

Software Project Proposal

Scheduling and Payroll Management: An Intuitive Software for Efficient Administration, Client Access, and Employee Oversight

BOOKBLITZ

Effortlessly craft and share schedules, accurately track work hours and ensure accurate compensation, time and again. Additionally, empower clients to seamlessly view their scheduled services and associated costs.



95 PAGES
40 MIN READ



2023 CM2020
AGILE SOFTWARE
PROJECTS

ANGELA PAOLA LOZANO OCHOA TSANG, HO TING JEREMY GHARBI, HAFSAH CHIUNG-YIN CHANG

MODULE LEADER: DR SEAN MCGRATH

Index

- 4 Concept
- 7 Objective
- 10 STEEPLE Analysis
- 25 Market Research
- 33 SWOT Analysis
- 38 Scope
- 40 Requirements Elicitation
- 43 Design and Prototyping
- 85 Technical and Functional Specification
- 88 Planning
- 90 Reference
- 93 Resources

Introduction

This document presents a proposal aimed at revolutionizing online scheduling and payroll management in workplace and service environments. Our initiative stems from an exhaustive process of research and development with the goal of conceiving and developing an innovative software.

At the core of our proposal is the creation of an online scheduling software with integrated payroll functionality. We focus on providing a comprehensive and efficient solution for administrators, employees, and clients, anticipating the evolving needs of the modern workplace.

We will highlight the key features of our proposal, emphasizing the administrator's ability to view, edit, and calculate payroll with a single click. Additionally, we will detail how the application benefits employees by providing a user-friendly interface to access information about their work schedules and payroll. Furthermore, we will underscore the enhanced customer experience, allowing easy access to reservations and outstanding fees.

In the ensuing sections, we will delve into the foundational concepts and benefits of the project, outlining its overarching goals and specific objectives. Following this introduction, an exhaustive market analysis will unfold, characterized by meticulous scrutiny. Subsequently, a comprehensive methodology will be embraced, involving successive phases of user testing that integrate prototypes spanning low, medium, and high-fidelity prototypes. In addition, a spectrum of different types of evaluations will be conducted, progressively honing the user experience. The technical and functional specifications governing the application will be methodically outlined. Lastly, a thoroughgoing performance analysis of the entire process will be presented, elucidating its effectiveness and alignment with the predefined objectives.

01

Concept

The essence of our project lies in the seamless integration of a scheduling planner and payroll administration, aiming to establish a comprehensive solution that redefines administrators and employee dynamics, and customer interaction with their bookings or scheduled services.

FOR ADMINS

This software will not only streamline booking and services management but will also expedite the payroll process, allowing the administrator to easily view and edit reservations and calculate payroll at the end of the month with just a click.



FOR EMPLOYEES

For employees, it will offer an intuitive interface to access their reservation schedule and efficiently check their payroll.



FOR CLIENTS

For our valued clients, the application will provide the ability to view their reservation schedule and review outstanding fees, significantly improving communication and customer relations.

Our project is a pivotal step toward creating a unified and user-centric platform, harmonizing the relationships between scheduling, payroll, and the clients.

Benefits of a online scheduling and payroll management application

In an scheduling and Payroll software, the payroll function can be used to speed up the process of calculating pay, ensuring that payments are both accurate and on time. They save you the burden of learning and understanding complex Payroll legislation. Trouble free Payroll processing is a critical need of any business. A software like this completes Payroll calculations within a fraction of the time it would take to do them manually. Instead of shuffling through endless files let the software do the work.

01

TOTAL CONTROL AND TIME SAVINGS

Efficiently manage employee scheduling, optimizing task allocation, and reducing time spent on scheduling.

02

COMPLETE VISIBILITY OF AVAILABILITY

Access a clear and comprehensive view of employee availability, facilitating planning and shift assignment.

03

EQUITABLE SHIFT DISTRIBUTION

Ensure fair shift distribution, avoiding conflicts such as double bookings and improving fairness in task assignment.

04

ACCURATE TIME TRACKING

Record working hours accurately, providing employees with visibility into their work time.

05

QUICK PAYROLL VISUALIZATION

Quickly visualize employee payrolls with a single click, simplifying financial management.

06

ORGANIZED CLIENT ACCESS

Allow clients to view its scheduled services and associated costs in an organized and clear manner, enhancing transparency and the customer experience.

02

Objectives

The main objective of this project is to deliver a robust and user-friendly software solution that revolutionizes the way teams manage schedules, streamlines payroll processes, and enhances client engagement.

SOFTWARE GOALS

01

EFFICIENT WORKFORCE COORDINATION

Develop features that simplify and automate the crew scheduling process, reducing the time and effort required by managers.

04

CLIENT-CENTRIC SERVICES

Extend the functionality to allow clients to effortlessly view scheduled services, associated costs, and further engage with the provided services

02

INTEGRATED PAYROLL MANAGEMENT

Implement a seamless payroll functionality to ensure accurate and timely compensation for employees, enhancing overall financial transparency.

05

OPERATIONAL EFFICIENCY

Contribute to increased operational efficiency for both internal team management and client interactions.

03

ENHANCED USER EXPERIENCE

Prioritize a user-centric design to provide an intuitive and pleasant experience for both managers and employees interacting with the software.

06

ADAPTABILITY AND SCALABILITY

Design the software with adaptability and scalability in mind, ensuring it can evolve alongside the changing needs of businesses and teams.

OBJECTIVES OF THE PROPOSAL

01

CONDUCT COMPREHENSIVE MARKET RESEARCH

Investigate the current market landscape to identify trends, competitor offerings, and potential gaps that our software can address.

02

DEFINE CLEAR STAKEHOLDERS , USER PERSONAS AND USE CASES

Develop detailed stakeholders, user personas and use cases to ensure that the software caters to the specific needs and workflows of managers, employees, and clients.

03

PROTOTYPING AND ITERATIVE USER TESTING

Create low, medium, and high-fidelity prototypes for the software and conduct iterative user testing to gather feedback and refine features based on user input.

04

USER TESTING WITH QUANTITATIVE AND QUALITATIVE APPROACHES:

Execute a user testing study utilizing both quantitative and qualitative methodologies to gain comprehensive insights into current design iterations. This involves collecting measurable data for user interactions (quantitative) and conducting in-depth interviews and observations (qualitative) to understand user experiences and identify design flaws for refinement.

05

HEURISTIC EVALUATION

Perform heuristic evaluations to ensuring it aligns with industry best practices.

06

MOTIVATIONAL ALIGNMENT AND TEAM TRAINING

Ensure that the project team is aligned with the overall motivation and goals, providing necessary training to enhance their skills in executing the proposed solution.

03

STEEPLE Analysis

At the beginning stage, we have conducted a STEEPLE Analysis to provide a bigger picture about the states of scheduling and payroll systems.

STEEPLE Analysis

S



SOCIETY

T



TECHNOLOGY

E



ECONOMY

E



ENVIRONMENT

P



POLITICS

L

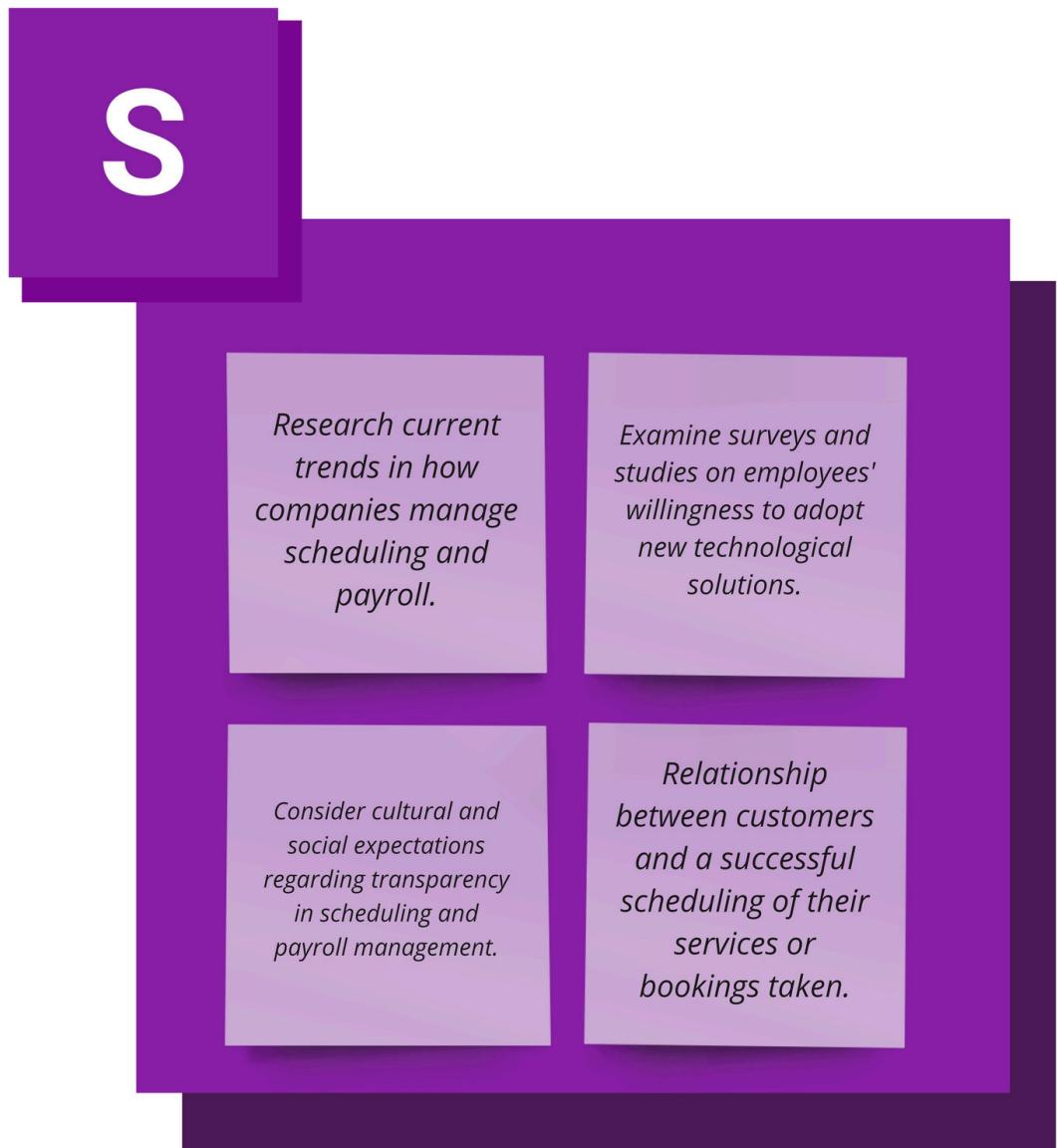


LEGAL

E



ETHICS



Society

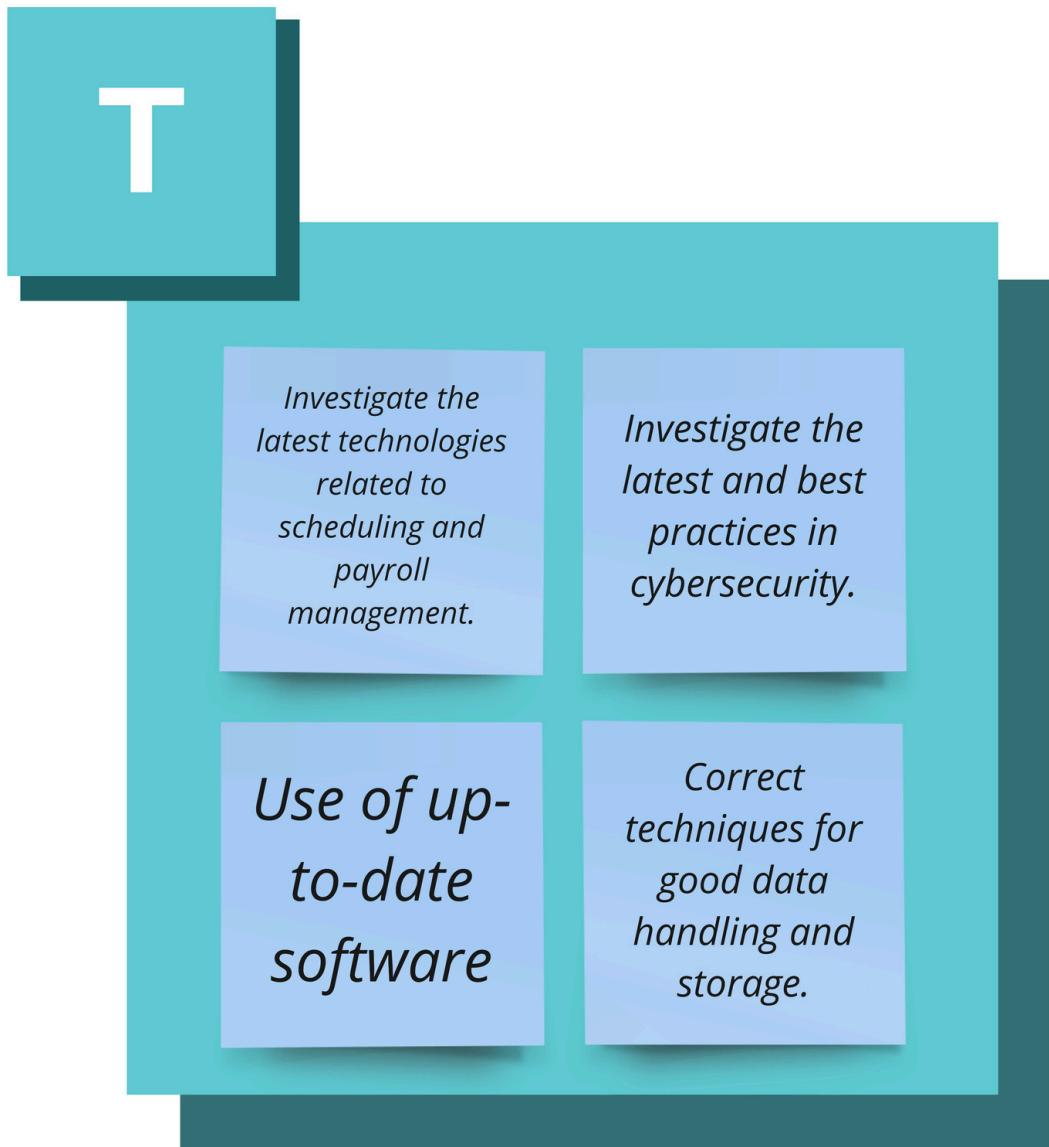
In contemporary payroll management, many companies and organizations still adhere to traditional or informal methods heavily reliant on paper usage and manual records. These conventional approaches come with various limitations, such as the laborious transfer of information between related units and the inability to safeguard data securely and reliably. An illustrative example of the consequences of these outdated practices is evident in the report from the United States Department of Labor [1], revealing the recovery of over \$100 million in overdue wages during the year 2022. This phenomenon, attributable to the use of outdated or informal payroll systems, substantially increases the risk of errors and

deficiencies in payroll administration.

The reluctance of many companies to modernize their payroll systems can be attributed to various reasons, such as the fear of challenges in adapting to new computerized systems or the perception of scarce and costly resources associated with maintaining data in more advanced environments.

However, there are optimistic perspectives. A study by Ahmad A. Palladan and Nuhu Y. Palladan [2], conducted among employees from various institutions, revealed that "almost all employees evaluated agree that the payroll system or payroll computerization has a direct effect on employee productivity."

Furthermore, when evaluating aspects concerning customer satisfaction, the critical importance of punctuality and timely service delivery is emphasized. Research in the field of service management underscores that customer dissatisfaction is often linked to delays in service provision, such as medical appointments, restaurant reservations, or general deliveries. The lack of efficient scheduling and communication between customers and scheduled services often results in complications and, consequently, dissatisfied customers.



Technology

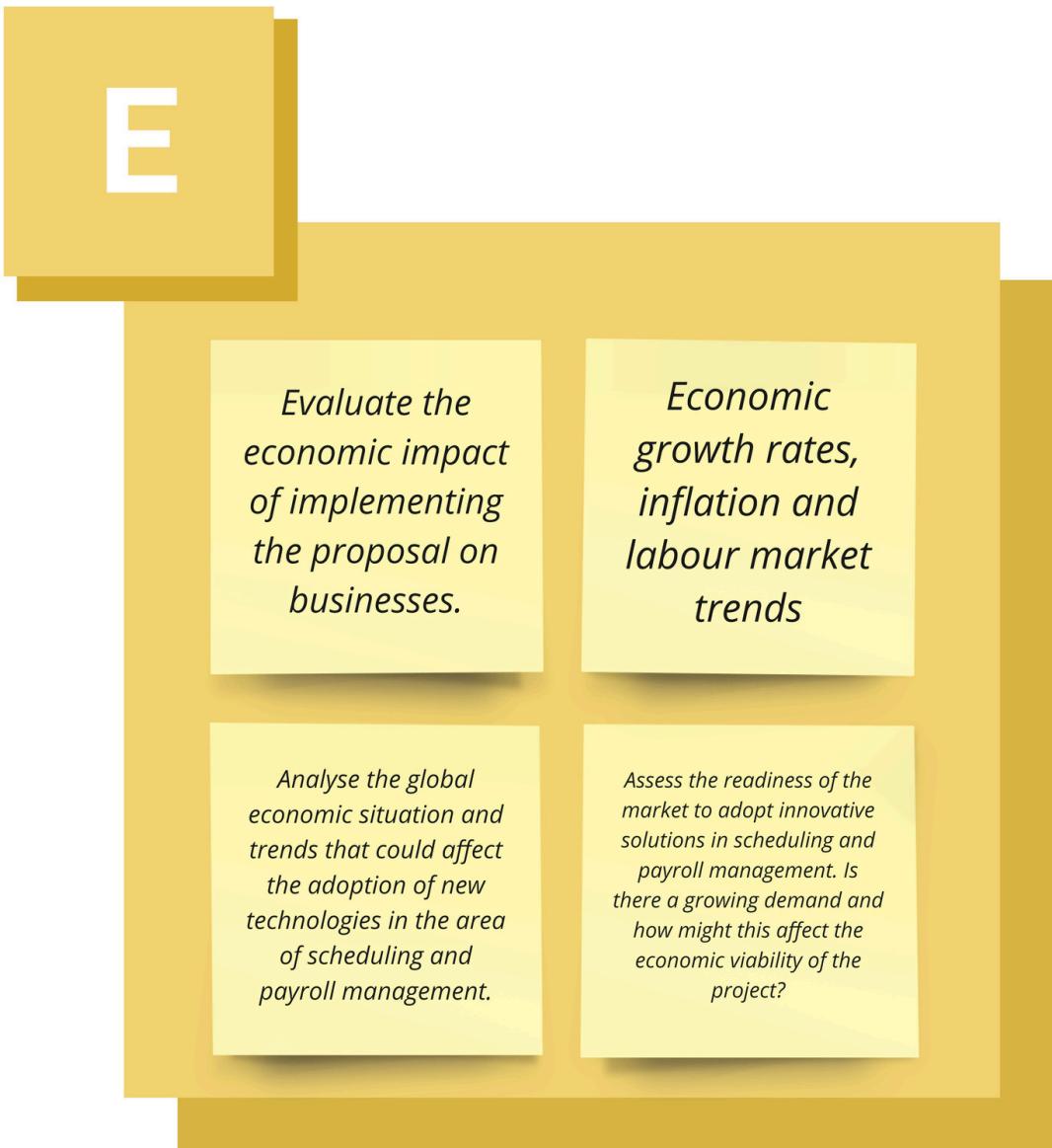
Numerous studies have unveiled that the implementation of payroll information systems signifies a response to technological advancements aimed at enhancing efficiency and overcoming challenges associated with manual payroll calculations. For instance, Hikmah and Muqorobin [3] devised an employee payroll information system for a consulting engineering services company, with the primary objective of eliminating the challenges posed by manual payroll calculations. Their design not only

enhanced payroll management but also facilitated quicker and easier retrieval of employee payroll information, resulting in heightened administrative processing efficiency. Furthermore, in a recent contribution to the field, Rumetna et al. [4] endeavored to design a payroll information system for the district office of the Sorong Islands, which grappled with payroll issues managed through manual record-keeping. The results demonstrated that the payroll information system met the requirements of the Sorong Islands district office and efficiently processed employee salary data.

However, the landscape is not entirely rosy. The growing trend toward the digitization and automation of HR processes has led to the widespread adoption of payroll and scheduling software. Payroll administration can range from straightforward, involving the payment of only a handful of employees, to highly complex, encompassing thousands of employees and contractors. In very small enterprises, payroll may be managed by the business owner or a designated employee. Conversely, larger companies with numerous employees necessitate an efficient and well-planned payroll management system.

With the surge in digitization comes an escalated need for information security. Cyberattacks are on the rise, and as highlighted in a study conducted by Steve Morgan published in Cybersecurity Ventures [5], the most costly component of a virtual attack is data loss or theft, constituting 43% of the overall costs. This entails consistent investment in cybersecurity techniques and training in secure data handling practices.

Lastly, the burgeoning trend toward remote and flexible work implies a requirement for systems that are accessible and user-friendly for employees, regardless of their location. This may involve the adoption of intuitive systems with user-friendly interfaces.



Economy

While it holds true that our proposal is a SaaS solution for scheduling, payroll, and client management with reservations or scheduled services, currently, approximately 70% of a company's total software [6] usage is SaaS as of 2022. However, this figure has the potential to reach up to 85% by 2025, indicating that SaaS as software will continue to dominate. Companies are increasingly adopting SaaS as it has been proven to boost productivity. In turn, this productivity surge has demonstrated cost

reduction, making SaaS particularly attractive.

Delving deeper into HR software, an ISG survey of 260 companies worldwide [7] found that 46% utilize a Human Resources Software as a Service (SaaS) platform or a hybrid solution. Our proposal is aligned with both scheduling and payroll, ensuring effective client management with their scheduled services or reservations. Nonetheless, we will defer the client aspect for later and emphasize analyzing the impacts that many companies face due to the lack of scheduling and payroll software, as this encompasses a crucial part of the proposal.

