**ScheduleSwift**

Team 5 – Product Backlog

Micky Santiago-Zayas, Dominic Nale, Jenny Ha, James Corder

**Problem Statement:**

The process of making or modifying a reservation is typically time consuming, annoying, and involves a lot of phone calls or emails to resolve conflicts between customers and the business they are making a reservation at. Reservations also lack customization such as catering services and other special requests. Most services typically only offer time and date options for each reservation, rather than the ability to select things such as specific tables at a restaurant or alleys at a bowling alley. Our project aims to cut down the time and effort required by business owners to handle reservations by unifying the scheduling, modifying, viewing, or cancelling of reservations all within one platform while simultaneously offering more customizability for each individual reservation for customers to choose from. In other words, we wish to create a system that can be easily customized by a business for their purposes to allow reservation requests from a targeted audience. For example, a restaurant business may customize it to include the menu, while a bowling business may customize it to include the score/leaderboard.

**Background Information:**

**Audience**

Reservations exist across all types of businesses ranging from restaurants to bowling alleys to concerts. People of all kinds often want to make reservations at these kinds of venues, but lack a unified method of making said reservations, sometimes they must call the business, sometimes they must send an email, or sometimes they even must come to the business in person to set up a new reservation. Our project targets all businesses interested in centralizing the reservation process and making the user experience for all users easier and more productive.

**Similar Platforms**

Many event platforms already exist like Outlook, Google Calendar, Apple Calendar, etc. These applications allow customers to accept invitations to events or to set up those events themselves and have them appear on their calendars. All these kinds of platforms follow the same method of having events appear on your calendar that you either accept or decline, with the option to change your mind later. Outlook is more business oriented, but Google and Apple are both more universal providers of reservation capabilities.

**Limitations**

While many reservation platforms exist and are especially useful in their own ways, the main limitation they face is that they require you to be invited to an event or to post the event to your calendar yourself without incorporating the specifics of a business. However, ScheduleSwift’s goal is to keep the privacy of such reservations––private events requested by a customer––while notifying other users of an unavailability and allowing businesses to still promote their public events. Namely, it is a software customizable by businesses to contain all their desires aligned with their provided services, while allowing users to easily make a reservation without any additional approvals. This would make the reservation process more streamlined and easily accessible to customers by allowing them to see public events and currently available times to make reservations for, by inhibiting unavailable times. In this way, the customer will be able to see events, reserve them, modify them, cancel them, and even see them on their own calendars without ever having to contact the business itself in any other way.

More precisely, the businesses––the buyers of ScheduleSwift––would benefit the most because the platform would allow incorporation of business promotions and daily business reservations/events. All while, the customer can RSVP into public events or make a private request themselves on the same platform.

