

TailorBook

Empowering Small Businesses with Seamless Custom Booking Solutions

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Introduction:

Small businesses often struggle to create and manage their own websites for booking appointments, leading to missed opportunities and frustrated customers. While there are existing platforms like Squarespace, Wix, or Google Calendar that offer booking systems, many are too generic, overly expensive, or lack customization options, leaving small businesses underserved. Our project aims to address this gap by developing TailorBook, a web-based app that allows businesses to create and customize their own booking services tailored to their specific needs.

TailorBook lets business owners modify services, update availability, and upload images of their products using an accessible, user-friendly template. This empowers businesses to maintain a professional online presence without extensive technical knowledge, leveling the playing field in today's competitive digital economy.

Imagine a local salon owner juggling customer calls and appointments, struggling to stay organized. TailorBook changes that by offering a simple, elegant solution—no technical skills required.

User Tasks:

The design of this web app focuses on simplicity and customization. Business owners can customize the information that appears on the landing page of the booking app, specifying their hours, closures, and other important information. They can add, edit, and delete services, adjusting prices and per-day availability. Customers can register with the service and book their own appointments in the calendar menu. Additionally, the owner is provided with a dashboard that alerts them of the day's appointments and allows them to view relevant info on the timing, the requested service, and any customer notes provided to them.

To build this app, we used a MERN stack – React for the interactive user interface, Node.js and Express for handling the backend data management, and a MongoDB database to store business and service data and customer appointments. This combination of tools ensures that the app is both functional and easy to use for non-technical business owners.

The target users for this project are small business owners in industries like salons, spas, or clinics, or solo business owners running smaller services like music lessons or tutoring, who need an affordable and customizable booking solution. These users will not necessarily have any real knowledge about website management and web development, so we intend to use tools and APIs that will bridge the gap and put the tools they need in their hands with as little trouble as possible. The app will support their day-to-day activities by streamlining the process of setting up and managing appointment booking, allowing them to focus on their business and their customers.

For example, Mary, a salon owner with no technical expertise, needs a simple way to manage her appointments and communicate with clients, while Jake, a piano tutor, is looking for an affordable platform to streamline his booking process.

Needs and Requirements:

Functional Requirements -

Real-time booking was our top priority, allowing customers to avoid scheduling conflicts and potential double-booking issues. To do this, we have a database table of appointments that syncs up with the frontend calendar integration the moment an appointment is booked. Additionally, the system sends appointment reminder emails, minimizing the adverse effects of forgotten appointments. We used the Nodemailer module in Node to implement this.

All features of the booking site are easily accessible on mobile devices, which will increase customer traffic. Data security is also essential, especially when handling user information like payment and contact information, and appointment details. To that end, we considerably restricted what is visible on the customer end of the site, and implemented measures to protect data in transit to and from the database.

Business owners are able to easily manage their schedules by adjusting their hours and reviewing bookings in real time. They can edit the services they offer, the prices of those services, and the descriptions and images attached to them at any time. Additionally, they can control what business information is shown on the landing page

of the site, as well as what logos, and images are used throughout. All of these features are included in the owner portion of the app, with appropriate information being stored in the backend database and used where requested on the customer site

Nonfunctional Requirements -

The booking system uses APIs and modules that allow it to perform efficiently across all platforms, including smartphones, tablets, and desktop computers, without significant lag or delays. Users can access core features quickly without navigating through cluttered menus. We used a sleek, minimal design that we consistently maintained on each page of the app. This design clearly indicates the most important information on the page and draws the eye to the relevant buttons that will take the user to the place they hope to be.

Broad Impact:

TailorBook stands out by offering a highly customizable yet easy-to-use solution. Unlike competitors, it focuses on affordability and accessibility for non-technical users while providing robust features tailored to small business needs.

By enabling small business owners to compete with larger companies through professional-grade tools, TailorBook promotes digital literacy and supports entrepreneurship. This fosters local economic growth and benefits underserved

communities, contributing to societal advancements by enabling businesses to thrive in a digital-first world.