According to a recent study by AffinityLive (*Figure 1*)[8], the U.S. economy loses around \$8.8 billion each day due to a lack of productivity and time theft (when employees report more time than they actually worked). This is because many of these companies often rely on employees manually recording their work hours. Also, an APA survey [9] highlights how 33% of employers in U.S. companies make payroll errors due to manual data entry. The cost of such errors is substantial, ranging from 1 to 8% of the total payroll. Consequently, many business owners and managers are turning to automated time tracking, scheduling, and payroll solutions to accurately record and monitor employees' time, attendance, and payroll.



Figure 1. SOURCE "TIME IS TIME" BY AFFINITYLIVE

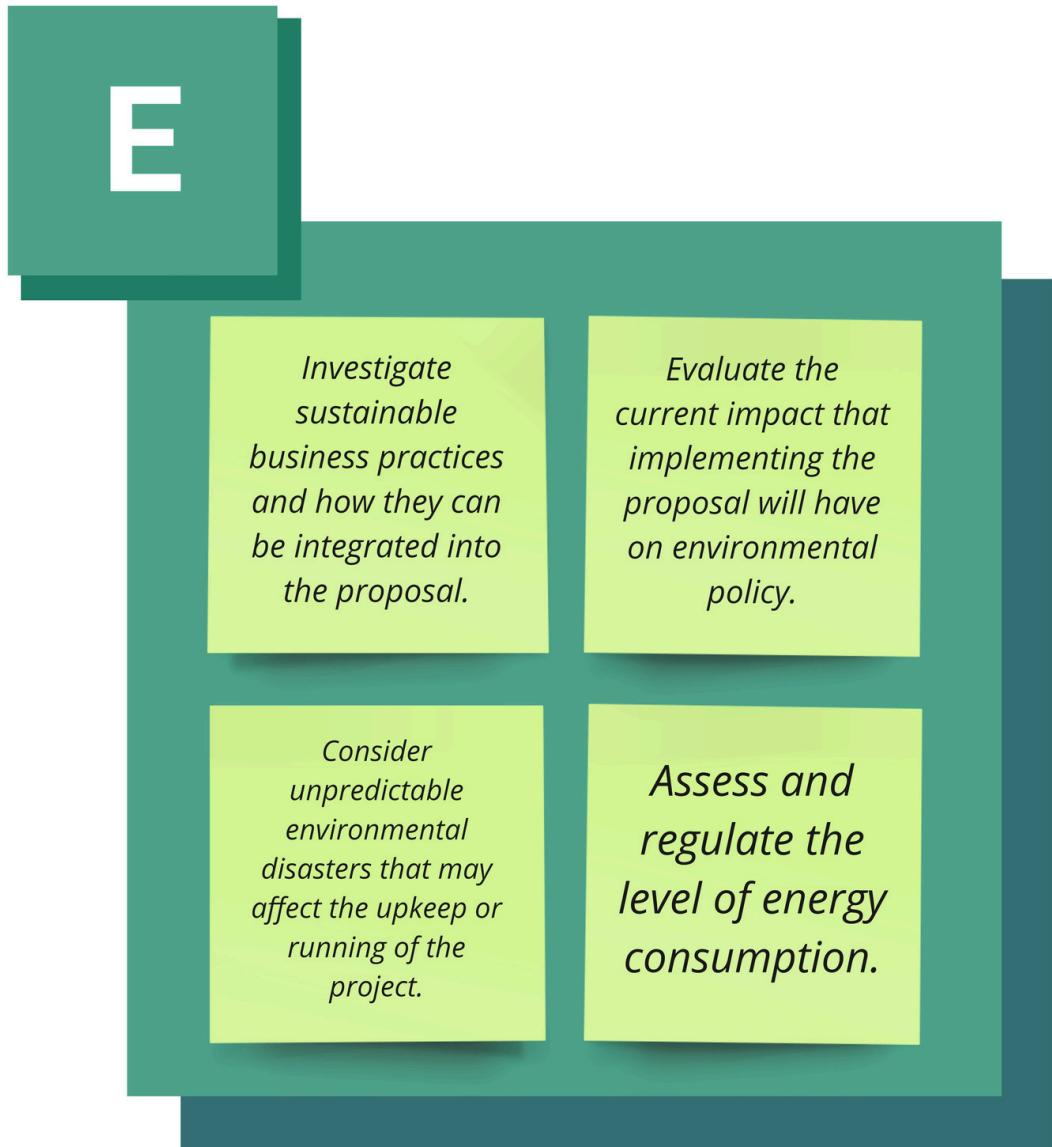


Figure 2. SOURCE [Dilbert](#)

However, implementing such an automated solution involves certain expenses, with one of the major contributors to these costs being payroll. While there are mostly comprehensive and professional software options ranging (Figure 3)[10] from \$2 per user per month in entry-level plans (1-100 users) to \$22,839 per month in high-end plans (250+ users), these costs may escalate as the company's scale grows, resulting in significant expenses over time. Nevertheless, there are several free payroll software options, though their tools and functionalities are often limited, yet generally sufficient for small organizations or businesses.



Figure 3. SOURCE A Guide to Payroll Software Pricing Models - Software Advice



Environment

A robust data storage infrastructure is essential for the proper functioning of our project. Initially, we could consider using a local database, but for enhanced scalability, management, security, and maintenance, opting for a cloud-based database becomes imperative.

As internet traffic increases, the number of data centers also surges. Nearly 60% of these data centers are "hyperscale" warehouses, spanning hundreds of thousands of square meters and managed by the three major

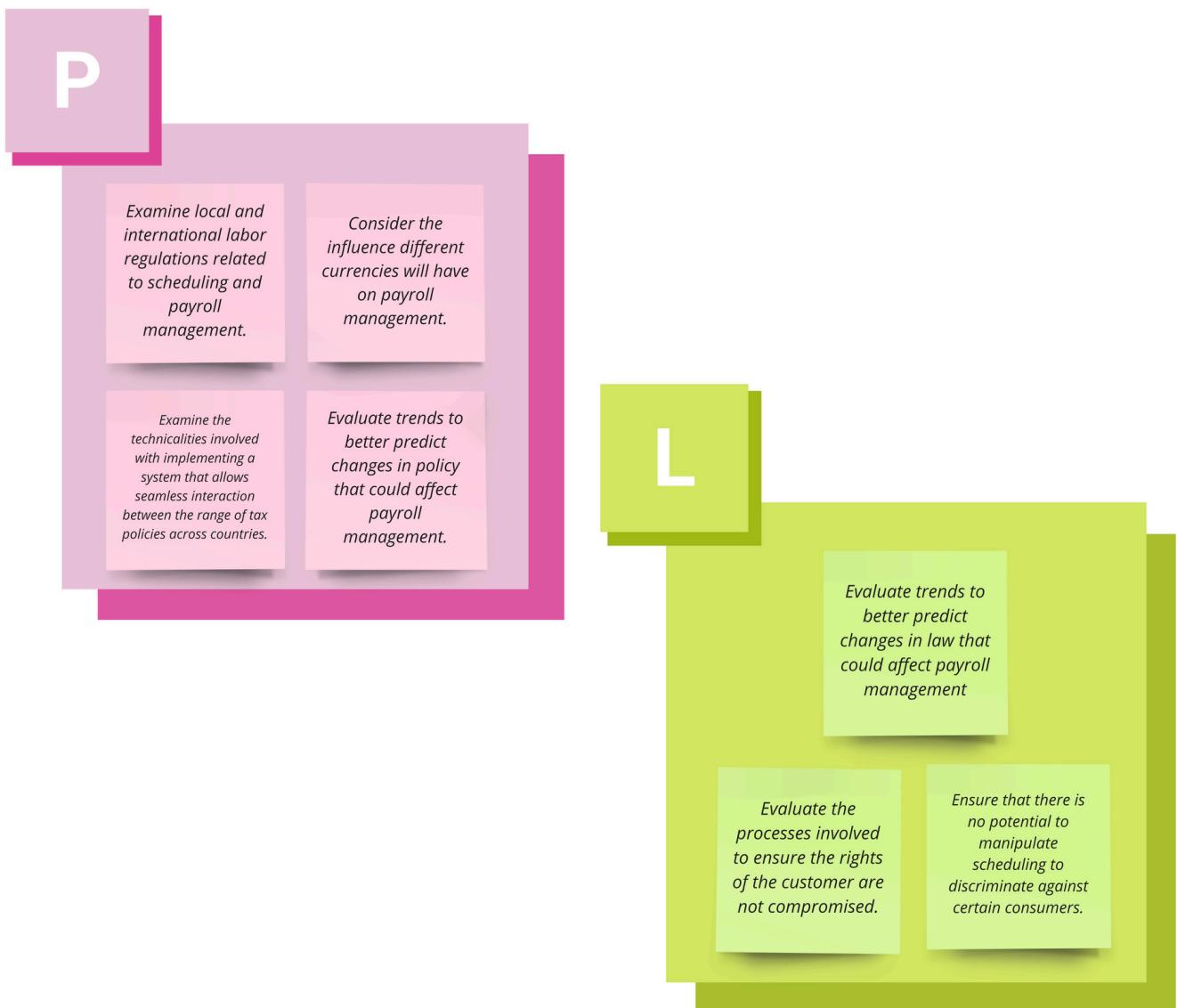
cloud providers: Amazon Web Services, Google Cloud Platform, and Microsoft Azure [11]. While many of these companies are consumers of renewable energy, there remains considerable uncertainty regarding the total energy consumption of data centers. Extreme analyses even suggest that energy consumption could triple or more by 2030 [12], while other estimates indicate that energy growth will be too modest or nearly nonexistent [13]. Regardless of the exact figures, it is evident that this issue is under scrutiny, and necessary measures are being taken. What is often overlooked when discussing the impacts caused by data centers is the water consumption they generate.

Data centers use a substantial amount of water primarily for cooling. Servers in data centers generate a significant amount of heat due to the intense processing power they employ. To prevent damage, maintaining facilities at optimal temperatures is crucial.

In the fiscal year 2022 (FY22), Google reported 21.2 billion liters of water consumption in its data centers, up from 16.3 billion liters in FY21 [14]. Similarly, Microsoft reported consuming 6.4 billion liters of water in 2022, mainly for its cloud data centers. This represents a 34% increase from the previous year, during which 4.8 billion liters were consumed [15].

Transitioning to the cloud is more efficient than running physical infrastructure in-house, but transparency remains a significant issue. Both Microsoft and Google produce detailed environmental reports, but the largest cloud provider, Amazon, publishes very little.

As consumers of these centers, we must increase incentives to improve the measurement and disclosure of water consumption, the use of renewable energy, the optimization of designs and operation of cooling systems, and collaboration with local stakeholders to manage water sustainably.



Politics and Legal

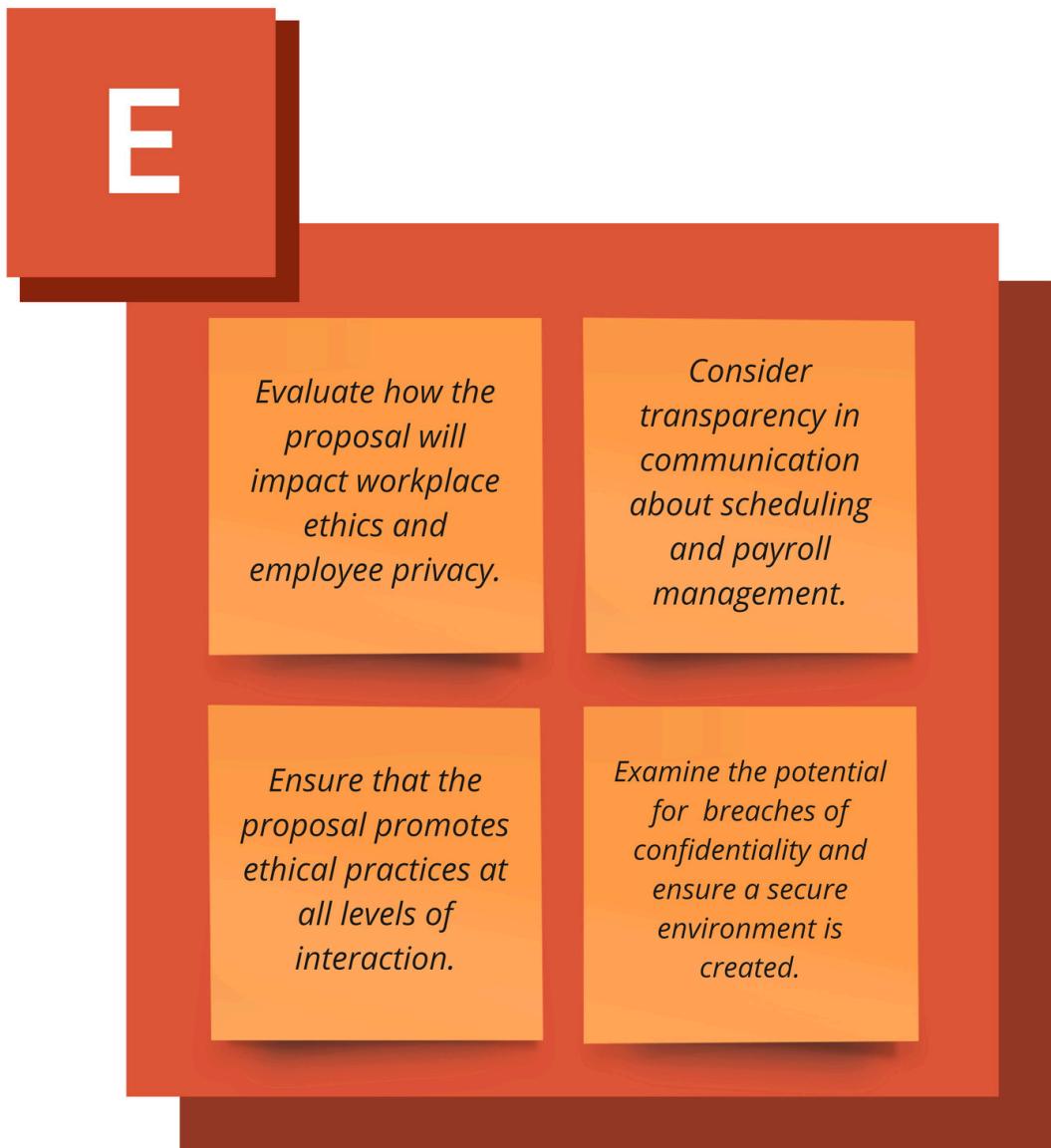
Political and legal regulations can evolve over time, and it is crucial to ensure that the product complies with the latest standards. Particularly when the product is intended for international use, the diversity of fiscal and labor regulations among countries can pose a significant challenge. Each country maintains its own set of laws and regulations, subject to frequent changes. Therefore, the software must be adaptable enough to keep pace with these alterations and ensure compliance in all jurisdictions where the company operates.

Furthermore, privacy and data security emerge as prominent political concerns in many countries. A software with payroll function handles sensitive personal and financial information, and any breach of data security can have severe political consequences. Thus, it is imperative for the software to incorporate robust security and privacy measures, aligning with the data privacy regulations of each country.

Considering these aspects, the software should undergo updates at least once a year. This ensures that the consumers can use the product without the constant concern of regulatory changes.

Even though the system may not be overly restrictive in its usage, allowing flexibility in scheduling and payroll to adapt to variable contexts, there is a need to assume responsibility for continually encouraging and assessing proper legal and financial usage by consumers [16].

In this regard, it is always advisable to consult with a legal expert or a human resources advisor when selecting and implementing best practices in the realm of legal and financial regulations for the project [17].



Ethics

It is well-established that organizations face severe repercussions from unethical software, both in legal terms and reputation. Demonstrating an intrinsic motivation to create better and ethically sound software is increasingly necessary and morally imperative.

Data must be utilized in a manner that neither discriminates against nor harms specific groups of people. For instance, opting for a binary data type (M/F) to store a person's gender in the database reinforces various

stereotypes and forms of discrimination. An example of this is observed in the data company Trifacta, which provides a dedicated "gender" data type with only two values: male and female [18]. Similarly, limiting characters when storing names could exclude a significant portion of the global population [19]. Furthermore, web design choices may exclude certain groups from effective use.

On the other hand, the increasing unease of customers in entrusting their personal data to third parties has become more evident, especially with the rise of the "creep factor" [20]. This phenomenon occurs when a substantial amount of personally identifiable information collected and processed disregards individual privacy. This includes instances where informed consent is not obtained for data collection, and even when it is obtained, the data is not used for the purposes for which it was collected.

Also, user insecurity is often attributed to the lack of transparency on the part of providers regarding data security. Sometimes, it's not just a lack of transparency but also a deficiency in the effective maintenance of data security, as illustrated by the Equifax case in 2017 [21]. In this incident, the company was hacked through a consumer complaint web portal, exploiting a known vulnerability that should have been patched. However, due to shortcomings in Equifax's internal processes, the vulnerability persisted, resulting in the compromise of data from 143 million individuals.

All these instances of lack of transparency and insufficient security measures underscore the critical importance of effectively informing and safeguarding the integrity of users' personal data.

04

Market Research

In this section, we will conduct a thorough analysis of various software operating in the same niche. This analysis will encompass a detailed assessment of the strengths and weaknesses of each platform, enabling us to pinpoint the key differences compared to our proposal. By gaining a comprehensive understanding of the features and functionalities of the competition, we will be strategically positioned to highlight the unique aspects and key benefits that our proposal brings.

connecteam

Connecteam stands as a comprehensive employee management platform tailored for mobile teams and non-desk workers, earning acclaim for its ability to streamline and enhance operational coordination and efficiency. Key features encompass robust scheduling functionality for efficient shift and roster management (*Figure 4*) , alongside time-tracking tools and a payroll record [22] (*Figure 5*). Despite Connecteam's notable advantages, prudent considerations come to the forefront. Some users have noted a steep learning curve [23], particularly for those less acquainted with advanced technological solutions. Furthermore, it is essential to underscore that, given Connecteam's primary focus on internal management, its utility in environments such as restaurants, hotels, or salons might be limited due to the absence of specific features allowing customers to view their scheduled bookings/services and outstanding payments. In such cases, exploring additional solutions may be necessary to address these specific customer-centric needs.

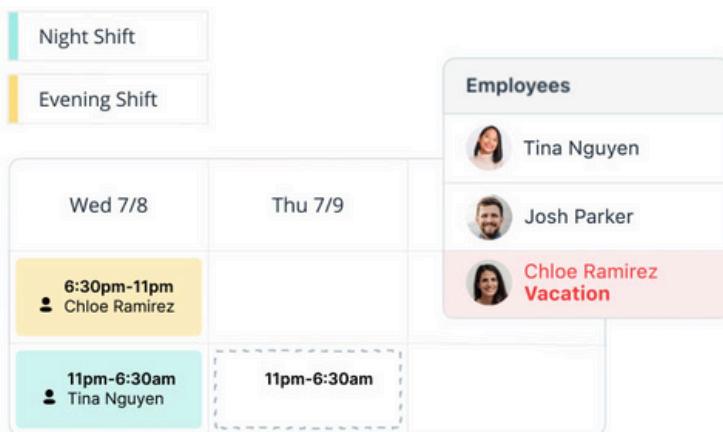


Figure 4. Connecteam's Scheduling feature

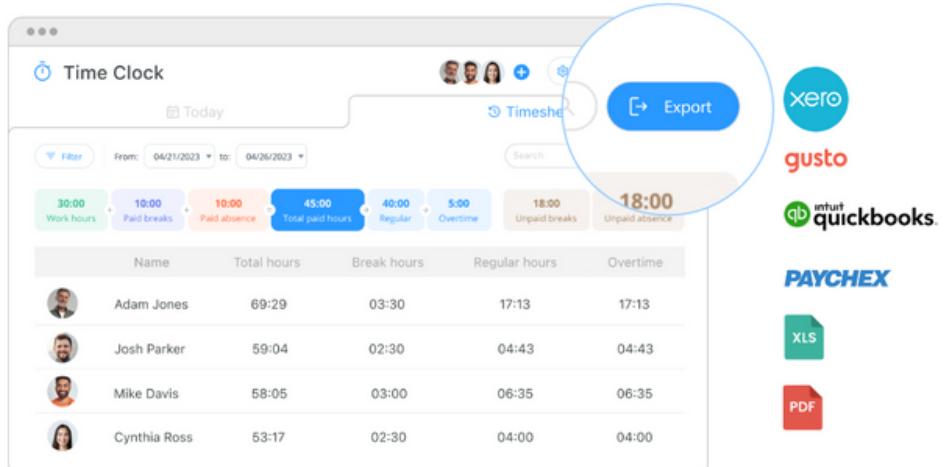


Figure 5. Connecteam payroll



FindMyShift emerges as a comprehensive platform crafted to simplify employee scheduling and management in dynamic workplace settings. Its intuitive interface facilitates adoption by both employers and employees alike. Noteworthy features encompass a robust scheduling functionality (*Figure 6*), empowering administrators to effortlessly create and adjust schedules, complemented by time-tracking tools ensuring accurate management of work hours and payroll (*Figure 7*).

Despite its strengths, certain limitations have been highlighted by users, particularly in the mobile version of the platform. The application may lack some features compared to its desktop counterpart, potentially impacting the user experience on mobile devices [24]. Additionally, akin to Connecteam, FindMyShift does not provide specific services for customers to view their scheduled bookings or services. This could be a significant consideration, especially for businesses offering services and requiring a comprehensive solution that involves both employees and customers.

The screenshot displays two main sections of the findmyshift platform. On the left, a weekly staff roster for March 26th to April 1st is shown. Staff members listed include Laura, Thomas, James, Matthew, Sophie, Charlie, Charlotte, Luke, Sarah, and Nick. Each staff member's schedule is broken down by day and shift, such as Kitchen shifts from 12:00pm-6:00pm. Some staff members are marked as 'On Call'. On the right, a detailed 'Hours report' is displayed for an employee named Laura Taylor, with a total of 24 hours / £148.80. The report includes a breakdown of days worked, start and finish times, facility, hourly rate, and rate type. The interface is clean with a light blue header and white background.