**Functional Requirements:**

1. As a business manager, I would like to be able to change what employees are able to access and change.
2. As a business manager, I would like to be able to create and change event details.
3. As a business manager, I would like to change and provide the opening hours of my business.
4. As a business manager, I would like to have and control all the features available to a business employee.
5. As a business manager, I would like the option to be able to customize “items” to be reserved out (e.g., tables, rooms, computers, etc.).
6. As a business manager, I would like to customize my business’ request form fields and alter if required.
7. As a business manager, I would like to be able to add a security deposit requirement.
8. As a business manager, I would like to be able to change what the prices appear as to the customer.
9. As a business manager, I would like to be able to change what the details and policies of an event at my business appears as to the customer.
10. As a business manager, I would like to be able to change what the details concerning my business appears as to the customer (e.g., FAQ’s, contact information, etc.).
11. As a business manager, I would like the option to set a loyalty rewards system for customers who come often.
12. As a business manager, I would like to create employee accounts for my employees to access during their shifts.
13. As a business employee, I would like to be able to see all the events at my business.
14. As a business employee, I would like to be able to see all the private/public events on the business’s calendar.
15. As a business employee, I would access the confirmation number of any timed reservation.
16. As a business employee, I would like to be able to cancel an active reservation at my business.
17. As a business employee, I would like to be able to change active reservations at my business.
18. As a business employee, I would like to be sent a notification when a customer has made a reservation at my business.
19. As a business employee, I would like to be sent a notification when a customer changes a reservation at my business.
20. As a business employee, I would like to be sent a notification when a customer has cancelled a reservation at my business.
21. As a business employee, I would like to be sent a reminder of the active reservations occurring during my shift at the beginning of each shift at my business.
22. As a business employee, I would like to be able to see all the contact information of the customers who have made a reservation at my business.
23. As a business employee, I would like to be able to change what is available at my business for customers to choose from (e.g., space availability, time availability, maximum capacity, items available, etc.).
24. As a business employee, I would access all the information regarding a reservation (e.g., payment status, reservation details, etc.).
25. As a business employee, I would like to be able to forward specific events for manager review.
26. As a business employee, I would like to have a work account to access notifications regarding my shifts and tasks.
27. As a customer, I would like to be able to view pricing options for non-reservable services, reservations, and public events.
28. As a customer I would like to be able to see frequently asked questions (FAQ) of the business.
29. As a customer, I would like to be able to contact the business if I have a question or concern not answered in the FAQ.
30. As a customer, I would like to be able to register for a ScheduleSwift Account as a guest or personal account.
31. As a customer, I would like to be able to login to my ScheduleSwift Account with my username and password.
32. As a customer, I would like to be able to manage my account information.
33. As a customer, I would like to be able to recover my username and password should I forget them.
34. As a customer, I would like to connect my email to receive all notifications or confirm my account through it.
35. As a customer, I would like to be able to see any events I am able to RSVP for.
36. As a customer, I would like to be able to make a reservation at a business’ available time.
37. As a customer, I would like to be able to see the details and policies/rules of the events I am able to make a reservation for.
38. As a customer, I would like to be able to fill out an information form regarding my requests for a reservation I am planning.
39. As a customer, I would like to be able to see my active reservations.
40. As a customer, I would like to be able to modify my active reservations by changing the date, time, or any specific information pertaining to the reservation.
41. As a customer, I would like to be able to cancel any of my active reservations.
42. As a business employee, I would like to have access to notifications.
43. As a customer, I would like to be sent a reminder a day before my active reservation.
44. As a customer, I would like to be sent a notification when a reservation I made has been cancelled.
45. As a customer, I would like to be sent confirmation with a digital receipt when I make a reservation for an event.
46. As a customer, I would like to be sent confirmation when I modify an active reservation.
47. As a customer, I would like to be sent a notification when the event’s owner alters a reservation.
48. As a customer, I would like to access my reservation confirmation number to provide proof of reservation upon arrival at the event.
49. As a customer, I would like to see an itemized receipt and how much I owe before I pay.
50. As a customer, I would like to have a payment method available to pay.
51. As a customer, I would access all the information regarding a reservation (e.g., payment status, reservation details, etc.).
52. As a customer, I would like to be able to view statistics about my account such as number of reservations, last login, next upcoming reservation, etc. (Many Use Cases here)
53. If time allows, as a business manager, I would like to have a work clock for the employees to clock-in and out of their shifts.
54. If time allows, as a business manager, I would like the option to select what type of business I own (i.e., recreational, restaurant or convention center).
55. If time allows, as a business manager, if I have a recreational business, I would like to add to the default features of the system with a leaderboard/scoreboard for my customers.
56. If time allows, as a business manager, I would like to establish a system to publish sales and discount events to users.
57. If time allows, as a customer, I would like to receive notifications about sales and discount events to users.
58. If time allows, as a customer, I would like to be able to add my active reservations to my personal calendar, such as Outlook calendar or Google calendar.