Final Product:

Our final design implements the necessary tools for our requirements listed above. Functionally, our React app provides the framework for customers and owners alike to have a tailored experience to their specific needs. Owners are greeted with a dashboard immediately upon login that details their upcoming appointments for the day (see Figure 1). They can also view other days to see currently booked appointments.

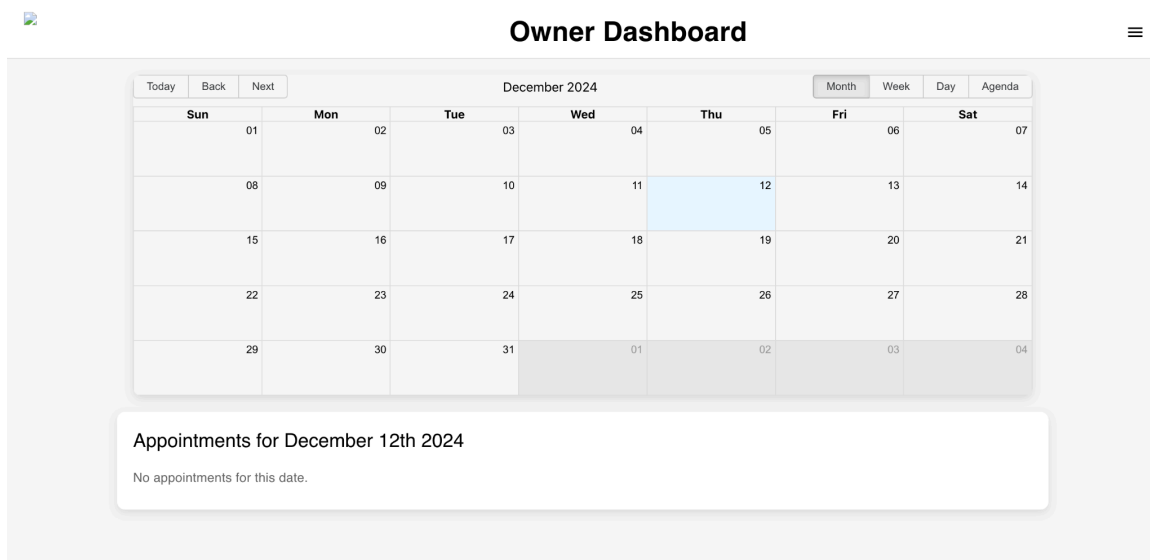


Figure 1 – Owner Dashboard

From there, owners can quickly navigate via the hamburger menu at the top to their other major tools: the services page, and the site settings page. The services page provides an easy-to-navigate list of the existing services defined by the owner, and each service has options to either edit or delete (see Figure 2).

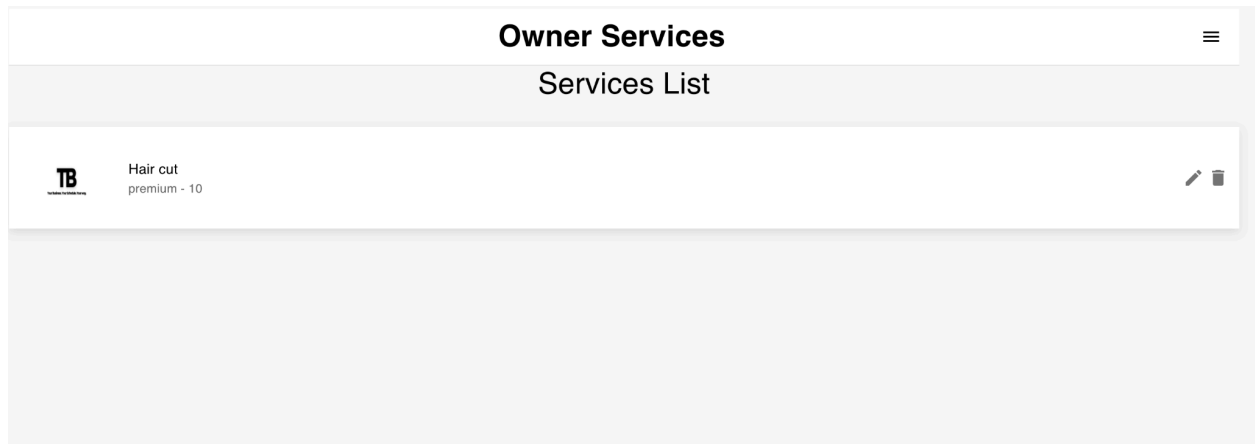


Figure 2 – Owners services

Site settings allows the owner to change their business name, add a tagline or additional info, specify hours and contact information, and select images that will appear on their site, including a logo (see Figure 3).