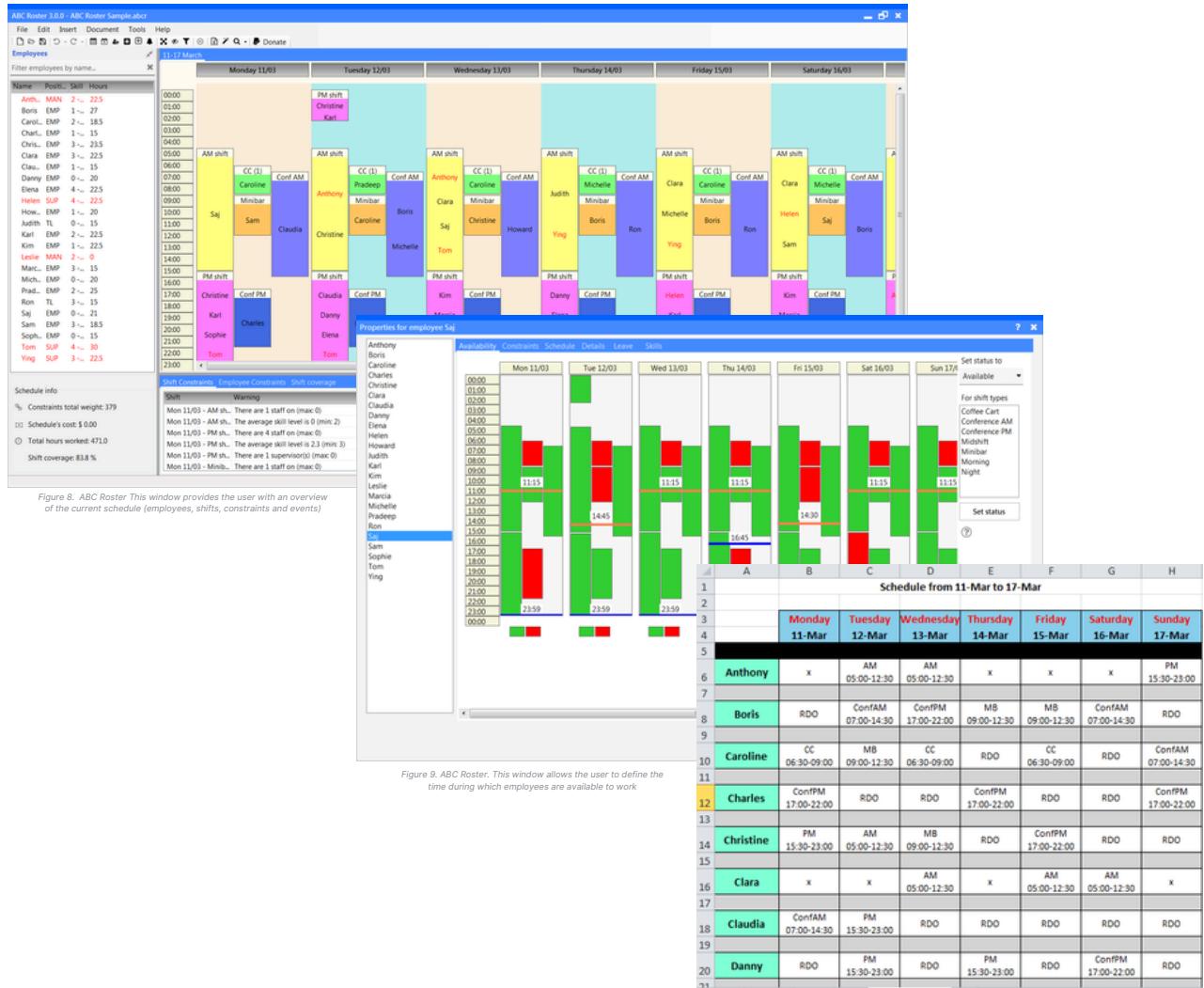
Figure 6. *findmyshift* online scheduling

Day	Date	Start	Finish	Break	Facility	Hourly Rate	Rate Type	Rate Multiplier	Hours	Cost
Mon	02/10/2017	8.00am	1.00pm		Kitchen	£5.70			5	£28.50
Tue	03/10/2017	8.00am	1.00pm		Kitchen	£5.70			5	£28.50
Wed	04/10/2017	8.00am	1.00pm		Kitchen	£5.70			5	£28.50

Figure 7. *findmyshift* payroll report

ABC Roster

ABC Roster stands out as a shift planning application meticulously crafted to streamline schedule management in small organizations. With this tool, quick adjustments to work schedules, task assignments, and personnel availability monitoring become seamless. Moreover, it provides reports that facilitate tracking worked hours and payroll preparation. Despite its advantages, users have noted limitations regarding advanced customization. Noteworthy is the fact that ABC Roster is only available in an offline format, meaning schedule management and viewing are solely overseen by the designated manager [25]. Employees lack direct access to a portal for viewing their schedules; instead, schedules are shared via email. Furthermore, the tool lacks mobile access and features a user interface that some may consider somewhat outdated.



deputy

Deputy emerges as an all-encompassing software solution for shift planning (*Figure 11*) and human resources (*Figure 12*), meticulously crafted for small and medium-sized enterprises. Its appealing and user-friendly interface, coupled with robust mobile support, ensures an accessible user experience. Deputy has garnered recognition through several awards, including the prestigious Editors' Choice 2021 accolade in the employee scheduling and shift planning category [26], along with three categories in the TrustRadius Best Of Awards 2022 for workforce management [27].

A distinctive feature is its "stress profile" function, contributing to the mitigation of employee overtime and intervals between shifts. Despite these strengths, it is noteworthy that human resources functionalities, such as employee onboarding and task time management, are considered basic or straightforward [28].

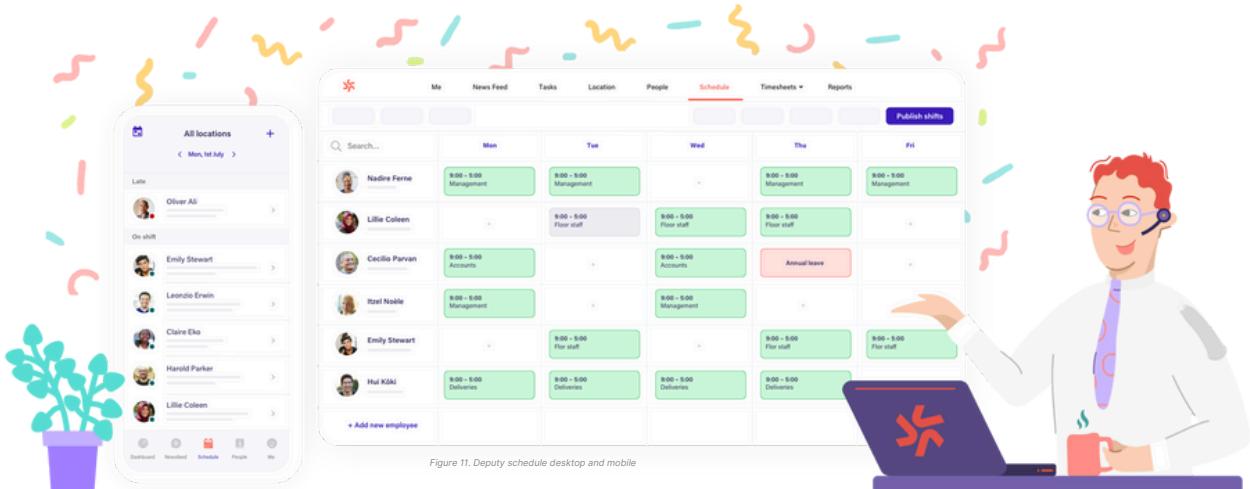


Figure 11. Deputy schedule desktop and mobile

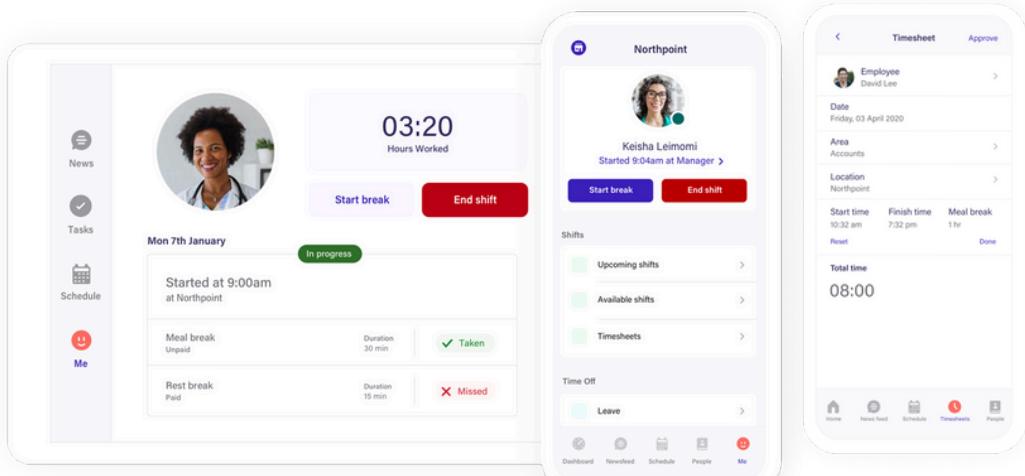


Figure 12. Deputy. Timesheets and profiles



When I Work®

When I Work stands out as an employee scheduling solution designed to streamline schedule (*Figure 13*) and payroll management in dynamic work environments. Functioning seamlessly on both mobile and desktop browsers, it distinguishes itself with a modern and intuitive user interface (UI). This UI facilitates employees and managers in handling schedules, shift changes, and time-off requests. In addition to standard scheduling and time-tracking features, When I Work offers an internal messaging tool to enhance communication (*Figure 14*). Despite these advantages, some users have noted that the service may become costly in the long run, and the customer support system should be improved.

The figure displays two screenshots of the When I Work platform. On the left is a mobile phone screen showing a dashboard with a green illustration of a person holding a smartphone. The dashboard includes sections for 'Next Shift: Today 9:00a - 5:00p', 'North Loop Manager', '4 tasks available', 'Also Working' (listing employees like Karen, Brian, and Bert), 'My Schedule', and 'Today's Task Lists' (80% complete). At the bottom are navigation icons for Dashboard, Schedule, Requests, WorkChat, and More. On the right is a desktop browser window showing a weekly schedule grid for 'Oct 9 – Oct 15'. The grid shows shifts for various employees across days, with color-coded boxes indicating shift details like '11a - 7p SERVER' or '3p - 11p LINE COOK'. A tooltip on one of the shifts provides information about scheduled hours and overtime limits. Below the grid is a sidebar with employee profiles.

Figure 13. When I Work. Mobile dashboard and desktop schedule.

The figure shows a mobile phone screen displaying a messaging interface. The top bar says 'Cancel Conversation / Activity'. The message list includes a message from 'James Hall' about a trip to Europe, a response from 'Vivian Jones' about a vacation request, and a final message from 'James Hall' thanking Vivian. A large green callout box at the bottom right says 'Request approved' with the note 'by Vivian Jones on Thursday, April 19, 2018 at 12:23p'. Below the phone are two green cartoon characters, one pointing and one smiling.

Figure 14. Blast a message to your whole team or chat one-on-one with employees using WorkChat.

Comparative Analysis

Our proposed system distinguishes itself through several key advantages compared to the previously mentioned software examples. First and foremost, our solution will be entirely free, eliminating any financial barriers to adoption. Additionally, it will focus on designing an intuitive interface, reducing task complexity through a layout that prioritizes simplicity and efficiency. The strategic arrangement of elements, clarity in functions, and logical proximity of buttons will be carefully crafted to enhance the effectiveness of each task clearly and intuitively.

This system is designed to provide employees with a seamless and efficient experience in managing their work schedules. Through the platform, they will easily access their schedules, view details, and effortlessly notify their start and conclusion using a dedicated button.

Furthermore, the payroll function will be optimized to offer a smoother and more natural payment management experience. With a single click, administrators can view payroll, streamlining the task and reducing associated complexity.

On the other hand, addressing the specific needs of sectors utilizing this system and providing services or reservations, specific functionalities will be offered to allow clients to view their scheduled bookings and services. This comprehensive approach considers both internal operations with employees and transparent interaction with clients.

Moreover, to ensure universal accessibility, the system will focus on including various accessibility features and inclusive design. We aim to ensure that the system is fully accessible to users with diverse needs and preferences.

Finally, the system will be available on both mobile and desktop browsers, maintaining the same efficiency and functionality on both platforms. This consistency in the user experience regardless of the device reinforces the commitment to accessibility and adaptability in the system's implementation.

COMPARISON TABLE

	OUR PROPOSAL	 connectteam	 findmyshift	ABC Roster	 deputy	 When I Work
Employee Scheduling						
Payroll Integrations						
Use fee						
Customer Interface: Booking and Payments						
Mobile						
Desktop						
Employee start/end time control						

Table 1. Our Proposal vs. Competing Applications in a Comparative Table.

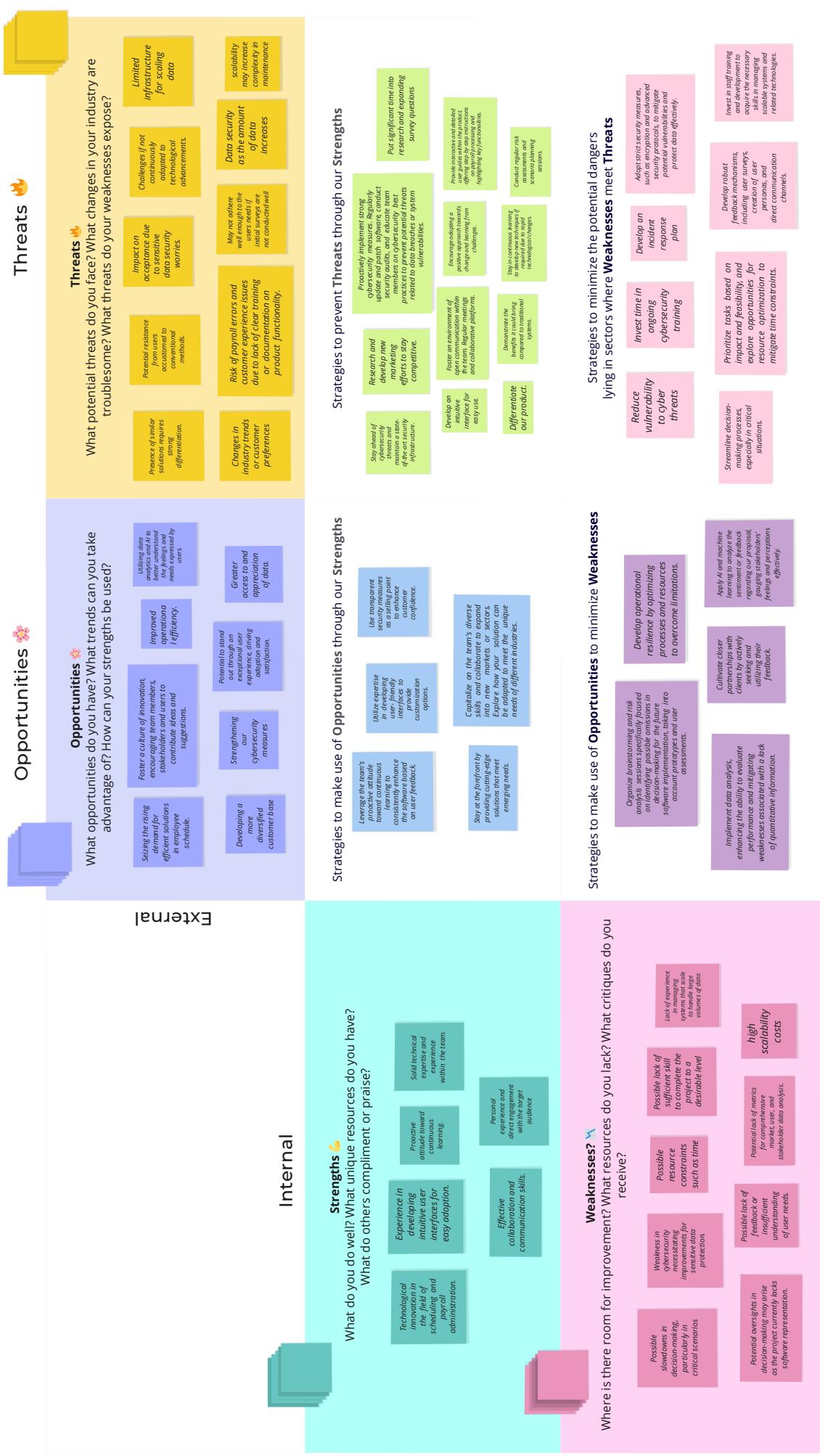
05

SWOT Analysis

After the STEEPLE analysis and market research of our competitors, we have conducted a SWOT analysis to give further understanding of the position of our product.

Scheduling and Payroll Management: An Intuitive Software for Efficient Administration, Client Access, and Employee Oversight

SWOT Analysis



Strengths

Weaknesses?

Internal

Strengths 🌟

What do you do well? What unique resources do you have?

What do others compliment or praise?

Technological innovation in the field of scheduling and payroll administration.

Experience in developing intuitive user interfaces for easy adoption.

Proactive attitude toward continuous learning.

Solid technical expertise and experience within the team.

Effective collaboration and communication skills.

Personal experience and direct engagement with the target audience

Weaknesses? ☹️

Where is there room for improvement? What resources do you lack? What critiques do you receive?

Possible slowdowns in decision-making, particularly in critical scenarios

Weakness in cybersecurity necessitating improvements for sensitive data protection.

Possible resource constraints such as time

Possible lack of sufficient skill to complete the project to a desirable level

Lack of experience in managing systems that scale to handle large volumes of data

Potential oversights in decision-making may arise as the project currently lacks software representation.

Possible lack of feedback or insufficient understanding of user needs.

Potential lack of metrics for comprehensive market, user, and stakeholder data analysis.

high scalability costs

Opportunities 💫

What opportunities do you have? What trends can you take advantage of? How can your strengths be used?

Seizing the rising demand for efficient solutions in employee schedule.

Foster a culture of innovation, encouraging team members, stakeholders and users to contribute ideas and suggestions.

Improved operational efficiency.

Utilizing data analytics and AI to better understand the feelings and needs expressed by users.

Developing a more diversified customer base

Strengthening our cybersecurity measures

Potential to stand out through an exceptional user experience, driving adoption and satisfaction.

Greater access to and appreciation of data.

Threats 🔞

What potential threats do you face? What changes in your industry are troublesome? What threats do your weaknesses expose?

Presence of similar solutions requires strong differentiation.

Potential resistance from users accustomed to conventional methods.

Impact on acceptance due to sensitive data security worries.

Challenges if not continuously adapted to technological advancements.

Limited infrastructure for scaling data

External

Opportunities 💫

What opportunities do you have? What trends can you take advantage of? How can your strengths be used?

Seizing the rising demand for efficient solutions in employee schedule.

Foster a culture of innovation, encouraging team members, stakeholders and users to contribute ideas and suggestions.

Improved operational efficiency.

Utilizing data analytics and AI to better understand the feelings and needs expressed by users.

Developing a more diversified customer base

Strengthening our cybersecurity measures

Potential to stand out through an exceptional user experience, driving adoption and satisfaction.

Greater access to and appreciation of data.

Changes in industry trends or customer preferences

Risk of payroll errors and customer experience issues due to lack of clear training or documentation on product functionality.

May not adhere well enough to the users needs if initial surveys are not conducted well

Data security as the amount of data increases

Scalability may increase complexity in maintenance

Strategies to make use of **Opportunities** through our **Strengths**

Leverage the team's proactive attitude toward continuous learning to consistently enhance the software based on user feedback.

Utilize expertise in developing user-friendly interfaces to provide customization options.

Use transparent security measures as a selling point to enhance customer confidence.

Stay at the forefront by providing cutting-edge solutions that meet emerging needs.

Capitalize on the team's diverse skills and collaborate to expand into new markets or sectors. Explore how your solution can be adapted to meet the unique needs of different industries.

Strategies to make use of **Opportunities** to minimize **Weaknesses**

Organize brainstorming and risk analysis sessions specifically focused on identifying possible omissions in decision-making for the future software implementation, taking into account prototypes and user assessments.

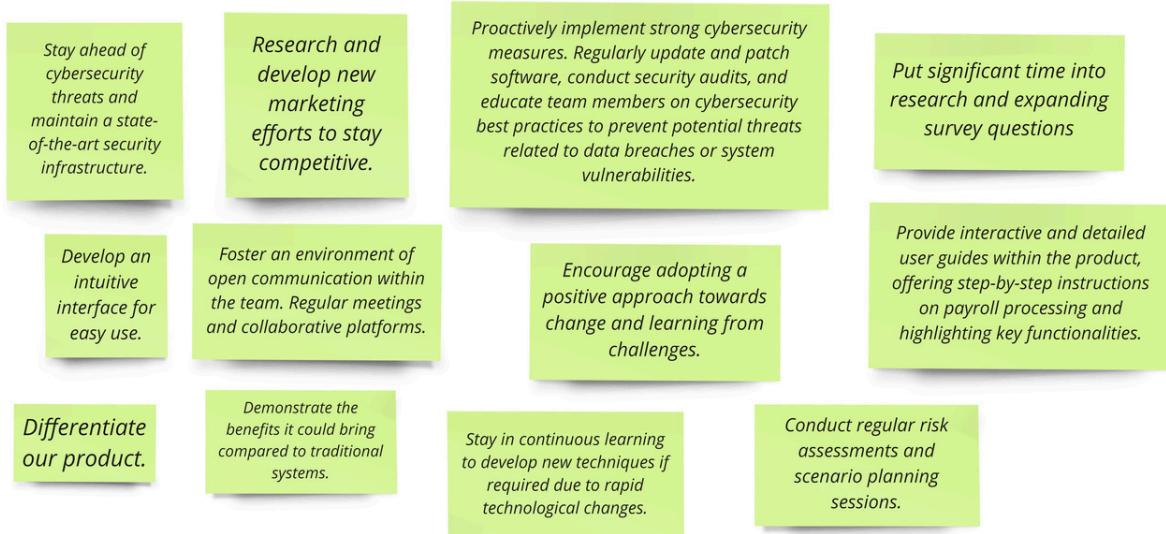
Develop operational resilience by optimizing processes and resources to overcome limitations.