**Non-Functional Requirements:**

**Architecture and Performance**

We plan to develop our application with a separate front-end and back-end. By dividing the two parts, it will make it easier for us to divide our work and avoid issues between the front end and the backend. The back-end will be database backed by either a MySQL database or a MongoDB database and will be written in either PHP using the Laravel Framework or via using Node.js to connect to the database. Laravel allows us to make the design and implementation of our product more straightforward and user-friendly, similarly, using Node.js allows a simple, straightforward way to communicate with the database.

Our Frontend will be developed using HTML, CSS, ReactJS, and several frameworks such as MaterialUI and Figma, and we will access the backend via queries to the database using PHP or JavaScript calls embedded within the html. By separating the front end from the back end, it makes it easier for us to modify either side to make it compatible with more systems, should we choose to do so in the future.

**Security**

Security within ScheduleSwift will be handled in a variety of ways in order to ensure user information does not end up outside of our system. Primarily, passwords will be hashed upon submission so that they are stored in the database in a way that is not discernable to the human eye. Our frameworks come with several built-in security measures to prevent staple security breaches like SQL Injection. Our platform will also separate business employees from customers and place restrictions on what either side can see. For instance, customers will not be able to see details about other customers’ reservations, and employees cannot see events that customers have booked at other businesses or any sensitive information from customers such as credit card information.

**Scalability**

In the developmental stages of our product, the scalability will be very small, as it will only be accessed locally, so it will only need to be able to handle one user at a time. Once we are to the point in our development where we begin deploying our databases to Google Cloud servers and our web pages to GitHub Pages, it should allow for substantial scalability. Our limiting factor on scalability is database size and the effects on responsiveness if we increase the size of our product. We aim to be able to support at least 10,000 concurrent users without loss of responsiveness, given a database with enough size to hold that amount of user data. Due to the power behind Google Cloud and GitHub Pages, sustaining a value like 10,000 should be easily achievable and we will likely be able to support far upwards of 10,000 users before a performance hit is noticeable.

**Responsiveness**

Our goal for our product is to maintain a responsiveness within a few hundred milliseconds. In other words, we would like our product to respond in less than one second whenever something is clicked, or a response is given. With the size of our application, keeping the responsiveness within milliseconds should be easily achievable as we will not be performing any heavy computations or major database accesses that could slow down the responsiveness of our program. Users should expect results any time they press a button or fill out a field within 1000 milliseconds.

**Usability**

The interface should be simple and straightforward for both customers and business employees to find their way around. It should be navigable and usable to near full capacity with little to no training required from any party. Since we will be offering a lot of modularity within the reservations, it is important that we design the interface in such a way that scheduling, modifying, cancelling, and even just viewing reservations is a simple task and the user does not get overwhelmed or lost within a maze of menus and submenus. Since typically the reservation process is split between at least two separate entities, we need to make sure the app stays free of clutter and maintains easy readability, even when doing more complex tasks like modifying specific aspects of a specific reservation. Doing so will ensure that both customers and business employees can find exactly what they are looking for with little to no hassle. We would also like to ensure that our application is accessible for all desktop and laptop resolutions and all browsers, as well as mobile devices if time permits us to do so.

**Availability**

In the developmental stages of our project, the availability will be restricted severely, as we will only have the service available when we are actively working on it. Once we are further along in development, because we will have it deployed via Google’s Cloud storage options and GitHub Pages, we will be able to maintain 24/7 uptime on our web application except for if one of those services goes down due to a crash or maintenance. Although the web application will have 24/7 accessibility and the users will be able to see all the reservations, they will still only be able to make reservations during valid operation hours of the businesses, so the features that are available at different times may vary based on business operating hours.

**Hosting and Deployment**

In the development phase, both the front end and back end will be locally hosted using software such as XAMPP. Once we have enough development done to warrant hosting other than local hosting, we can host the database through Google’s Cloud Storage capabilities and the front end can be hosted through GitHub Pages, both allow us to deploy the front and back ends separately and without spending a large amount of money on hosting services.