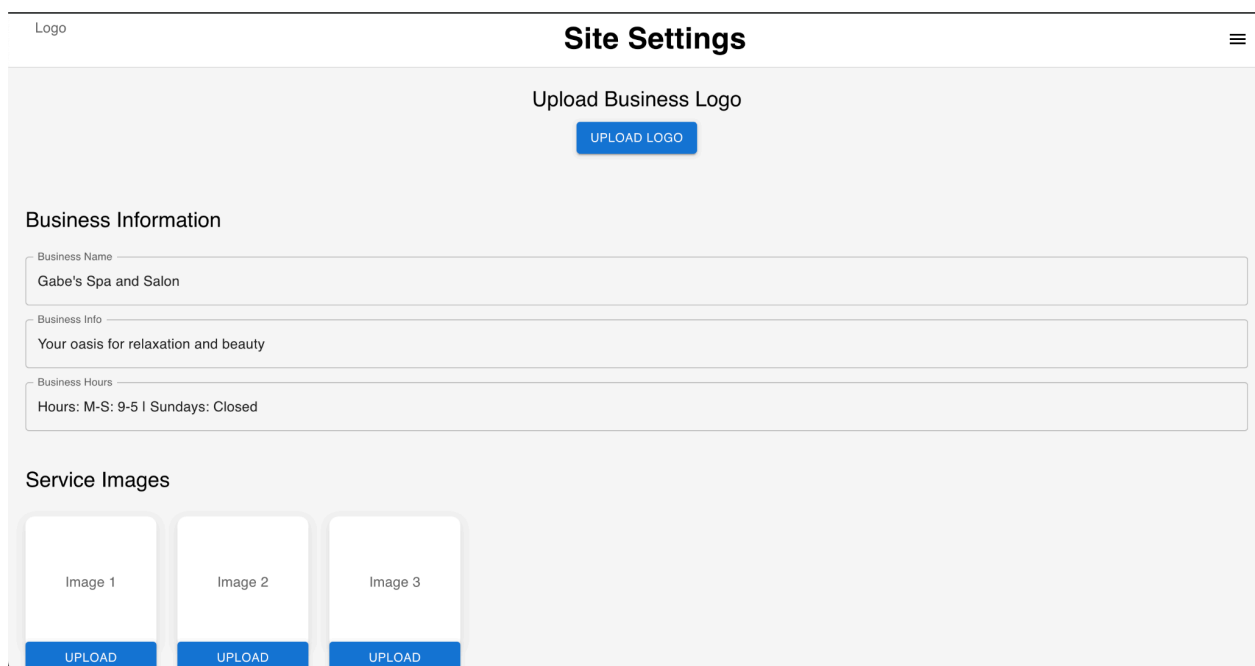


Figure 3 – Owners site settings

Meanwhile, on the customer side, the experience is similarly clean and streamlined. Every setting defined by the owner appears on a sleek homepage from the moment the user logs into their account (figure 4). Scrolling down on the homepage or using the hamburger menu allows the user to traverse to the available services, which appear as detailed little cards with a name, description, estimated time, price, and an image (figure 5).