Implement data analysis, enhancing the ability to evaluate performance and mitigating weaknesses associated with a lack of quantitative information.

Cultivate closer partnerships with clients by actively seeking and utilizing their feedback.

Apply AI and machine learning to analyze the sentiment or feedback regarding our proposal, gauging stakeholders' feelings and perceptions effectively.

Strategies to prevent Threats through our Strengths



Strategies to minimize the potential dangers lying in sectors where Weaknesses meet Threats



06

Scope

Scope: focus and limitation

After reviewing the environment evaluated in the previous sections, we have decided the scope of our software should be limited and focusing on the two main functions: booking scheduling and payroll management. It should also provide both Desktop and Mobile interface.

However, as our time and resources for development is limited, our payroll management functionality will be limited to calculate salary by hourly rate, and not be able to support other compensation scheme.

Also, other supporting operational features like tax calculation and messaging system that is offered by our competitor will not be included. If time allows, a review system will be integrated.

07

Requirements Elicitation

LIST OF STAKEHOLDERS

These are the stakeholders and how do they interact with the app.

01

Employees:

Employees will access the app to view their schedule and pay statements

02

Clients:

Customers could use the app to manage appointments for various services.

03

Managers/ Supervisors:

They can make informed decision by using the accurate information presented in the app, for example, tracking labor cost and allocating tasks to idle staffs

03

Business Owner

Business Owner could benefit from the lower of operation cost caused by more efficient human resources management

04

Human Resources Department:

Human resources management will use the app to manage employee data and payroll

Stakeholders above could be categorized into 3 groups: Admin, Clients, and Employees. Engaging with these stakeholders and meeting their needs and expectations are critical to the development of the app.

By analyzing their intersection with the app, specification of requirements are drawn in the next part of the proposal.

OTHER POTENTIAL USERS

Enterprises and organizations seeking efficient automation in employee management, especially in sectors such as hospitality, health, and logistics, emerge as key potential users.

Additionally, potential users could be personnel outsourcing companies, who would find in this solution a valuable tool to optimize resource management and streamline invoicing. Investors and financiers interested in innovative enterprise technologies may also view this proposal as an attractive opportunity.

In other domains, potential users could be organizations focused on home services, catering and events, franchises, human resources consultancies, cleaning and maintenance businesses, as well as specialized sectors like home healthcare and transportation.

In the sports and entertainment sphere, those interested in managing reservations for sports facilities, events, or other recreational activities could also be potential users.

Within the academic realm, schools, universities, or training centers looking to enhance academic advisory management and tutoring scheduling are potential users.

Similarly, customer service-oriented businesses seeking efficiency in call and appointment scheduling, as well as managing appointments for product delivery or pickup, could also be relevant users.

Lastly, individuals involved in organizing training sessions, classes, and workshops seeking an efficient solution for scheduling and administration of these events represent another group of users that could benefit from this proposal.

08

Design and Prototyping

Approach : User-Centered Design

To guide the development of the prototypes' design, it was recognized as crucial to focus on user needs. To achieve this, a comprehensive research effort will be undertaken to gather data and insights from the target audience. The acquired information will be utilized to craft fictional representations of various user archetypes, spanning different segments of the user base, employing "*the goal-directed perspective*" [29].

This approach ensures that all user types have a direct influence on the design, leading to more informed decisions. The integration of users with varied experiences will be advocated, encompassing those familiar with such software and those who are not. The overarching goal is to create a system that is accessible and beneficial for both user groups.

In this phase, images sourced from Pexels.com under the CC0 Creative Commons license will be utilized to visually represent each user archetype.

Elena Rodriguez

Age: 40
Occupation: HR Manager Paradiso Hotel
Location: Barcelona, Spain

Bio

Elena has devoted over 15 years of her career to the hospitality industry and currently works as the Human Resources Manager at the exclusive Paradiso Hotel in Barcelona. With a strong background in staff management in the luxury hotel industry, Elena is passionate about delivering exceptional experiences to both guests and her team. She takes pride in ensuring that the staff is well-scheduled and receives accurate and timely compensation.

Goals

- Simplify staff scheduling to ensure full coverage and exceptional service to guests.
- Efficiently integrate scheduling and payroll functions into a single software to reduce complexity and avoid the need for multiple tools.
- Improve accuracy in payroll calculations and reduce time spent on repetitive administrative tasks.

Frustrations

- Faces challenges with the lack of intuitiveness in current hotel management software, complicating staff scheduling and payroll administration.
- Has had to rely on multiple tools and systems, resulting in information and payment disarray, leading to complications and potential errors.

Technology

	SaaS Services	Web Applications	Mobile Applications	Integration Solutions
Experience Level	● ● ● ●	● ● ● ○	● ● ○ ○	● ● ● ●

Personality

	extroversion	introversion
sensing	██████████	○○○○○○○○
thinking	██████████	○○○○○○○○
judging	██████████	○○○○○○○○
feeling	○○○○○○○○	██████████
perceiving	○○○○○○○○	██████████

Figura Group A. Image of Elena, first user persona representing the group of professionals with experience in team management across hotels, restaurants, and similar sectors.

Carl Johnson

Age: 35
Occupation: Owner and Chef at "Sabores del Alma"
Location: California, United States

Bio

Carlos is a passionate chef who decided to embark on his own journey with the restaurant "Sabores del Alma." While his culinary experience is extensive, his knowledge of management software is limited. Carlos is seeking an all-encompassing solution for scheduling and payroll that is friendly and colorful, reflecting the vibrant energy of his restaurant.

Goals

- Simplify staff scheduling without technical complications.
- Efficiently manage payroll without extra effort.
- Incorporate an intuitive and colorful solution that aligns with his relaxed management style.

Frustrations

- Lacks experience in management software, seeking an easy-to-learn solution.
- Averse to technical complexity and prefers a colorful and intuitive interface.
- Requires a solution accessible via mobile devices, as he is more familiar with mobile applications.

Technology

	SaaS Services	Web Applications	Mobile Applications	Integration Solutions
Experience Level	● ● ○ ○	● ● ○ ○	● ● ● ●	● ● ○ ○

Personality

	extroversion	introversion
sensing	██████████	○○○○○○○○
thinking	○○○○○○○○	██████████
judging	○○○○○○○○	██████████
feeling	○○○○○○○○	██████████
perceiving	██████████	○○○○○○○○

Figura Group B. Image of Carl, second user persona representing individuals managing smaller services or organizations with limited experience in using SaaS or technological tools for such tasks.

Emma Turner

Age: 28
Occupation: Delivery Driver and Order Dispatcher
Location: London, England

Bio

Emma is a dynamic delivery driver and order dispatcher based in London. Constantly on the move, she faces challenges with existing software platforms that display reservations in a disorganized manner. Emma is looking for a user-friendly software solution that allows easy access and navigation, especially on her mobile device, as she's frequently on the go coordinating and delivering orders.

Goals

1. Easily view and manage reservations on the move.
2. Access a software platform that is mobile-friendly and intuitive.
3. Simplify the login process for quick and efficient access.

Frustrations

1. Reservations are consistently displayed in a disorderly fashion on current software.
2. Limited mobile accessibility, making it challenging to manage reservations while on the move.
3. Cumbersome login processes on existing platforms.

Technology

Category	Score (High to Low)
SaaS Services	● ● ● ○ ○
Web Applications	● ● ○ ○ ○
Mobile Applications	● ● ● ○ ○
Integration Solutions	● ○ ○ ○ ○

Personality

Trait	Score (High to Low)
extroversion	○ ○ ○ ○ ○
intuition	● ● ● ○ ○
sensing	○ ○ ○ ○ ○
feeling	● ● ○ ○ ○
thinking	● ● ○ ○ ○
judging	● ● ○ ○ ○
perceiving	○ ○ ○ ○ ○

Figure Group C. Image of Emma, third user persona representing individuals who work on-the-go and rely on their mobile devices to manage schedules and appointments efficiently.

Liam Anderson

Age: 33
Occupation: Part-Time Tutor at Anderson's Academy
Location: Sydney, Australia

Bio

Liam is a temporary private tutor at Anderson's Academy in Sydney, Australia. With a focus on providing quality education, Liam and his brother are searching for a user-friendly software solution that caters to students' understanding. They desire an aesthetically pleasing platform that clearly showcases schedules, making it easy for both students and Liam to comprehend. Additionally, Liam prefers automated weekly payments to streamline his financial management.

Goals

1. Enhance student understanding of schedules.
2. Utilize an aesthetically pleasing and user-friendly platform.
3. Automate weekly payment tracking for financial ease.

Frustrations

1. Current platforms lack student-friendly design.
2. Difficulty in understanding and managing schedules.
3. Manual tracking of weekly payments is error-prone.

Technology

Category	Score (High to Low)
SaaS Services	● ● ○ ○ ○
Web Applications	● ● ● ○ ○
Mobile Applications	● ● ○ ○ ○
Integration Solutions	● ○ ○ ○ ○

Personality

Trait	Score (High to Low)
extroversion	○ ○ ○ ○ ○
intuition	● ● ○ ○ ○
sensing	○ ○ ○ ○ ○
feeling	● ● ○ ○ ○
thinking	● ● ○ ○ ○
judging	● ● ○ ○ ○
perceiving	○ ○ ○ ○ ○

Figure Group D. Image of Liam, representing individuals involved in temporary roles such as private tutoring or managing short-term teams. This user persona group lacks extensive experience in nuanced payment structures and seeks a software solution that is exceptionally user-friendly and aesthetically designed.

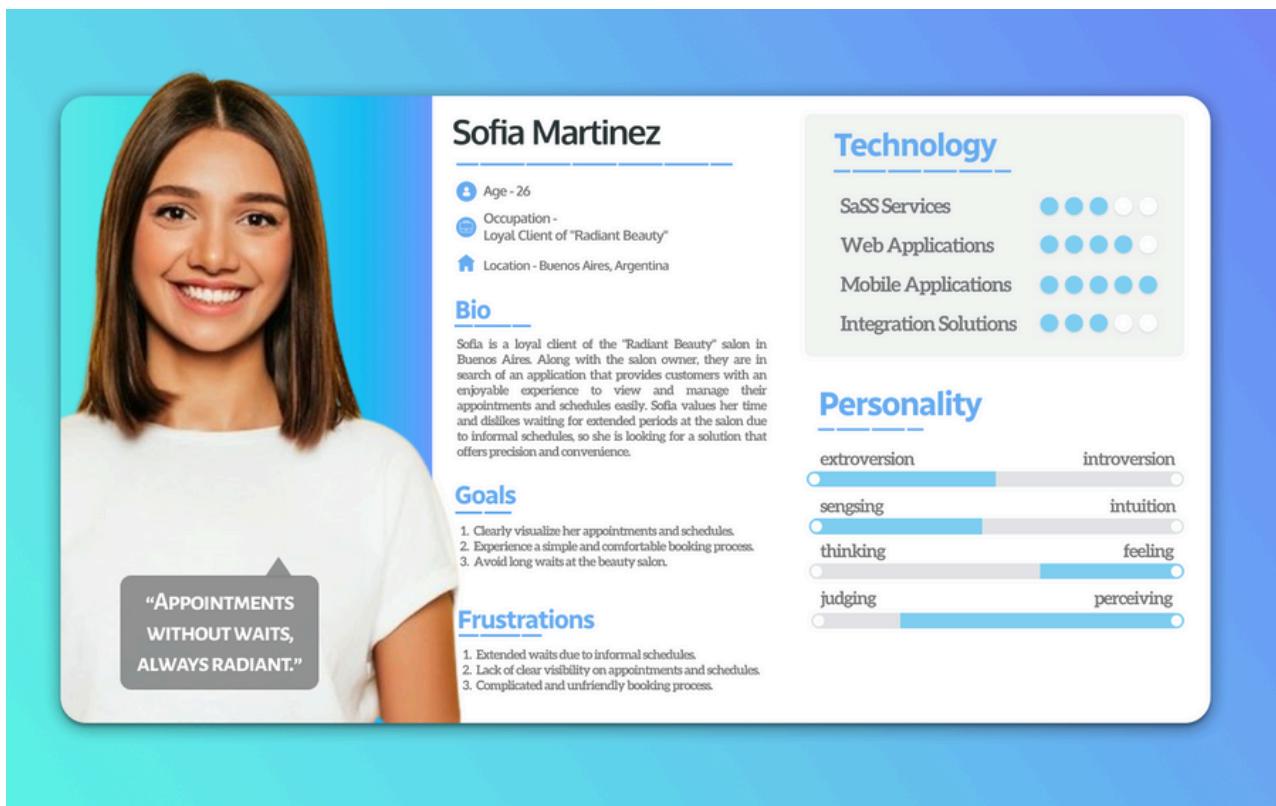


Figure Group E. Sofia, the fifth user persona, reflects those who value time, avoiding informal or complex tools. With a preference for punctuality, they seek software that aligns with their need for straightforward and time-efficient interactions.

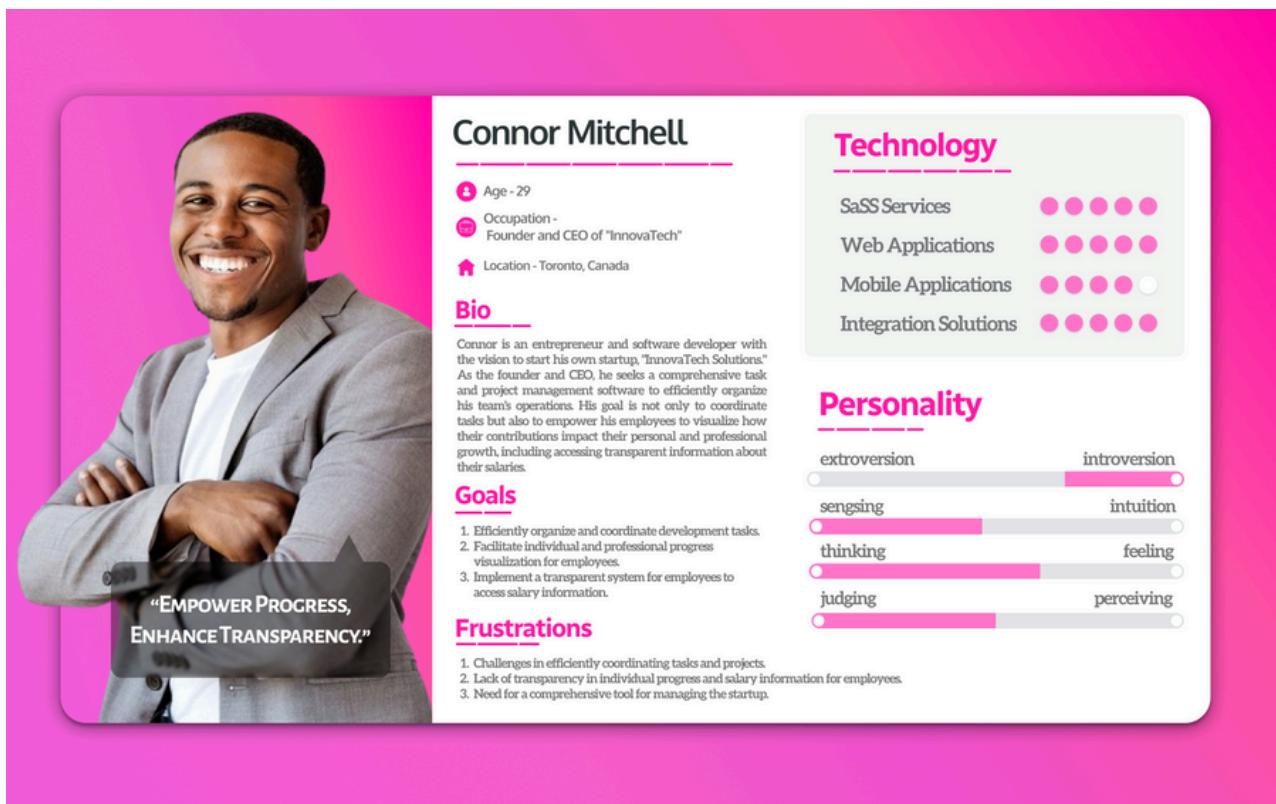


Figure Group F. Connor, the sixth and final user persona, symbolizes individuals who highly value the efficiency of tools for simplifying daily tasks. They prioritize empathy and transparency.

Low-Fidelity Prototype

The **homepage**, with its primary function of presenting and documenting our service, is an essential element for the user experience. The need to provide users with a detailed overview before their direct immersion into the software was recognized, making the "Home Page" an informative epicenter. This page will highlight the core functionality of the service, supported by user reviews to bolster its reputation, and will be accompanied by concise tutorials for easy utilization.

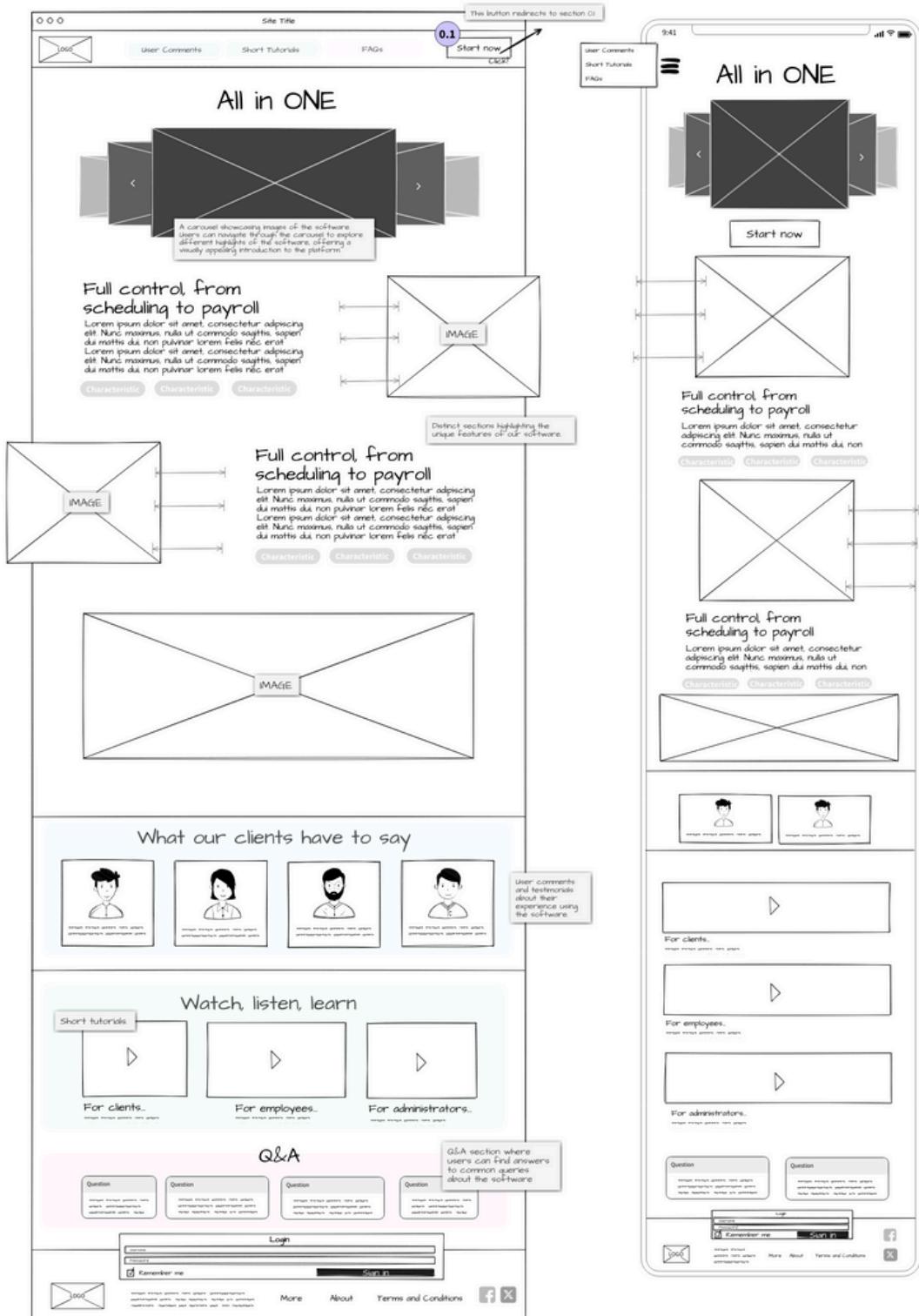


Figure 15. Home Page

Authentication Pages

In this interface (*Figure 16*), three options are presented: "Client," "Employee," and "Administrator," providing users with the flexibility to choose their respective roles. This allows for personalized and efficient access based on their position within the team or as a service client. For users who are not registered and will be administrators, the option "Register" is presented in their corresponding grid. It's important to note that employees and clients do not need to register, as the administrator will be responsible for that process. If the client or employee has been previously registered, they can log in directly (*Figure 18*).

