
  - Allows for multiple options within the dedicated menu:

- Cancel: If desired, the user will be able to cancel their already existing reservations or orders and availability of the canceled will be updated.
- Modify: Users are able to modify the time slot of their reservation as the new time is available.
- Value: This feature provides users with the flexibility to adapt their reservations and inventory orders based on changing circumstances or preferences.
- Constraints: Users can only modify or cancel bookings prior to the start time of the reservation.

#### Phase 2:

- 1. Space Categorization (low-medium complexity):
  - Description: Our space categorization feature will consist of a system that divides the list of reservable spaces into distinct sections based on facility category.
    - The different categories will be separated by tabs and will be color coordinated to help users make distinctions between all the options. Users can easily navigate and select spaces within their desired needs.
  - Value: This feature enhances user experience by providing a well-organized list of spaces, allowing users to quickly find and reserve spaces that match their specific needs.

- Constraints: Assume company and public facility managers input the correct category to correspond with each space.
- 2. Booking Information Display (low-medium complexity):
  - Description: Present reservation details to be clearly displayed for the user.
    - This display will only be visible if the space is currently booked at the time of viewing,
    - Display the user, date, and time slot associated with each booked item in the list of reservable spaces.
    - Real-Time Updates: Reservation information should be updated in real-time to reflect any changes or new bookings.
    - User Privacy: Only the user's name associated with the booking should be displayed, ensuring privacy and security.
    - Time Zone Consistency: Displayed times should be consistent
       with the time zone of the location where the facility is situated.
  - Value: This feature enhances transparency by providing visibility into who has booked each space. This also allows users to determine a time they are able to reserve a certain space if it is booked or choose a different spot to work at.
  - Constraints: Users must assume that the reserved time slot aligns with the time zone of the facility's location.
- 3. Personal Overview (low-medium complexity):

- Description: For users of all types to gain a better overview of all the space booked for the day, our personal overview feature will provide users with a comprehensive list of all personal bookings scheduled for the day.
  - Dedicated section on page to display date, time, reserved space in order of earliest to latest reservation.
  - User-Specific Display: Users can only access their personal overview, ensuring privacy and data security.
  - Date Selection: Users are required to input the specific date they wish to view their bookings for.
- Value: This feature enhances productivity and planning by offering
  users a scheduled overview of upcoming reservations for a
  substantial time frame. It allows users to anticipate reservations and
  make informed decisions about their bookings.
- Constraints: Users can only view their bookings but cannot edit or modify reservations through this overview.
- 4. Space Feedback (medium-high complexity):
  - Description: Enables users to share their comments, suggestions, or concerns about a space's amenities, such as air conditioning, Wi-Fi quality, seating comfort, or any other relevant aspects. This feedback will be collected and sent to administrators for review and potential improvements. This feature will be displayed in its own section on the facility's reservation page.

- Each feedback submitted must pertain to a single space. If users wish to provide feedback for multiple spaces or utilities, they must submit multiple forms.
- Value: This feature encourages user engagement and provides a
  direct channel for users to contribute valuable insights about
  reservable spaces. It enables administrators to gather feedback,
  identify areas for enhancement, and continuously improve the space
  environment.
- Constraints: Feedback should pertain specifically to the amenities and aspects relating to space or utility booked. Feedback should be constructive and avoid personal attacks or offensive language.
- 5. Space Capacity (low-medium complexity):
  - Description: For users who are reserving a space and are being accompanied by other people, our space capacity feature will provide an easy way for such users to gauge the occupancy of the facility they are considering.
    - Displays the maximum capacity of each reservable space and will be shown in the detailed view of each reservable space.
  - Value: This feature enhances user experience by providing critical information about space capacity, enabling users to make informed decisions that accommodate their needs while adhering to occupancy limits.

- Constraints: This feature does not reflect the number of users that could reserve each space. Assume public facility and company managers input accurate information regarding space capacity.
- 6. Reservation Confirmation Email (medium-high):
  - Description: Implement an automated email confirmation system that sends detailed booking confirmations to users immediately after they make a reservation within the platform. The confirmation email includes:
    - Reservation Summary: A concise summary of the reservation details that includes the date, time, location, and number of people. This gives the users an overview of their upcoming reservation space.
    - Confirmation Code: The confirmation code is a unique code assigned to every reservation made and will be displayed in the confirmation email. This is important to verify the legitimacy of the reservation upon arrival at the space.
    - Edit Links: Links will be provided in the confirmation email for users that may need to cancel their reservation or edit the time/date. This allows users to have easy editing access to their reservation.
  - Value: This feature provides users a record of their reservations and editing options, enhancing trust and confidence in the platform.

• Constraints: Email will be sent to the address the user registered the account with.

# **Dependency Unknowns**

### **Office Floor Plan**

- Admins must enter an image of the floor plan, and a list of reservable spaces
- Without this, Office Surfer wouldn't be able to display available seatings or have any information about the offices

# **Budget**

# **Developer Team Cost**

Developer	Cost	Quantity	Total
Brandon Galich	\$37.90/hr	256 hours	9,702.40
Kay Kayale	\$37.90/hr	256 hours	9,702.40
Jason Lam	\$37.90/hr	256 hours	9,702.40
Sarah Phan	\$37.90/hr	256 hours	9,702.40
Carine Gordillo	\$37.90/hr	256 hours	9,702.40
Sarah Santos	\$37.90/hr	256 hours	9,702.40
		Total	\$58,214.40

# **Dependencies and Tools Cost**

AWS	\$1.50 per month	6 months	\$9
		Total	\$9.00

#### Vision

Office Surfers can potentially mark the beginning of changing the way organizations encourage productivity. With its user-friendly web app displaying reservable spaces and their descriptions, individuals will find it easier to locate and book suitable spaces, in order to get ahead of their schedule. Employees will also be able to have an active role in improving the workplace culture and environment through their reviews that notify the admin of what improvements could be done. Whether it's a place to work, study, or collaborate, Employees can optimize their environment all through a unified platform and plan their day. Overall, Office Surfers has the power to change space management, making it more productive, inclusive, and tailored to the needs of both organizations, employees, and individuals.

# **Glossary**

#### **Business**

**Admin:** Office building owners responsible for overseeing and managing office space, utility, and parking spot reservations within their organization.

**Floor Plan**: A visual layout of office space showing the arrangement of workspaces and rooms

**Inventory:** List of utilities that are provided by Business and are available for its employees to check out .

**Employee:** Employee who works remote or in-person in the office building.

**Public Users:** General public users who need to seek to reserve spaces outside of a professional work environment.

**Super Admin:** Oversees security measures, and makes high-level decisions to optimize the user experience and facility management process.

#### **Technical**

**API (Application Programming Interface)**: Protocols that allow different software applications to communicate and interact

**CPRA (California Privacy Rights Act)**: Law in California that gives consumers more control over the personal information that businesses collect about them. (<a href="https://oag.ca.gov/privacy/ccpa">https://oag.ca.gov/privacy/ccpa</a>)

**AWS (Amazon Web Services):** A cloud computing platform that provides various resources for things such as storage and databases.