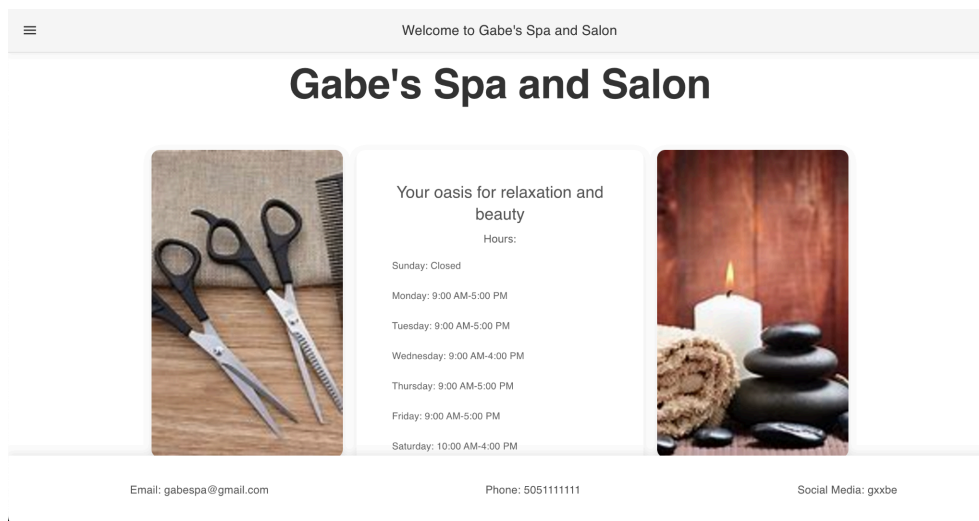


Figure 4 – Customer home page

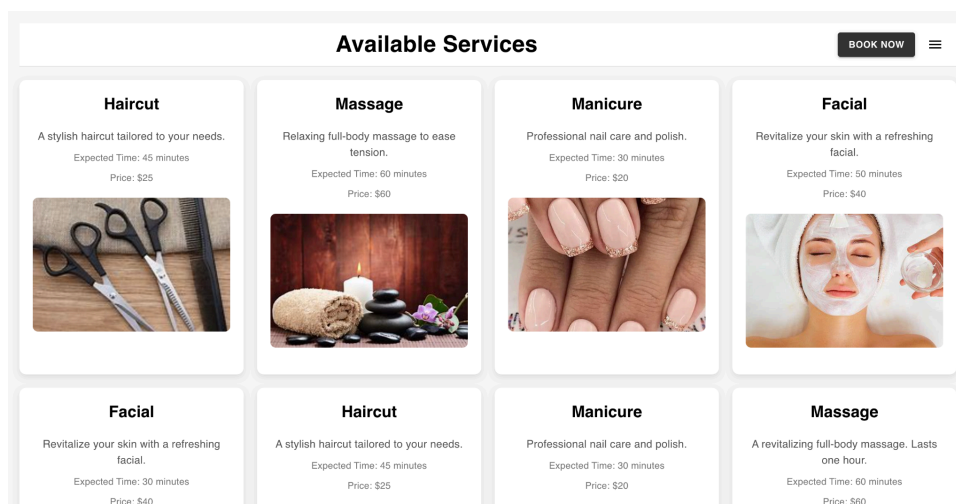


Figure 5 – Available services

Finally, the most important part of the customer interface: the calendar. Users can click or tap on a day to select it, at which point they can select a service from the choices available that day. From there they can choose a time and book. Figure 6 shows the calendar in its usual form, while figure 7 demonstrates the booking popup that allows the user to finalize details on their appointment.