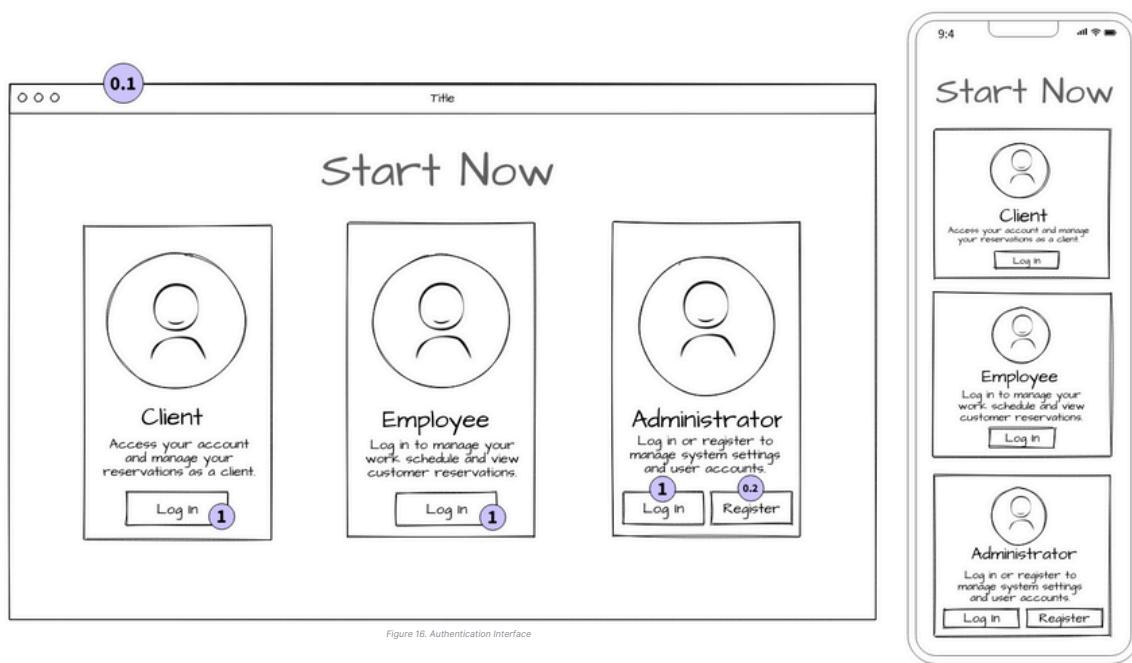


Figure 16. Authentication Interface

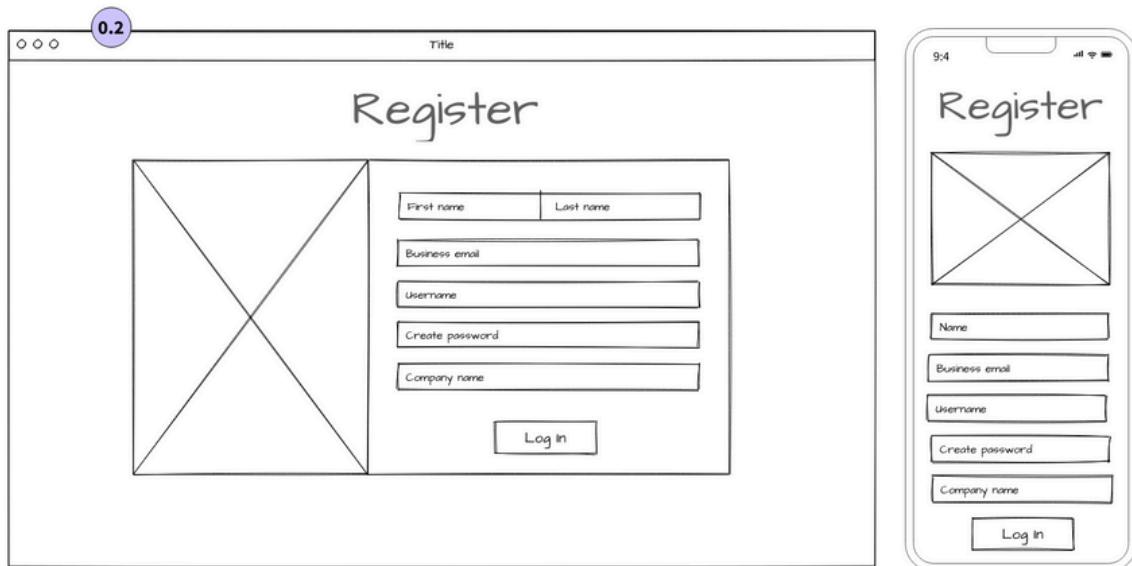


Figure 17. Registration Page

LOGIN PAGE

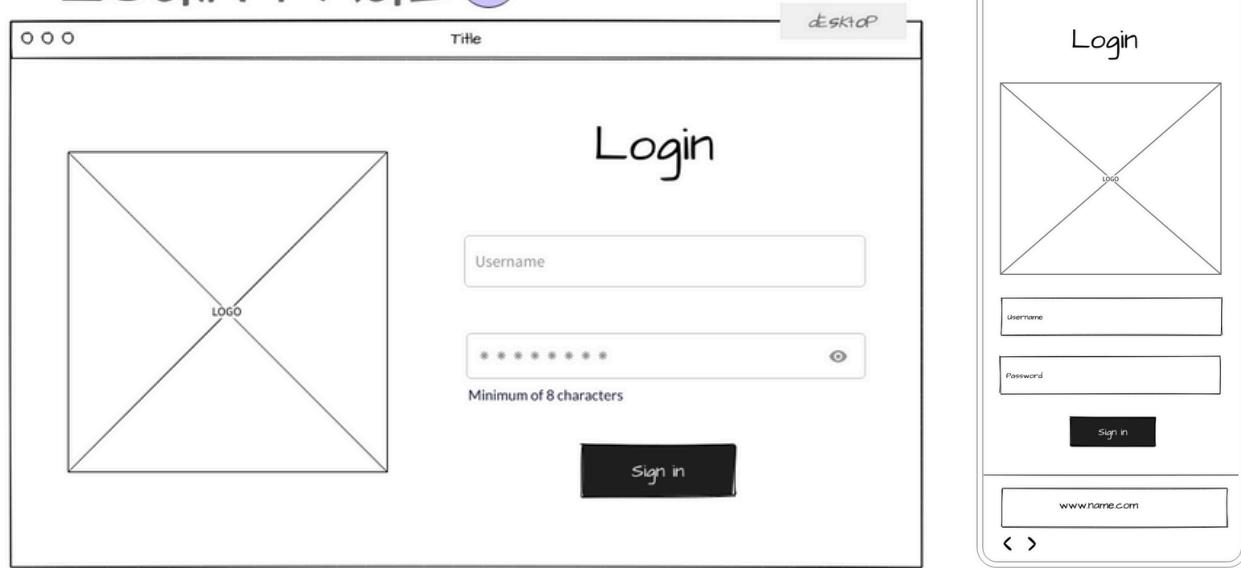


Figure 18. Login Page

Client Page

This page (Figure 19) will be designed for **clients**, offering a comprehensive dashboard where they can easily view all their upcoming reservations or services. This dashboard provides essential details such as the time, day, and location of each reservation at a glance. Clicking on a specific reservation will open a detailed panel, revealing more specific information about the particular booking. This design ensures that clients have quick and clear access to all aspects related to their services, enhancing their experience and facilitating the efficient management of their scheduled commitments.

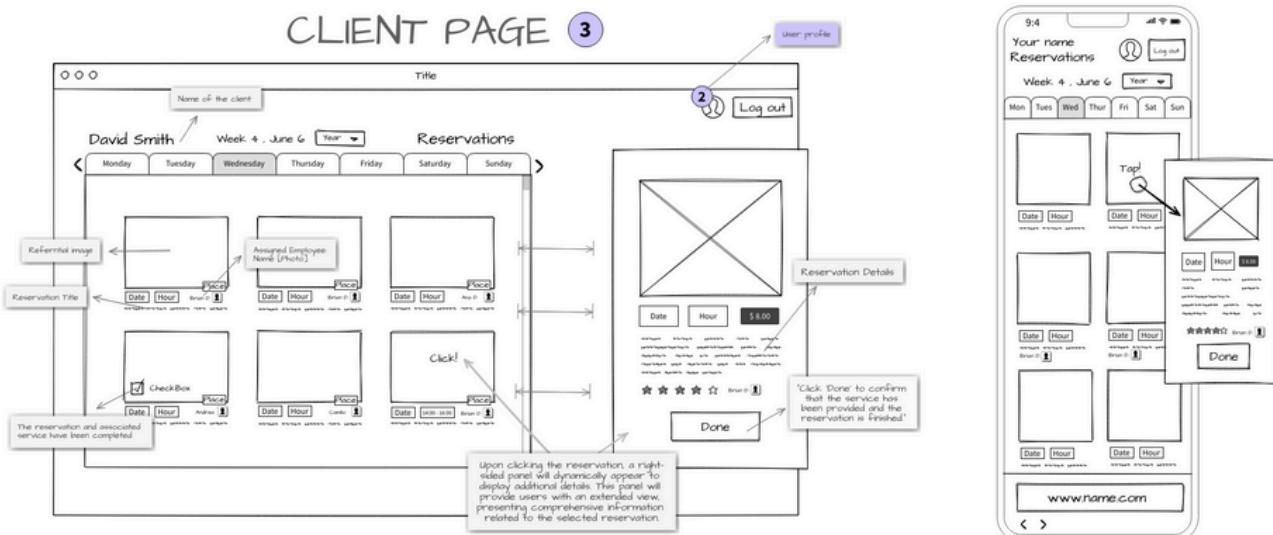


Figure 19. Client Page

Employee Page

This page, designed for **employees**, will feature two sections to provide comprehensive control over their work experience. In the first section (*Figure 20*), employees can easily view their work schedules along with the services or reservations they will be handling during those periods. The ability to click on each reservation allows access to specific details. The second section (*Figure 21*) provides a detailed summary of the hours worked during a specific time range. This data summary offers employees a clear insight into their performance and contribution.

EMPLOYEE PAGE 4

4.1 Work schedule

The desktop interface displays a weekly calendar for "Week 4, June 6". The main area shows service slots from 14:00 pm to 20:00 pm. Each slot includes a placeholder for "Client Name [Photo]" and a "Click!" button. A sidebar on the right shows a total of "5 hours" and a breakdown of "Date" and "Hour" for each slot. A callout notes that clicking a reservation will open a detailed panel. Another callout indicates that the service cost is \$ 8.00. A "Start" and "End" button is shown at the bottom of the sidebar.

4.2 Summary

The mobile interface shows a weekly summary for "Week 4, June 6". It includes a "Top!" button, a breakdown of "Date" and "Hour" for each day, and a "Start" button. The URL "www.name.com" is visible at the bottom.

Figure 20. Employee Page - Work Schedule

Hours & Payment Summary

The desktop interface shows a "Breakdown by Week" table with columns for Date, Hours, and Payment. The mobile interface shows a "Hours & Payment Summary" table with columns for Date, Hours, and Payment.

4.2

A callout in the desktop interface indicates an option to select "Week/month/year" view. The mobile interface shows a "Ratings and Feedback" section with average ratings and high-rated dates.

Figure 20. Employee Page - Summary

Admin Page

The **administrator's page**, the hub for comprehensive management, is structured into four fundamental sections to facilitate efficient monitoring and administration of the system. (1) In the first section (*Figure 21*), "Schedule," employee work hours and assigned reservations are displayed. This area not only allows detailed visualization but also provides the capability to record new reservations and services, consolidating control over operational planning. (2) The second section (*Figure 22*), "Employee Details," offers a complete view of the current list of employees along with their corresponding data. In addition to observation, this section provides the ease of registering new employees.

ADMIN PAGE 5

Figure 21. Admin Page - Schedule

This section displays a weekly schedule grid for Week 4, June. It includes icons for employees (Brian Dallas, Name, Name, Name, Name) and time slots (9:00 - 12:00, 13:00 - 16:00, etc.). Buttons for 'View description' and 'Add new shift' are present. A callout for 'Description' shows a detailed view of reservations. Another callout for 'Add new shift' shows a modal for 'Add new detailed reservation'. A separate 'Add employee' form is shown with fields for First Name, Last Name, Starting Date, Username, Password, and Contact Information. A note explains the automatic generation of salt and password.

Important Sub-section

- When the administrator creates a new employee/client the system automatically generates the username.
- The system automatically generates unique 'salt'.
- The system automatically generates a random 8-digit password for the new employee.
- The administrator provides the username and the generated 8-digit password to the user.
- The hash is generated for the combination of the salt and the password.

Figure 22. Admin Page - Employee Details

This section lists employees with details like Name, Contact, Phone, Position, Gender, Address, Average rating, Username, and Password_Hash_Salt. A 'Click!' button leads to a 'Top!' button on a mobile phone. A note says clicking the checkbox and trash icon will allow deletion. A separate 'Add Employee' form is shown with fields for Name, Contact, Phone, Position, Gender, Address, and Hash_Salt.

In the third section (*Figure 23*), "Client Details," the complete list of existing clients is showcased with their respective data. Here, the administrator can register new clients. Finally, the last section (*Figure 24*) focuses on the payroll of employees, providing a comprehensive set of data such as worked hours, salaries, and benefits.

Figure 23. Admin Page - Client Details

Figure 24. Admin Page - Payroll Summary

System Usability Scale (SUS)

Now that the initial design phase of the prototypes has concluded, it is important to address the comprehensive usability evaluation to verify that the correct decisions were made in the implementation. To achieve this, the evaluation will be based on the principles established by the ISO 9241-11 [30] standard. This standard breaks down the measurement of usability into three essential components, the definition of which aligns with the specific context of system use: effectiveness, efficiency, and satisfaction. Effectiveness assesses users' ability to complete tasks and achieve their goals, efficiency measures the degree to which resources are utilized to attain these objectives, and satisfaction reflects the level of comfort experienced during the accomplishment of these goals.

In this context, the System Usability Scale (SUS) will be employed. This tool, designed to assess users' perceived usability, consists of a set of standardized questions with a Likert scale. To ensure an informed and contextualized evaluation, participants will receive a report outlining the comprehensive concept of the project beforehand. Armed with this knowledge, participants will engage with the questionnaire, assigning values to each question that reflect their individual perception of usability. The compilation of these responses will allow for the calculation of an overall score, quantifying the perceived usability of the system.

Nevertheless, it is crucial to acknowledge the limitations associated with the use of the System Usability Scale (SUS) in this specific context. Given its subjective nature, there is a possibility that participants may interpret the questions of the questionnaire in varied ways, potentially introducing some ambiguity into the results. Furthermore, considering that only prototypes are being presented and not a direct version of the system, it is pertinent to emphasize that the evaluation of usability extends beyond the users' purely visual perception. Technical aspects such as response speed, smoothness in transitions and other performance elements also play a pivotal role in the user experience. Therefore, the results may be influenced by these technical considerations.

This systematic approach will enable the comparison of usability across different prototype versions and support informed decision-making in the design process.

Rate each item between 1 - 5 with 1 being "Strongly Disagree" and 5 being "Strongly Agree".

	1	2	3	4	5
1. I think that I would like to use this system frequently.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I found the system unnecessarily complex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I thought the system was easy to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I think that I would need the support of a technical person to be able to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I found the various functions in this system were well integrated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I thought there was too much inconsistency in this system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I would imagine that most people would learn to use this system very quickly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I found the system very cumbersome to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I felt very confident using the system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I needed to learn a lot of things before I could get going with this system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Results

Participant	SUS score
User 1	68
User 2	55
User 3	62
User 4	70
User 5	63
User 6	61
User 7	59
User 8	64
User 9	57
User 10	63
User 11	66
User 12	78
Average Score	63.83

The obtained average SUS score is 63.83, indicating a moderate level of perceived usability among the participants. While this score reflects a commendable effort in the initial design phase, it's crucial to recognize the areas where the system may have fallen short. Understanding these shortcomings provides valuable insights for implementing targeted enhancements in the next design iteration.

Reviews and feedback will be gathered from users representing each of the groups corresponding to the previously developed user personas. This process will effectively assess the alignment of design decisions, based on the user personas, with the real expectations and needs of each user segment. Direct feedback from real users regarding the prototypes is important for validating and ensuring that the archetype representations accurately reflect the experiences and preferences of each group.

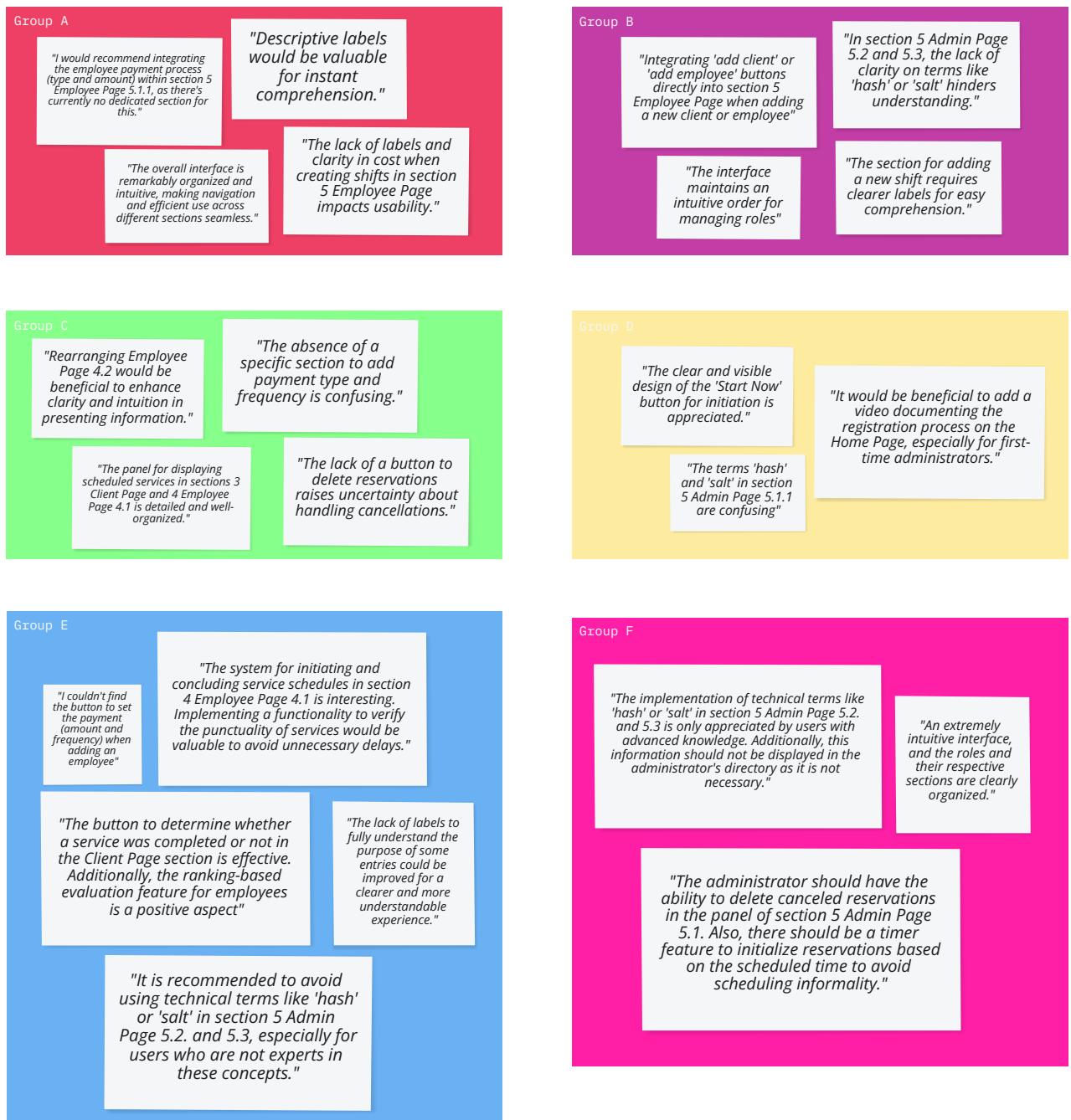


Figure 25. Reviews for each User Group

Mid-fidelity Prototype

For the **home/landing page**, a modification was made to the "FAQs" section, which previously featured cards arranged in a row. This design, in a subsequent implementation, could lack aesthetics, leading to a cluttered display of questions and potential font size reduction. The proposed change involves implementing an accordion for each question to enhance simplicity and accessibility to the information.

User Comments

Short Tutorials

FAQs

All in ONE

Referencial Image

Full control, from scheduling to payroll

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc maximus, nulla ut commodo sagittis, sapien dui mattis dui

Team Scheduling One-click Payroll

Referencial Image

Full control, from scheduling to payroll

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc maximus, nulla ut commodo sagittis, sapien dui mattis dui

Team Scheduling One-click Payroll

Referencial Image

What our clients have to say

Referencial Image

Referencial Image

Referencial Image

Lorem ipsum dolor sit amet, consectetur

Lorem ipsum dolor sit amet, consectetur

Lorem ipsum dolor sit amet, consectetur

Watch, listen, learn

Referencial Image

Referencial Image

Referencial Image

For client For employee For adminis

Frequently Asked Questions

+

+

+

Subscribe to Receive the Latest Updates

E-mail address example@gmail.com

Subscribe

More About Terms and Conditions

A

All in ONE

Referencial Image

Full control, from scheduling to payroll

Referencial Image

Full control, from scheduling to payroll

Referencial Image

What our clients have to say

Referencial Image

Referencial Image

Referencial Image

Lorem ipsum dolor sit amet, consectetur

Lorem ipsum dolor sit amet, consectetur

Lorem ipsum dolor sit amet, consectetur

Watch, listen, learn

Referencial Image

Referencial Image

Referencial Image

For client For employee For administrator

FAQs

+

+

+

Subscribe to Receive the Latest Updates

E-mail Address example@gmail.com

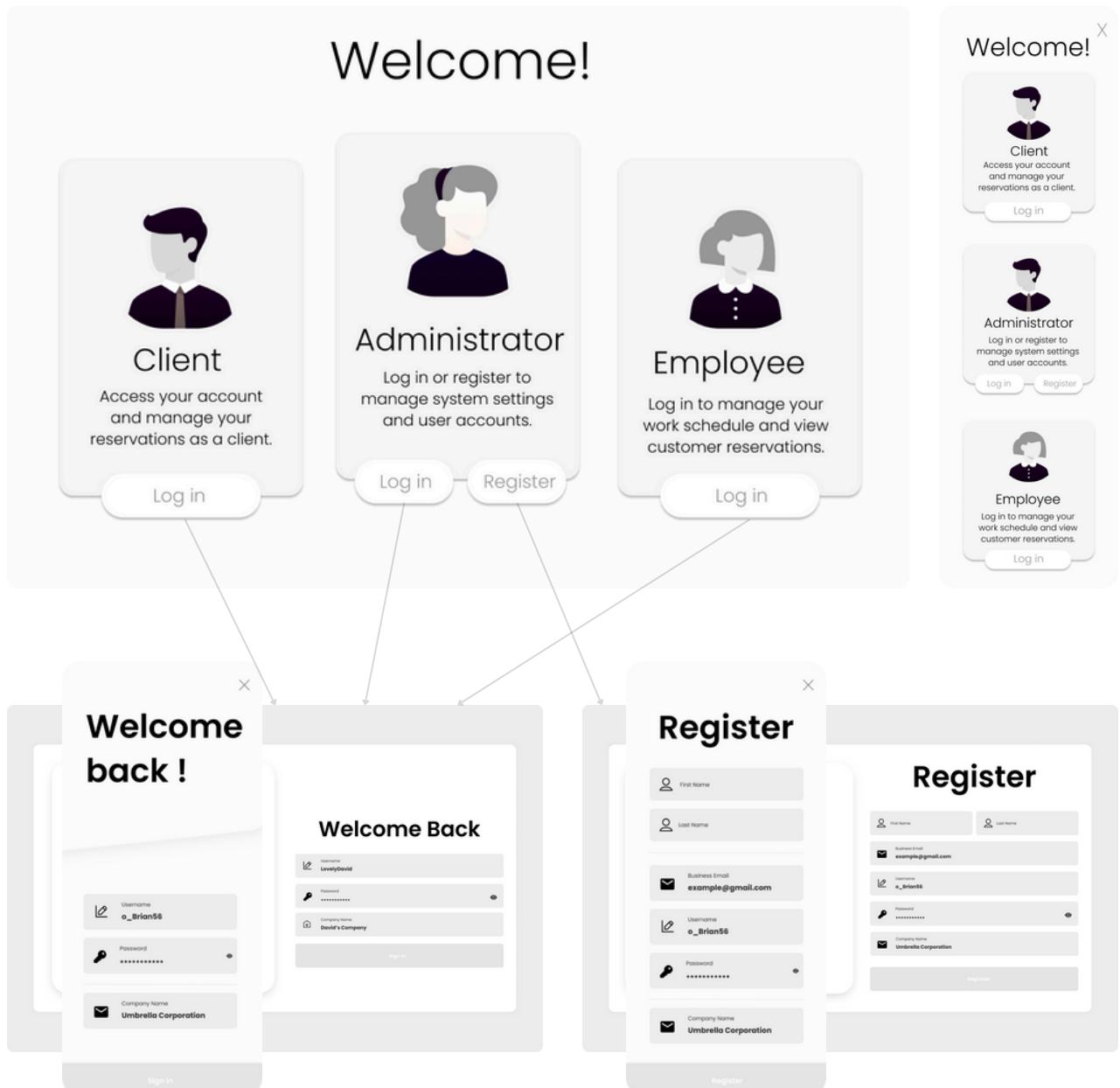
Password

Subscribe

More About Terms and Conditions

Authentication Pages

For the authentication section, it was identified that the **login page** lacked a field for users to specify the name of the organization or company they are associated with, whether using services, providing them, or administrating. This omission could have led to technical issues by preventing the identification of each user's organizational affiliation. As a solution, the relevant entry field was implemented. Additionally, various icons and labels were introduced to clarify and specify the purpose of each input for the user.



Client Page

For the client page, it was observed that the panel displaying pending services could become cluttered if there are many cards representing reservations in a row. To address this, the number of displayed reservations per row was reduced to only two. This adjustment aims to enhance accessibility by ensuring legible font size and improving the overall layout. Additionally, a label was implemented to guide users to click on a reservation for more details. Clear labels were introduced for each entry to enhance user understanding.

David Smith

Reservations

Week 4, June 6 2023

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Wednesday

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Hair Transformation for David

By Brian D.

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Lorem ipsum dolor sit amet,

By Ana D.

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Lorem ipsum dolor sit amet,

By Andrea S.

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Lorem ipsum dolor sit amet,

By Camila R.

Click on the reservation to see more details.

David Smith

Reservations

Week 4, June 6 2023

Wednesday

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Hair Transformation for David

By Brian D.

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Lorem ipsum dolor sit amet,

By Ana D.

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Lorem ipsum dolor sit amet,

By Andrea S.

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Lorem ipsum dolor sit amet,

By Camila R.

Reservations

Week 4, June 6 2023

Wednesday

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Hair Transformation for David

By Brian D.

Done

Referential image

Date Wednesday Hour 14:00 - 16:00

Title Lorem ipsum dolor sit amet,

By Ana D.

Employee Page

For the **employee page**, the "Summary" section was reorganized to address the lack of intuitiveness and clear representation of information. The position of the existing "Week" entry, referencing the time mode for viewing the summary of reservations, payments, etc., was modified. Now, it is placed above the calendar, indicating that users can search for weekly or monthly information on the calendar. This adjustment aims to improve the understanding of each field's purpose.

The diagram illustrates the redesign of an employee page, showing the movement of various sections and their new arrangement.

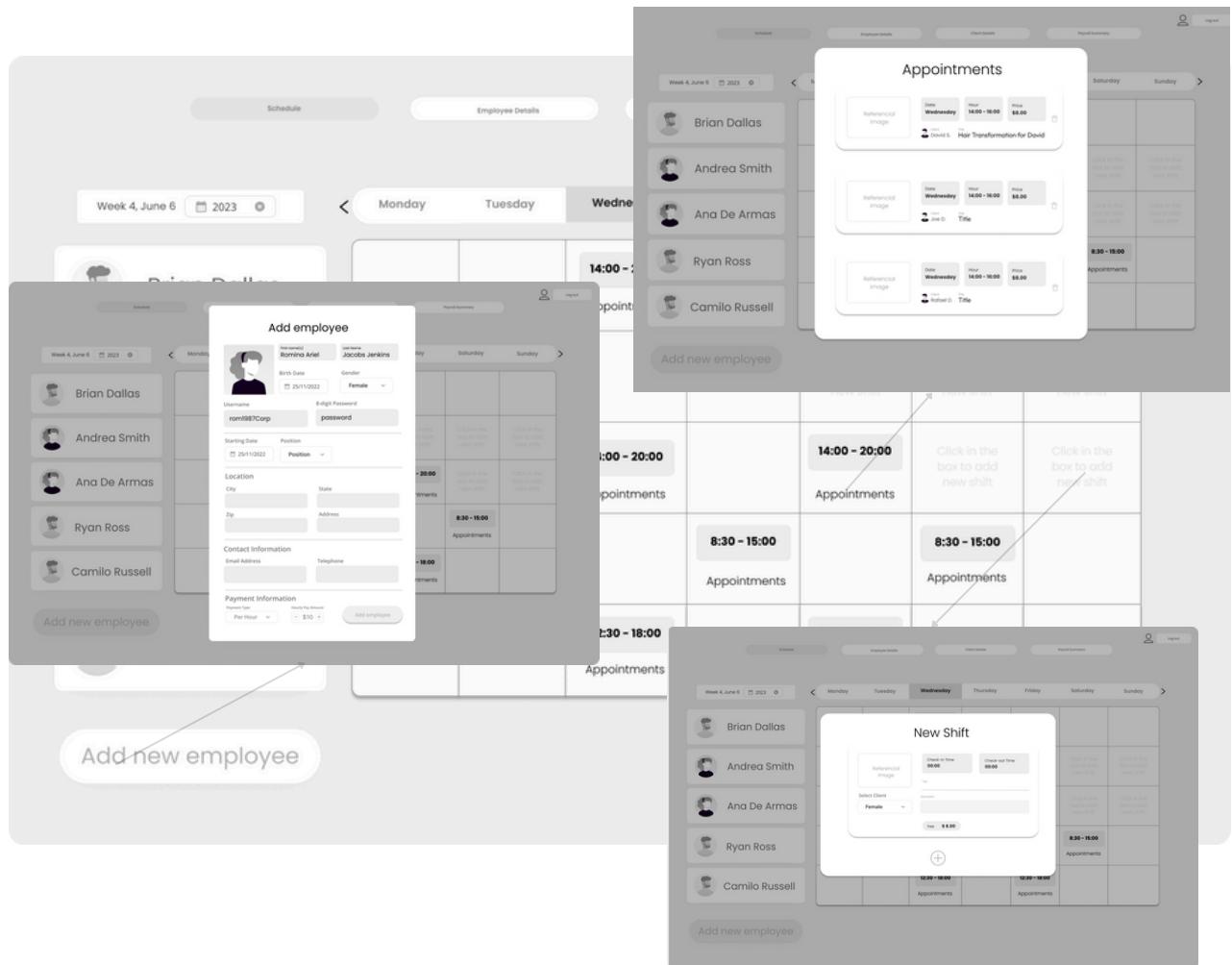
- Reservations:** This section displays a weekly schedule for Brian Dallas. The original layout had a horizontal navigation bar at the top, while the redesigned version has a vertical navigation bar on the right side.
- Hours & Payment Summary:** This section provides a summary of work hours and payment. The redesign moves the calendar and breakdown tables to the bottom of this section.
- Breakdown by Week:** This section shows a table of weekly breakdowns. In the redesign, this table is moved to the bottom of the main content area.
- Ratings & Feedback:** This section displays ratings and feedback for Danielle Collins. The redesign places this section below the main content area.

Text at the bottom:

The obtained average SUS score is 63.83, indicating a moderate level of perceived usability among the participants. While this score reflects a commendable effort in the initial design phase, it's crucial to recognize the areas where the system may have fallen short. Understanding these shortcomings provides valuable insights for implementing targeted enhancements in the next design iteration.

Admin Page

Firstly, in the "Schedule" section, administrators previously faced limitations when adding employees, as they couldn't integrate payment type and amount. To address this, new entries with these functionalities have been added at the end of the modal. Additionally, it was identified that administrators could access the salt assigned to an employee or client, which is ethically questionable and poses security risks. Therefore, this information has been removed. Now, when creating a new employee, administrators can only view the username and plaintext password provided by the system, which will be given to the user later. While this practice may be criticized, a future function in the profile page will allow users to change their password. Secondly, in the "Employee Details" and "Client Details" sections, the hashed password and salt of the employee or client were displayed. This is a risky practice as it could compromise sensitive data, so these columns have been removed. Finally, appropriate labels have been added to each section to avoid confusion.



Schedule

Week 4, June 6 2023

Wednesday

Brian D. 14:00 - 20:00 Appointments

Andrea S. Click in the box to add new shift

Ana D. 14:00 - 20:00 Appointments

Camilo R. Click in the box to add new shift

14:00 - 20:00 Appointments

Add new employee

Appointments

Referencial image Date Wednesday

Client David S. Hour 14:00 - 16:00

Title Hair Transformation for David Price \$8.00

Referencial image Date Wednesday

Client David S. Hour 14:00 - 16:00

Title Hair Transformation for David Price \$8.00

Referencial image Date Wednesday

Client David S. Hour 14:00 - 16:00

Title Hair Transformation for David Price \$8.00

New Shift

Check-in Time 00:00 Check-out Time 00:00

Referencial image Start 00:00 End 00:00

Description

Select Client Ryan R. Fee: \$0.00

Add employee

First Name(s) Romina Ariel Last Name(s) Jacobs Jenkins Position Starting Date 25/11/2022

Location City State Zip Address

Contact Information Email Address Telephone

Payment Information Payment Type Per Hour Hourly Pay Amount \$10+

Cancel Save

Employee Directory

NAME	CONTACT	PHONE	POSITION	GENDER	ADDRESS
Brian Dallas 08/APR/1990	example@email.com	(808) 555-0111	• 1	MALE	9609 Frances St,West Jordan, US
Andrea Smith 12/JUN/1995	example@email.com	(808) 555-0111	• 2	FEMALE	9609 Frances St,West Jordan, US
Ana De Armas 11/SEP/1998	example@email.com	(808) 555-0111	• 3	FEMALE	9609 Frances St,West Jordan, US
Ryan Ross 20/NOV/2004	example@email.com	(808) 555-0111	• 4	MALE	9609 Frances St,West Jordan, US
Camilo Russell 05/APR/2001	example@email.com	(808) 555-0111	• 5	MALE	9609 Frances St,West Jordan, US
Jaxson Siphron 17/FEB/2000	example@email.com	(808) 555-0111	• 6	MALE	9609 Frances St,West Jordan, US

Add new employee

Employee Directory

Brian Dallas 08/APR/1990

Contact example@email.com

Phone (808) 555-0111

Position • 1

Gender MALE

Address 9609 Frances St,West Jordan, US

Average Rating ★★★★☆

Delete

Client Directory

Schedule Employee Details Client Details Payroll Summary Log out

NAME	CONTACT	PHONE	GENDER
David Smith	example@email.com	(808) 555-0111	MALE
Joe Danell	example@email.com	(808) 555-0111	FEMALE
Rafael Duran	example@email.com	(808) 555-0111	FEMALE
Mathew Williams	example@email.com	(808) 555-0111	MALE
Joe Douncey	example@email.com	(808) 555-0111	MALE
Mirta Herrera	example@email.com	(808) 555-0111	FEMALE

Add new client

This detail view shows a client profile for Brian Dallas. It includes a large circular profile picture, the name 'Brian Dallas' with the date '08/APR/1990', contact information ('example@email.com', '(808) 555-0111'), gender ('MALE'), and a 'Delete' button. Below the profile are icons for file, person, search, and info.

Payroll & Employee Performance Overview

Schedule Employee Details Client Details

From: November 2023 To: December 2023

EMPLOYEE NAME	HOURS WORKED	ADDITIONAL EARNINGS
Brian Dallas	120H	+ Bonus: \$400 + Other:
Andrea Smith	120H	+ Bonus: + Comm: + Other:
Ana De Armas	120H	+ Bonus: + Comm: + Other:
Ryan Ross	120H	+ Bonus: + Comm: + Other:
Camilo Russell	120H	+ Bonus: + Comm: + Other:
Jaxson Siphron	120H	+ Bonus: + Comm: + Other:

PRINT

This detail view shows a client profile for Brian Dallas. It includes a large circular profile picture, the name 'Brian Dallas' with the date '08/APR/1990', address '9609 Frances St, West Jordan, US', phone '(808) 555-0111', email 'example@email.com', and gender 'Female'. Below the profile are sections for 'GROSS PAY' and 'PAY', along with summary statistics for 'Avg. Daily Hours' (4h 5m), 'Total Hours Worked' (120H), 'Pay Type' (HOURS), 'Rate' (\$17.00/hr), and 'Total Wage' (\$2448.00). A rating section shows four stars.

Profile Page

Finally, on the user profile page, users can now view their assigned role along with essential data. Additionally, a new section, "Profile Settings," has been introduced, allowing users to make modifications to their profile information and update their password.

Client Profile (David Smith):

Employee Profile (Brian Dallas):

Profile Settings (David Smith):

Profile Settings (Caroline Herrera):

Profile Settings (Administrator):

System Usability Scale (SUS) Results

Participant	SUS score
User 1	68
User 2	71
User 3	68
User 4	72
User 5	65
User 6	65
User 7	59
User 8	64
User 9	71
User 10	63
User 11	67
User 12	79
Average Score	67.66

In the preceding phase of low-fidelity design, the System Usability Scale (SUS) yielded an average score of 63.83. This marks a notable improvement, underscoring the attention paid to each observation—both in the analysis of individual scores and the insights gleaned from user comments.

A reevaluation of user reviews from each group was conducted to assess modifications and enhancements for the final high-fidelity prototype. Surprisingly, the analysis revealed that all reviews shared similarities, expressing the same key ideas. To avoid redundancies, instead of visually presenting reviews by group (*Figure 25. Reviews for each User Group*), we will focus on highlighting the four reviews that emerged as representative of common experiences and needs among users.

"I would like the option to notify the cancellation of a reservation, both as an employee and as a client, along with the ability to provide the reason for this cancellation."

"It would be beneficial to have a system that allows clients to leave comments or reviews about the service and quality of service received from the employee, with exclusive access to these comments/reviews only for the administrator."

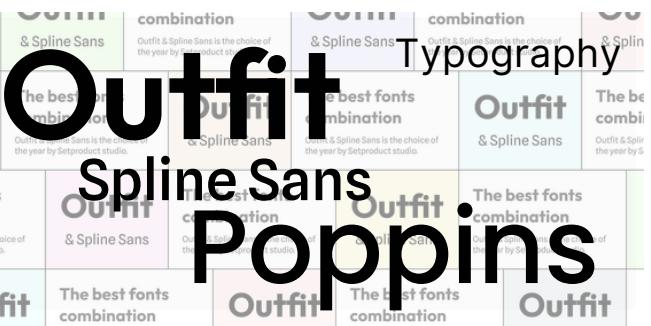
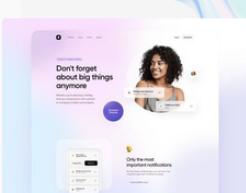
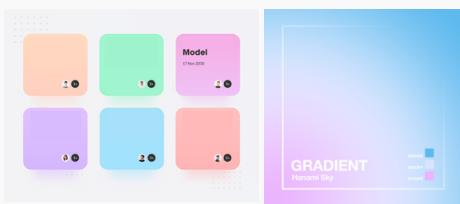
"It was helpful to see the details of the daily schedule, including the total hours worked by the employee, as presented in the Employee Page 4.1 during the low-fidelity phase. Currently, these details are not visible in the pending reservation panel, and it would be beneficial to reintegrate them."

"I consider it important to have clear documentation that clarifies that the use of the software does not necessarily require having an organization working with clients. As an administrator, you might only want to manage the jobs, schedules, and payments of your employees. Therefore, a section or button allowing specification of this scenario during the administrator registration process would be useful."

High-fidelity Prototype

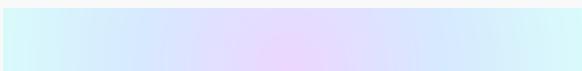
Mood Board

Inspiration

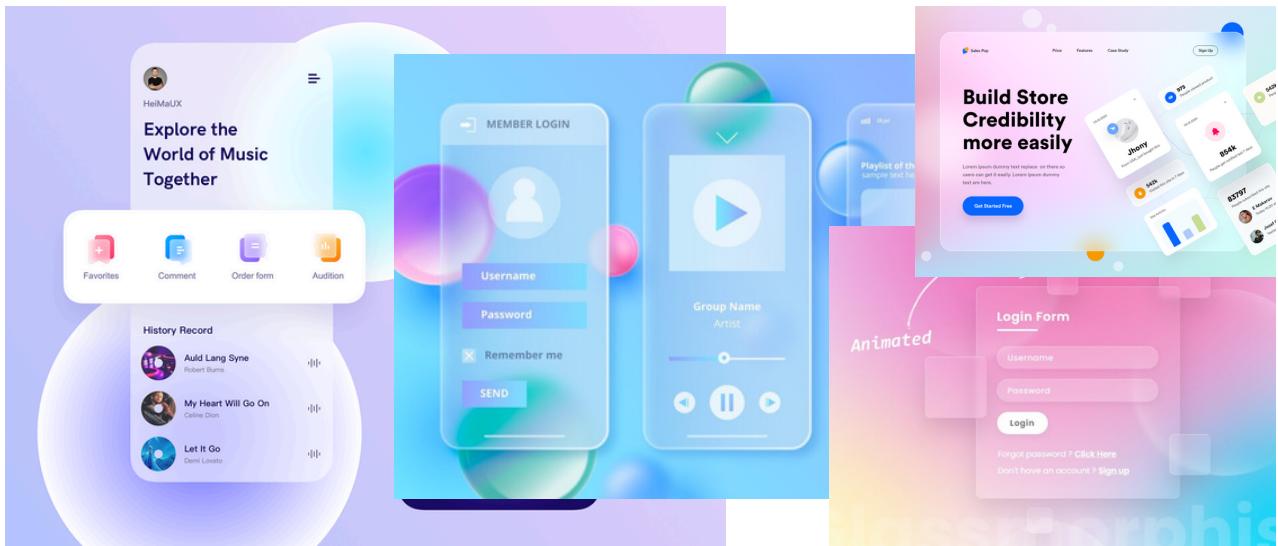


Colour

FFCBF2	F3C4FB	ECBCFD	E5B3FE	E2AFFF
DEAAFF	D8BBFF	D0D1FF	C8E7FF	C0DFFF



Inspiration



The user experience when interacting with the system should convey feelings of comfort, visual smoothness, and a touch of fun. These three aspects are essential for the software to evoke a pleasant sensation and facilitate its usage. In this regard, three styles have been selected for implementation to achieve a balanced combination of these elements.

Firstly, neumorphism, a monochromatic style with the appearance of elements protruding or sinking into the background. This approach strikes a balance between hyperrealism and minimalism [30], using colors, textures, and shadows in a true-to-life manner without delving into excessive details. Its utility lies in the ability to focus the user's attention maximally when interacting with buttons or inputs, adhering to the "Gestalt principle of closure" [31] for a unique and recognizable pattern in the form of these elements.

Secondly, glassmorphism, a user interface trend characterized by its frosted glass effect. This highly flexible and diverse style [32] will be integrated into sections where the user needs to concentrate on crucial information, providing a futuristic touch and emphasizing the importance of certain sections, such as authentication pages.

Finally, a touch of modernity will be added by implementing asymmetrical yet organized elements to create unique styles that are somewhat unconventional. This approach will contribute to the visual distinctiveness of the system, ensuring an engaging and functional user experience.

Typography

Poppins

GEOMETRIC
LEGIBLE HEAD LINES
OPEN FONT
MODI
Designed by  and **Jonny**

Devanagari
Latin

Outfit is round, simple,
clean & friendly

This is the body text set in Outfit, ideally the typeface for long reading text is **understated**. Its speciality should be that it does not seem special – except to some type nerds, of course. Here content is king, not the typeface.

“Typography is the act of giving your words meaning.”

— Quote by some smart person

abcdefghijklmn
ñopqrstuvwxyz
ABCDEFGHIJKLMN
ÑOPQRSTUVWXYZ
1234567890
{|(!?@#\$%&*)}}

Indian
Type
Foundry
2014

Outfit
& Spline Sans

The best fonts combination

Outfit & Spline Sans is the choice of the year by Setproduct studio.

The best fonts combination

Outfit & Spline Sans is the choice of the year by Setproduct studio.