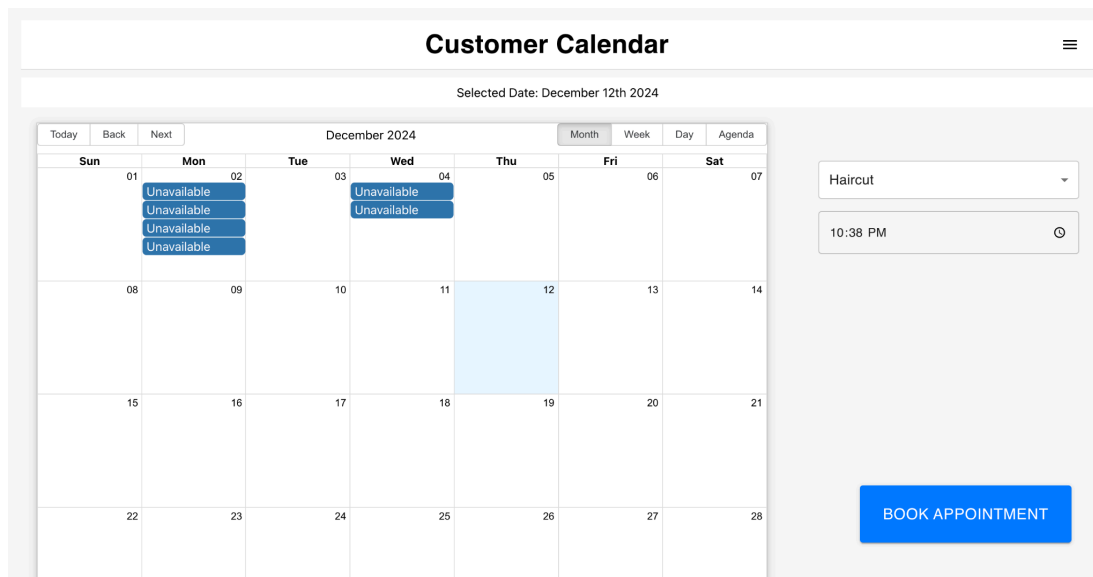


Figure 6 – Calendar/booking page

Confirm Booking

Service: Haircut

Date: December 12th 2024

Time: 22:38

First Name

Last Name

Email

Phone

Additional Notes

CONFIRM BOOKING CANCEL

Figure 7 –Confirm Booking

Development Process:

The project evolved through iterative sprints. During Sprint 1, the team built the site framework and integrated a calendar. Sprint 2 focused on backend functionality and a cleaner UI. Sprint 3 added secure login and service customization, and Sprint 4 polished the app, fixed bugs, and finalized features.

Key design choices, such as opting for a minimalistic layout to reduce cognitive load and prioritizing mobile responsiveness based on target user behavior, were driven by user needs and by feedback on our initial demo. The decision to focus on real-time booking from the beginning ensured seamless scheduling without conflicts, and gave us a system we could build upon and beautify over time.

Several aspects received more attention than we first thought they would, such as the login system. We determined collectively that quick and secure logins were important to us, and solving some of the issues with that system informed our decision making in later sprints. As an example, several of the bugs with logins were based on interactions between the front and back ends, and working through those issues particularly helped Carter to find his footing and make those interactions seamless.

Towards the end of the project when time was short, we had to make some decisions on what to prioritize. We still didn't have reminder emails set up – our attention had been brought to more difficult issues, so we had set it on the back burner as we knew it would be fairly straightforward – and there were several other form features that we postponed until our functionality was more airtight. Unfortunately,

we were not able to completely implement everything we'd hoped in regards to image uploading for the homepage or services, nor for getting the project hosted on AWS, Vercel, or Heroku.

Future Work:

At this time, we have no concrete plans for the continuation of this work. However, we have considered several things that would theoretically need to be done in order to take this project and product further. Deployment is the biggest question mark still on the table for TailorBook. Early on in our brainstorming and proposal process, the project was going to be less of a booking app and more of a service that allowed businesses to generate entire websites, more akin to something like Squarespace or Wix. As our vision evolved, we decided to emphasize more of the individual app itself rather than something that could be scaled up to host dozens of different, fully customized sites.

The immediate issues come from acquiring domains and hosting. Services like Squarespace assist in this as a major advertising point, allowing their customers to choose a custom domain name as part of their subscription service. As it stands now, the most likely way we would implement TailorBook would not do that at all, instead requiring the business owner to have a domain already available from which we could then host the app – a concept that sort of flies in the face of our stated goal and target audience. Few small business owners would have the know-how to do that themselves.

Alternative options during the design process included potentially having one TailorBook site and serving individual business sites from there, but that would immediately become complicated. How could we store all the needed information? Would we basically be storing entire sites in our Mongo database? How would that scale? Ultimately, we decided that this method would have too many potential hangups to be worth pursuing this semester.

Conclusion:

TailorBook offers a practical and innovative solution to the challenges faced by small business owners in managing appointments. By prioritizing accessibility, affordability, and customization, it has the potential to significantly impact small businesses, communities, and society at large. We are proud of this tool, and pleased that we got to see it develop in front of our eyes over the last several weeks. With future iterations and deployment, TailorBook could become an indispensable tool for entrepreneurs worldwide.