Outfit
& Spline Sans

Considering the modern style with rounded edges, depth, and sleek aesthetics that the design will embrace. **Poppins**, a relatively new font, has swiftly gained popularity among designers for “its sleek appearance and minimalistic aesthetic” [33]. It serves as an excellent choice for bold headlines and titles, contributing to a modern and visually appealing design. Designed by Jonny Pinhorn and Ninad Kale, Poppins offers a range of styles, from thin to black, allowing for versatile use in different design contexts. Alongside Poppins, **Spline Sans** is introduced, a font that pairs seamlessly with Poppins [34], enhancing readability without overwhelming the visual space. Spline Sans's slim and straightforward design aligns with the modern and uncluttered aesthetic aimed for the overall design. Finally, to complement these two, **Outfit** is selected for its simplicity and dominance in textual elements. Its straightforward yet striking appearance adds to the design's overall simplicity while ensuring essential elements stand out.

Colour



Although the human visual perception is a complex and only partially understood process, the importance of color and contrast in visual data processing is widely acknowledged. For instance, Goldstein proposed that certain colors trigger systematic physiological responses, impacting emotional experiences, cognitive orientation, and subsequent actions [35]. For example, red and yellow are associated with emotional responses such as warmth and excitement [36], while black is commonly linked to aggression[37], inciting aggressive behavior.

Subsequently, theorization derived from Goldstein's ideas has focused on wavelength, suggesting that longer-wavelength colors tend to feel exciting or warm, while shorter-wavelength colors are perceived as relaxing or cool [38].

In a study conducted at the University of Oxford [39], it was identified that blue and violet, among the most preferred colors, represent cool and fresh tones, signifying colors with a shorter wavelength. However, in web design, these tones might appear saturated and noisy, prompting the choice of selecting softer variations. Pale Sky or Light Blue is chosen as a blue variant, exuding tranquility and peace [40], while Mauve is selected as a violet variant, adding sophistication and elegance [41]. Analogous variations will be considered to emphasize hierarchies in the design. Primarily, these colors will be implemented using gradients for backgrounds, providing a calm and unsaturated ambiance, while more vibrant variations will be used for buttons or titles.

For the **homepage**, an attractive color scheme was implemented to highlight different sections. Clicking on any of the sections at the top redirects the user to the corresponding part of the page. It was recognized that the "Start Now" button needed to be more vibrant to effectively capture the user's attention. The sections now visually extend beyond the frame that contains them, creating a visual effect that gives the impression that, as the user scrolls down, the information will gradually overflow into the frame. Neumorphism and glassmorphism techniques were applied to stylize the buttons and section backgrounds, respectively. Given that this is the system's homepage, it was acknowledged that it should be eye-catching and rich in documentation and information.

All in ONE

Full control, from scheduling to payroll

What our clients have to say

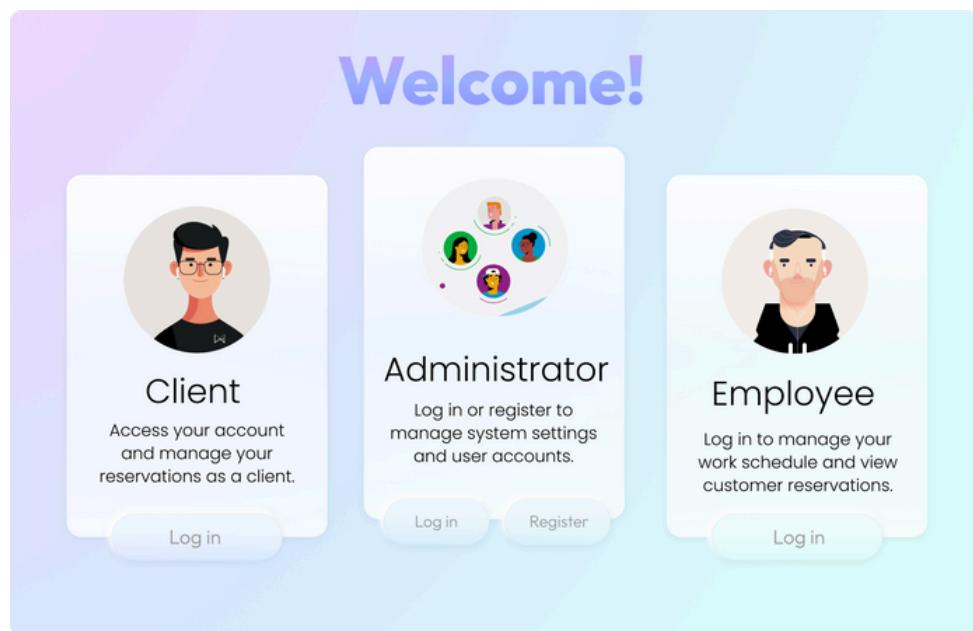
Watch, listen, learn

Frequently Asked Questions

Subscribe to Receive the Latest Updates

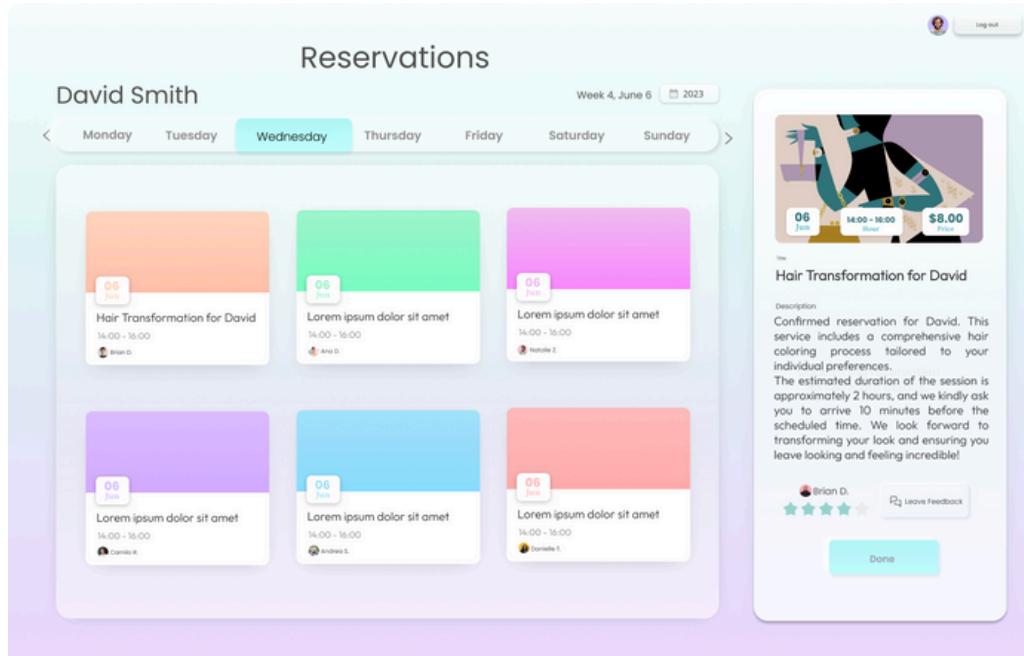
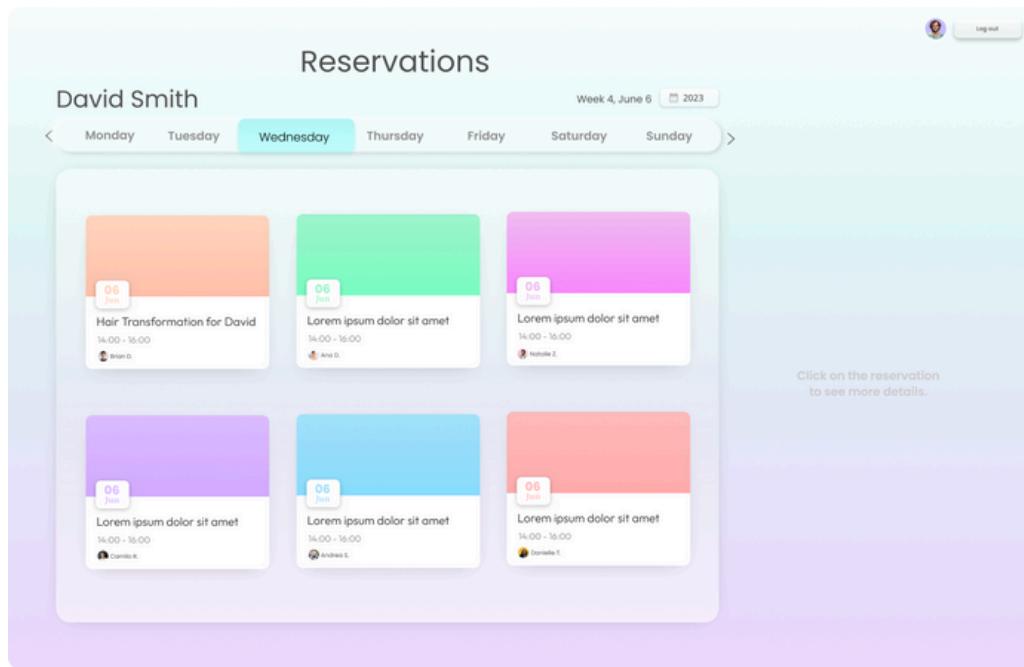
Authentication Pages

For the **authentication pages**, a simple style was chosen with animated figures representing the respective roles on the role selection page. For the registration and login pages, an abstract background with a glassmorphism-style panel was implemented to give a futuristic look. Additionally, a different color was selected for each of them to emphasize the distinction.



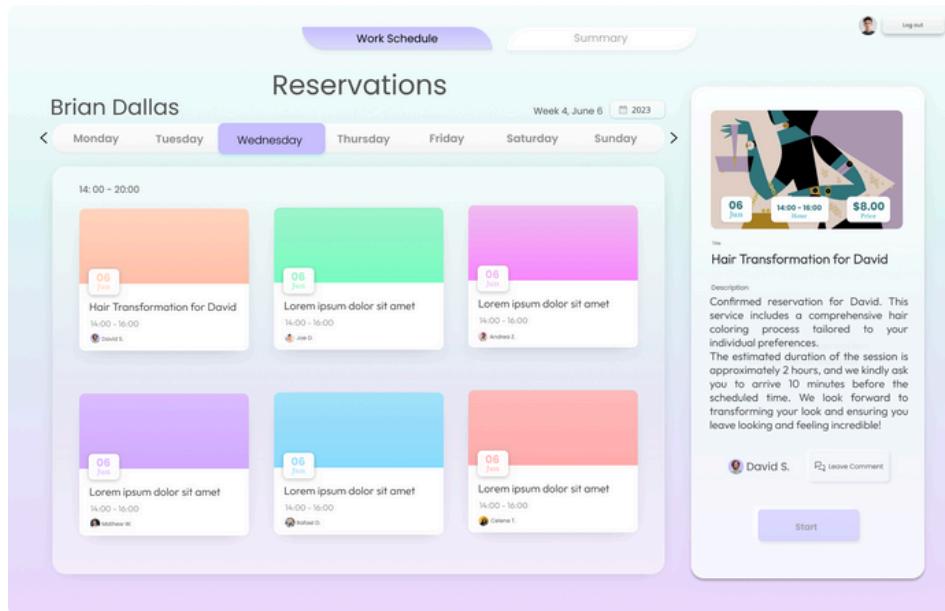
Client Page

For the **client page**, a gradient background was used along with small cards of different colors to represent each of the client's pending reservations/services. Additionally, a new button was implemented when the client clicks on the reservation to get more details. The purpose of this button is to provide feedback/review about the treatment and quality of service that the employee provided.

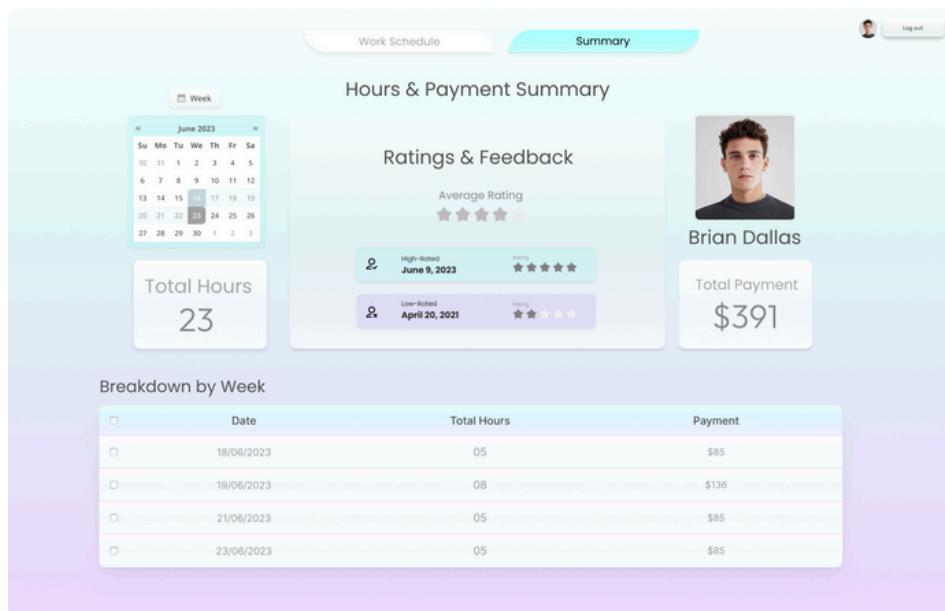


Employee Page

For the **employee page**, a design consistent with the client page was maintained. Additionally, in “Work Schedule” section, when the employee views all the details about a reservation, there is a new button that allows employees to optionally provide feedback about the client, especially in cases of incidents such as service or reservation cancellations. This feedback is intended to notify the administrator about the client's absence or provide the reason for the inconvenience that prevented the service from being carried out. Furthermore, start and end times for each day were added to the reservation panel, providing employees with a clearer view of their daily schedule.



The screenshot shows the 'Reservations' section of the employee dashboard. At the top, a navigation bar includes 'Work Schedule' (selected), 'Summary', and a user profile with 'Logout'. Below the navigation is a date range selector showing 'Week 4, June 6 - 2023'. The main area is titled 'Reservations' and shows a grid of six service slots for Wednesday, June 7, 2023, from 14:00 to 20:00. Each slot contains a thumbnail, the service name, duration, and start/end times. A detailed view of the first slot, 'Hair Transformation for David', is shown on the right. It includes a thumbnail of the client, service title, price (\$8.00), and a descriptive note: 'Confirmed reservation for David. This service includes a comprehensive hair coloring process tailored to your individual preferences. The estimated duration of the session is approximately 2 hours, and we kindly ask you to arrive 10 minutes before the scheduled time. We look forward to transforming your look and ensuring you leave looking and feeling incredible!'. Buttons for 'Leave Comment' and 'Start' are also present.



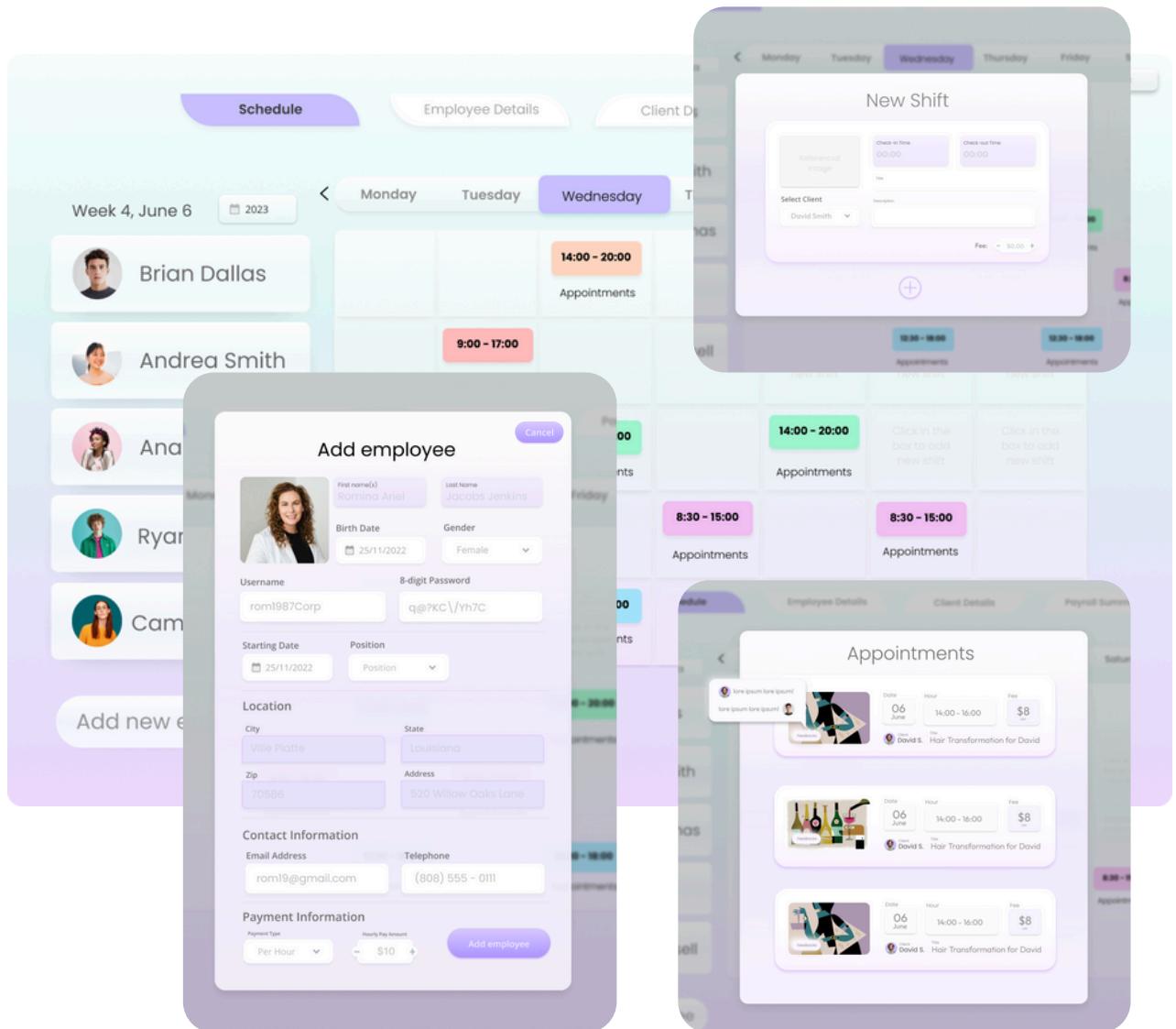
The screenshot shows the 'Summary' section of the employee dashboard. At the top, a navigation bar includes 'Work Schedule' (selected), 'Summary', and a user profile with 'Logout'. Below the navigation is a weekly calendar for June 2023. Key statistics are displayed: 'Total Hours 23'. To the right, a 'Ratings & Feedback' section shows an average rating of 4.5 stars based on 10 reviews. It includes a client profile picture and names: 'High-Rated June 9, 2023' (Brian Dallas) and 'Low-Rated April 20, 2021' (Celine T.). A 'Total Payment \$391' summary is also shown. At the bottom, a 'Breakdown by Week' table provides a detailed breakdown of hours and payments for specific dates:

Date	Total Hours	Payment
18/06/2023	05	\$85
19/06/2023	08	\$136
21/06/2023	05	\$85
23/06/2023	05	\$85

Admin Page

In the "Schedule" section, clicking on the "Feedback" button will display comments left by the administrator about the client or the client about the administrator. This focuses on assessing how the administrator treated the client, evaluating their professionalism in delivering services or addressing any incidents such as cancellations.

Regarding the style, a soft mauve was chosen as the primary color for the first two sections, while a gentle pale sky/turquoise served as the main color for the last two. The background gradient remains consistent with the client and employee pages. Additionally, for the modals, a monochromatic color palette was selected, focusing on the color depending on the section where these modals were located. This was done to reduce noise and saturation of elements.



Schedule Employee Details Client Details Payroll Summary Log out

Employee Directory

NAME	CONTACT	PHONE	POSITION	GENDER	ADDRESS	AVERAGE RATING
<input type="checkbox"/>  Brian Dallas 08/APR/1990	example@email.com	(808) 555-0111	• 1	MALE	9609 Frances St, West Jordan, US	★★★★★
<input type="checkbox"/>  Andrea Smith 12/JUN/1995	example@email.com	(808) 555-0111	• 4	FEMALE	9609 Frances St, West Jordan, US	★★★★★
<input type="checkbox"/>  Ana De Armas 11/SEP/1975	example@email.com	(808) 555-0111	• 1	FEMALE	9609 Frances St, West Jordan, US	★★★★★
<input type="checkbox"/>  Ryan Ross 20/NOV/2004	example@email.com	(808) 555-0111	• 1	MALE	9609 Frances St, West Jordan, US	★★★★★
<input type="checkbox"/>  Camilo Russell 05/APR/2001	example@email.com	(808) 555-0111	• 3	MALE	9609 Frances St, West Jordan, US	★★★★★
<input type="checkbox"/>  Jane Siphron 17/FEB/2000	example@email.com	(808) 555-0111	• 1	MALE	9609 Frances St, West Jordan, US	★★★★★

Add new employee

Schedule Employee Details Client Details Payroll Summary Log out

Client Directory

NAME	CONTACT	PHONE	GENDER
<input type="checkbox"/>  David Smith 08/APR/1990	example@email.com	(808) 555-0111	MALE
<input type="checkbox"/>  Joe Danell 12/JUN/1995	example@email.com	(808) 555-0111	FEMALE
<input type="checkbox"/>  Rafael Duran 11/SEP/1975	example@email.com	(808) 555-0111	FEMALE
<input type="checkbox"/>  William Williams 20/NOV/2004	example@email.com	(808) 555-0111	MALE
<input type="checkbox"/>  Henry Key 05/APR/2001	example@email.com	(808) 555-0111	MALE
<input type="checkbox"/>  Sandra Mora 17/FEB/2000	example@email.com	(808) 555-0111	FEMALE

Add client

First name(s): Romina Nicholas Last name: Jacobs Jenkins

Birth Date: 25/11/2022 Gender: Male

Username: romi1987Corp 8-digit Password: password

Contact Information: Email Address: romi9@gmail.com Telephone: (808) 555 - 0111

Add new client

In the event that the organization, company, or business using the software does not maintain a client list because it is not involved in services requiring clients, there will be no issue. When creating new shifts, the client selection will be optional. Leaving the client field empty signifies that the service or task assigned to the employee does not require association with any particular client. However, the "Client Directory" section will remain accessible, anticipating potential future needs.

Schedule Employee Details Client Details Payroll Summary

Payroll & Employee Performance Overview

EMPLOYEE NAME	HOURS WORKED	ADDITIONAL EARNINGS	GROSS PAY
Brian Dallas \$17.00/hour	120H	+ Bonus + Commission + Other	\$2448
Andrea Smith \$17.00/hour	120H	+ Bonus + Commission + Other	\$2448
Ana De Armas \$17.00/hour	120H	+ Bonus + Commission + Other	\$2448
Ryan Ross \$17.00/hour	120H	+ Bonus + Commission + Other	\$2448
Camilo Russell \$17.00/hour	120H	+ Bonus + Commission + Other	\$2448
Jaxson Siphron \$17.00/hour	120H	+ Bonus + Commission + Other	\$2448

From November 16, 2023 to December 16, 2023

Avg. Daily Hours: 4h 5m Total Hours Worked: 120H

Pay Type: HOURS Rate: \$17.00/hr Total Wage: \$2448.00

Rating: ★★★★☆

PRINT **SAVE**

Profile Page

Profile Settings

Profile Settings

Caroline Herrera

Administrator
Birthday: 08/APR/1990
Gender: FEMALE

E-mail Address: example@gmail.com
Telephone: (808) 555-0111

Administrator

First & Last Name: Caroline Herrera

Gender: FEMALE

E-mail Address: caroline@gmail.com

Telephone: (808) 555 - 0111

Password **Change** **Save**

System Usability Scale (SUS) Final Results

“Scores below 68 point to issues with the design that need to be researched and resolved, while scores higher than 68 indicate the need for minor improvements to the design.”

Participant	SUS score
User 1	73
User 2	84
User 3	91
User 4	76
User 5	83
User 6	67
User 7	84
User 8	78
User 9	94
User 10	74
User 11	85
User 12	100
Average Score	82.41

In this latest phase of design, the System Usability Scale (SUS) has rendered a substantial score of 82.41, a commendable surge of almost 15 points compared to the preceding medium-fidelity design phase, which registered at 67.66. This remarkable leap in user-perceived usability reflects the profound impact of iterative improvements implemented across phases.

This heightened SUS score signifies more than numerical advancement; it is a testament to the symbiotic relationship between design decisions and user satisfaction. The refined color palette, button shapes, and optimized functionality collectively contribute to an interface more effectively with users.

For the successful culmination of this design phase, a fundamental step involves gathering feedback from user groups that have interacted with the high-fidelity prototypes. To achieve this, the implemented feedback board will be presented as a centralized space where users can share their observations, critiques, and reviews.

Group A

"I absolutely love the colors chosen for the final high-fidelity prototypes! The combinations, while a bit unconventional for the concept, blend seamlessly, creating a visually captivating experience. It adds a unique touch that sets it apart."

"I'm delighted to see that you've addressed all the previous feedback! While I understand this project is in its early stages, the improvements are impressive. It's a solid starting point, and I appreciate the dedication to refining the user experience."

"The vibrant colors, while visually appealing, do pose a slight challenge for me personally. I'm accustomed to more minimalist web designs, and the diverse color palette can be a bit confusing. Perhaps opting for more monochromatic tones would enhance clarity for users like me."

"Kudos to the design team! These high-fidelity prototypes employ modern techniques that I've never seen in a software of this genre before. It's refreshing to see such creativity infused into the user interface."

"The system feels remarkably intuitive, and the aesthetics contribute significantly to user comfort. Navigating through the interface is a breeze, and the overall design fosters a sense of ease and familiarity. Well done on creating a user-friendly experience!"

Group B

"Having never worked with mobile software before, I was hesitant due to previous struggles in understanding them. However, this design caught my interest and quickly resonated with the theme. It's impressive how it bridges the gap for someone new to mobile interfaces."

"While there are more advanced options I'd like to explore as an administrator, I appreciate the decision to start with a more straightforward approach. For someone with limited tech background, this provides a comfortable entry point before diving into more complex functionalities."

"As a first-time user of SaaS, I found this software incredibly user-friendly. The interface simplifies the complexities associated with SaaS, making it accessible and easy to navigate. It's a welcoming introduction for beginners like me."

"Honestly, I wasn't a fan of the design; it felt confusing to navigate. However, I acknowledge that a bit of practice could change my perception. It might not be my initial preference, but I'm willing to explore its potential with more hands-on experience."

Group C

"The mobile application is incredibly user-friendly; I love how easy it is to access and verify information with just a few taps. The simplicity in navigation is a standout feature for me."

"While the app is undoubtedly vibrant and visually appealing, I find it a bit challenging to navigate in outdoor settings where there's already a lot of visual stimuli. Managing an app with such vivid colors can be a tad confusing when I'm working outside."

"For someone constantly on the move, having a software with these extensive functionalities is a relief. It's a valuable tool that adapts seamlessly to my dynamic work environment, providing convenience and efficiency on the go."

"The color design is appealing, but I would have preferred softer tones in certain sections. While the vibrancy adds energy, subtler hues might enhance the overall aesthetic, creating a more balanced and soothing visual experience."

Group D

"The payment form is refreshingly straightforward; it has all the necessary elements without unnecessary complexity."

"The employee payroll system is surprisingly user-friendly. It avoids using terminology that might be outside the understanding of someone not well-versed in this area. It's a welcoming approach to managing payroll for employee."

"I appreciate how the system caters to both experts and non-experts."

"On the flip side, I found the payroll section a bit too simplistic and somewhat disorganized. While simplicity is appreciated, a bit more structure and detail could enhance the overall user experience for those who desire a more in-depth understanding."

Group E

"Despite having experience with similar mobile systems, I find the chosen functionalities quite intriguing. They may be basic, but they are just and necessary. It's a well-balanced approach to mobile functionality."

"From an employee's perspective, I can see my payments in a more aesthetically pleasing and user-friendly way. I love it!"

"I love the clarity of navigation and the well-labeled sections. The absence of unnecessary info is a plus; everything is straightforward and easy to find."

"I'm not a fan of the color scheme, and I find the overall design confusing. It's not something I would use comfortably. Considering a more user-friendly color palette could significantly improve the overall experience."

Group F

"I'm loving the implementation of glassmorphism and the button shadows in the design; it adds a modern touch and elevates the overall aesthetic."

"While there's room for improvement in terms of design professionalism, it's a decent starting point."

"Despite having few pages and sections, everything is impressively well-organized. There's a clear structure, and different sections don't unnecessarily overlap or clutter in one place. It's a thoughtful organization that adds to the user-friendly experience."

"This application has everything essential, and I would definitely use it for my restaurant."

Heuristic Evaluation

Based on Jakob Nielsen's 10 general principles for interaction design.

Visibility of System Status

"The system should always keep users informed about what is going on, through appropriate feedback within a reasonable time."

Heuristic Compliance: YES

- From the beginning, users have knowledge of their role and the functionality possibilities available.

Heuristic Compliance: NO

- Limited real-time notifications.

Match between System and the Real World

"The system should speak the users' language, with words, phrases, and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order."

Heuristic Compliance: YES

- There are few technical terms, and the language used is suitable for both experts in the field and those who are not.

User Control and Freedom

"Users often choose system functions by mistake and will need a clearly marked 'emergency exit' to leave the unwanted state without having to go through an extended dialogue. Support undo and redo."

Heuristic Compliance: YES

- All sections and pages have escape and cancellation buttons.

Heuristic Compliance: NO

- Data such as the date of birth cannot be modified.

Consistency and Standards

"Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions."

Heuristic Compliance: YES

- Sections are labeled and represented separately and in an orderly manner.

Heuristic Compliance: NO

- Icons for the mobile version are somewhat confusing.

Error Prevention

"Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action."

Heuristic Compliance: NO

- There is a lack of emergency alerts to inform the user before performing a fragile action.

Recognition Rather Than Recall

"Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate."

Heuristic Compliance: YES

- Achieving an action involves very few and very short steps. Everything is within reach without many steps.

Flexibility and Efficiency of Use

"Accelerators — unseen by the novice user — may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions."

Heuristic Compliance: NO

- There are no quick access or fewer steps to accomplish a task. However, every task is achieved very quickly, making it unnecessary.

Aesthetic and Minimalist Design

"Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility."

Heuristic Compliance: YES

- Modern techniques were used, and fonts are well-organized.

Heuristic Compliance: NO

- Colors might be noisy for those who prefer more minimalist pages.

Help Users Recognize, Diagnose, and Recover from Errors

Help and Documentation

"Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action."

Heuristic Compliance: NO

- There is a limitation in communicating problems.

Help and Documentation

Help and Documentation

"Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action."

Heuristic Compliance: YES

- Good documentation is available.

Heuristic Compliance: NO

- Does not provide real-time help nor a specific section for seeking assistance.

The overall impression of the app proves to be positive, with only a few Heuristic violations. It is user friendly, very assistive, and shows a good balance of both functionality and aesthetics. But I do believe that little refinements can help enhance the user experience as there is always room for improvement.

09

Technical and functional specification

FUNCTIONAL REQUIREMENTS

- 01** Employees should be able to view their working schedule
- 02** Employees should be able to update their available time slots
- 03** Employees should be able to view their payroll status
- 04** Clients should be able to view time slots that are available for booking
- 05** Clients should be able to manage their bookings by raising request to make, cancel, and reschedule bookings.
- 06** Clients should be able to view their booking status
- 07** Admins should be able to view and edit information of employees and clients
- 08** Admins should be able to view and edit bookings
- 09** Admins should be able to process edit request raised by clients
- 10** The app should be able to generate payroll data
- 11** Admins should be able to view and edit payroll data

TECHNICAL REQUIREMENTS

Backend

For the backend, where the emphasis is on a Role-Based Access Control (RBAC) system, choosing the right technology is crucial. Node.js stands out as an excellent choice, renowned for its reputation and efficiency in handling input and output requests. Data management in relational databases will be addressed using MySQL, and Prisma, a specialized ORM for Node.js, will facilitate the writing of SQL queries.

Frontend

On the frontend, the integration of Node.js on the server will be synchronized with the client side using JavaScript, leveraging React. This choice is grounded in coherence, as Node and React are components of the JavaScript ecosystem. For visual presentation, Tailwind, along with HTML and CSS, will play a crucial role. Tailwind, as a robust framework, will simplify the design of aesthetic elements on the page, thereby contributing to a smoother and more appealing user experience.

10

Planning

Gantt Chat

A Gantt Chart is constructed for better planning. Time planned for each item is shown in yellow, time spent is shown in green(on time) or red(delayed). Blue is for buffer time.

Notes of our Plans

We have constructed a time table in the early stage of the project. Aiming to finish one specific task in each week. However, things do not go well starting from week 5 while waiting for users' feedback. We find that our users tend to submit their feedback slower than we thought. Therefore, we started late for the prototypes later. We solved that by evening out the time shortage in the following 2 weeks, and actively encourage users to respond faster in the later stages.

Also, we planned to finish the proposal by week 11, however, we are behind schedule as there are a steep learning curve for some team member to learn using a new text editing software. Fortunately, we have one week of buffer time prepared. The investment of learning a new editing tool results in a way better looking proposal. We are satisfied with the results and we believe we would not be using that much time in the final report as we became more experienced.

For the coming 4 weeks, we plan to finish one feature of the software per week. And we have leave week 17 as a buffering time if we find some features are hard to construct. If we finish early, we could start the user testing earlier.

By the experience of learning user testing speed depends very much on the responsiveness of the participants, the final user testing has a very high risk of delaying. Therefore, we have allocated 2 weeks for the final user testing and correction process. Also, for the week after, we plan to use it to finish an extra feature of reviewing. It also acts as a buffering time just in case we need more time to adjust our final product.

Finally, we plan to finish the report on week 21, leaving one week time for final buffer.

Tools we used #1

Concept - working progress

In this phase, we brought together our best ideas and identified the necessary knowledge and boundaries to realistically and transparently approach a project that would be accessible to all group members. After a week of brainstorming, we finalized the project concept.

ESTEEPLE Analysis and SWOT Analysis - working progress

To comprehensively understand all aspects of our project, we implemented various analyses, including STEEPLE, SWOT, and a market study. We utilized an online Miro board to collaborate on ideas, discarding and refining them.

The screenshot shows a Miro board titled "Scheduling and Payroll Management: An Intuitive, Efficient Administration, Client Access, and Employee Engagement System". The main title is "SWOT Analysis". The board is organized into four main quadrants:

- Internal:** Contains sections for "Strengths" and "Weaknesses".
- External:** Contains sections for "Opportunities" and "Threats".

Each quadrant has associated sub-sections and sticky notes. A user named Hafsa is currently editing the "Threats" section in the External quadrant. On the left, there is a toolbar with various icons for editing. On the right, a "Sharing settings" dialog box is open, listing four team members:

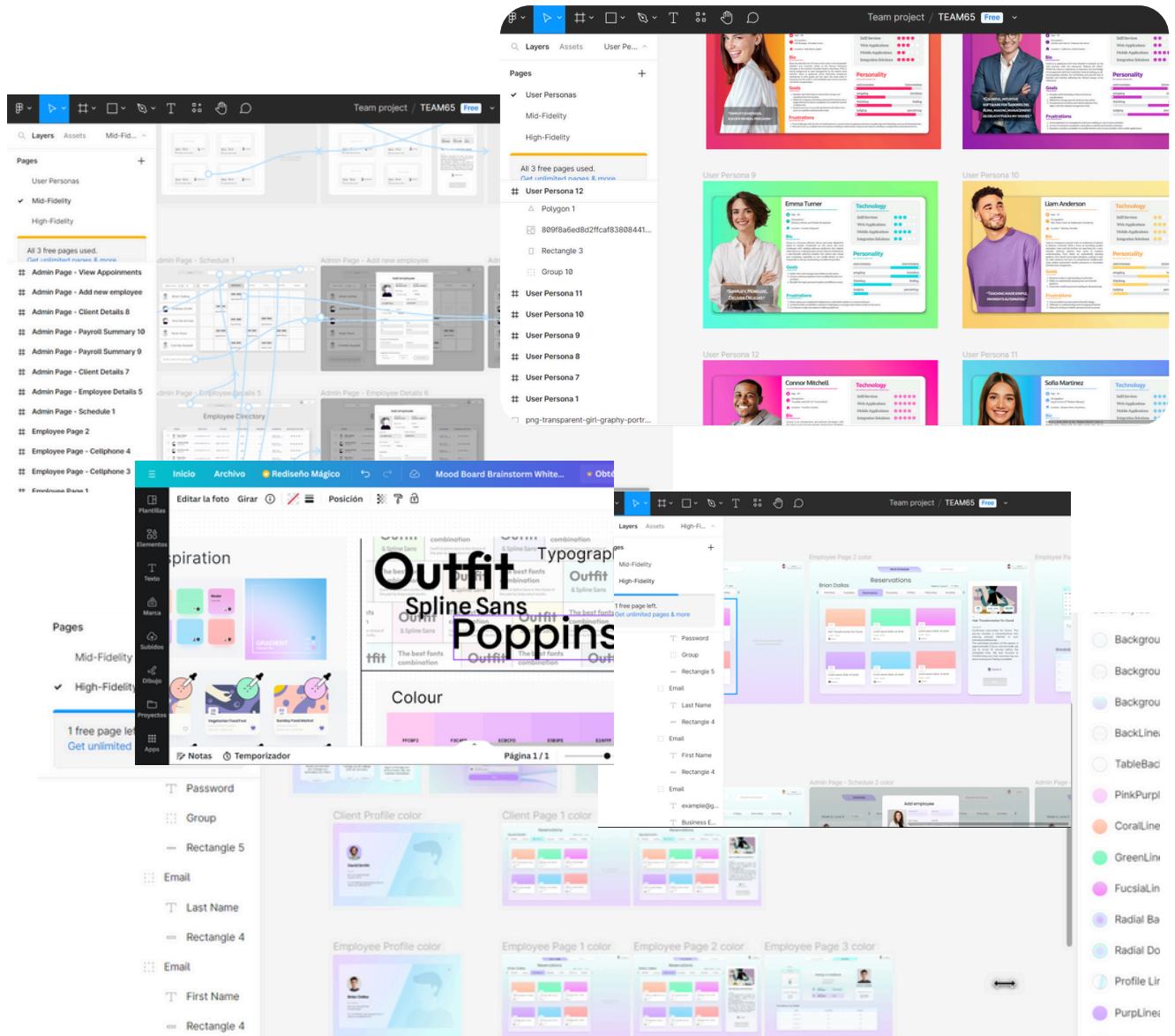
- Angela Paola (aplozano2004@gmail.com)
- Hafsa (h.novaturnet13@gmail.com)
- Chung-Yin Chang (aurorajoy1219@gmail.com)
- J (jerejerejeremy@gmail.com)

The dialog box also states: "Any member of TEAM 65 can edit this board." and has a "Done" button at the bottom.

Tools we used #2

Design and Prototyping -- working Progress

During this stage, we created different prototypes using Figma. Taking advantage of Figma's capability to establish connections between designed pages added a more solid and realistic aspect to the software.



User testing involved presenting an initial project concept, followed by sharing interactive Figma-designed pages. This approach aimed to generate more realistic results from the testing process.

REFERENCES

1. U.S. Department of Labor. (2022). Data.
2. Palladan AA, Palladan NY (2018) Employees Views on Payroll Computerization and Its Impact on Their Productivity: A Grounded Theory Approach. Arabian J Bus Manag Review 8: 340.
3. Hikmah IN, Muqorobin M (2020) Employee payroll information system on company web-based consultant engineering services. Int J Comput Inf Syst IJCIS 1(2):27–30
4. Rumetna MS, Lina TN, Rajagukguk IS, Pormes FS, Santoso AB (2022) Payroll information system design using waterfall method. Int J Adv Data Inf Syst 3(1):1–10
5. Morgan, S. Global Ransomware Damage Costs Predicted To Reach \$20 Billion (USD) By 2021. Cybersecurity Ventures.
6. 30 SAAS INDUSTRY STATISTICS [2023]: TRENDS + ANALYSIS
By Sky Ariella Mar. 13, 2023
7. ISG. (2021). 2021 Industry Trends in HR Technology and Service Delivery.
8. Time is Money. AffinityLive

9. How To Insure Against Time Theft. Ashik Ahmed

10. A Guide to Payroll Software Pricing Models

By: Ashish Upadhyay on April 4, 2023

11. Shehabi, A. et al. United States Data Center Energy Usage Report. Tech. Rep. LBNL-1005775, Lawrence Berkeley National Laboratory, California.

12. Andrae, A. S. G. & Edler, T. On global electricity usage of communication technology: trends to 2030. Challenges 6, 117–157 (2015).

13. Eric Masanet et al. Recalibrating global data center energy-use estimates. Science 367, 984–986 (2020)

14. Google. Our 2023 Environmental Report

15. Microsoft. 2022 Environmental Sustainability Report

16. Deloitte. (2023). Global employment law guide

17. Consultants Review. (2021). Legal Consultancy: The Importance of Legal Consulting in Today's Market.

18. Trifacta. (2023). Gender Data Type.

19. McKenzie, P. (2010). Falsehoods programmers believe about names.

20. O'Reilly Media. "The Creep Factor: How to Think About Big Data and Privacy".

21. Goodwin, D. K. (2018). Equifax data breach FAQ: What happened, who was affected, what was the impact? CSO Online

22. Forbes Advisor. (2021). Connecteam review: What is it and how does it work?

23. Jibble. (2021, August 31). Connecteam Reviews: Pricing & Software Features

24. Finimpact. (2021). FindMyShift Review: Employee Scheduling Software.

25. Mendo. (2016). The best free employee scheduling software. 3.5 ABC Roster

26. Rafter, M. V. (2021). The Best Employee Scheduling & Shift Planning Software for 2021.

27. Deputy. (2022). Deputy named winner in 2022 TrustRadius Best Of Awards for Workforce Management Software.

28. Sevilla, G. C. (2021, September 9). Deputy Review. PCMag.
29. Blomkvist, Stefan. (2002). Persona - an overview (Extract from the paper The User as a personality. Using Personas as a tool for design. Position paper for the course workshop "Theoretical perspectives in Human-Computer Interaction" at IPLab, KTH, September 3, 2002).
30. Brooke, John. (2013). SUS: a retrospective. *Journal of Usability Studies*. 8. 29-40.
31. APA: Kayode, O. (2020). Neumorphic design: A beginner's guide. Toptal.
32. Joyce, A. (2021, July 18). Principle of closure in visual design. Nielsen Norman Group.
33. Design Studio. "Mobile App UI/UX Design Trends in 2023." Design Studio UI/UX. March 5, 2021.
34. Webflow. "Find the best fonts for your website using Google Fonts." Webflow Blog, 1 June 2021.
35. Webflow. (2023, January 6). Find the best fonts for your website using Google Fonts12. Webflow Blog.
36. GOLDSTEIN, KURT M.D.. SOME EXPERIMENTAL OBSERVATIONS CONCERNING THE INFLUENCE OF COLORS ON THE FUNCTION OF THE ORGANISM. *Occupational Therapy & Rehabilitation* 21(3):p 147-151, June 1942.
37. Von Goethe, J. W. (1970). Theory of colours (No. 3). Mit Press.
38. Frank MG, Gilovich T. The dark side of self- and social perception: black uniforms and aggression in professional sports. *J Pers Soc Psychol*. 1988 Jan;54(1):74-85. doi: 10.1037//0022-3514.54.1.74. PMID: 3346809.
39. Ciencia de Hoy. (2021). El espectro visible: Longitudes de onda y colores.
40. Mikellides, B. (2012). Colour psychology: The emotional effects of colour perception. *Colour Design: Theories and Applications*, 105-128.
41. Canva. The meaning of the color Light Blue and color combinations to inspire your next design.
42. APA: Picsart. (2021, October 28). Mauve color: Meaning, colors that go with mauve, and how to design with it. Picsart.

Resources

Figma. <https://www.figma.com>

Canva. <https://www.canva.com>

Colors. <https://colors.co/>

Miro. <https://miro.com/>

MockFlow WireframePro. <https://mockflow.com/>

Pexels. <https://www.pexels.com/>