

Style Hub: Design and Development of a Web-Based Salon Management System

Hon Viraj Rangnath¹ Prof. Vishwatej Pisal²

¹Student ²Assistant Professor

^{1,2}Master of Computer Applications

^{1,2}Anantrao Pawar College of Engineering & Research, Pune Affiliated to Savitribai Phule Pune University, India

Abstract — The beauty and personal care industry is undergoing a major digital shift, yet a significant number of independent salons continue to depend on manual, paper-based systems for managing their core operations. These outdated approaches create inefficiencies in appointment management, billing, customer record keeping, and overall service delivery. Style Hub is a web-based salon management system designed to replace these manual workflows with a structured, automated digital platform. Developed using HTML, CSS, JavaScript, PHP, and MySQL, the system provides separate modules for customers and administrators. Customers can register, explore available services, and schedule appointments through a clean online interface, while administrators manage the complete operational workflow including service listings, appointment confirmations, invoice generation, and business reporting from a central dashboard. This paper presents the complete design rationale, system architecture, technology stack selection, functional and non-functional requirements, and the expected outcomes of the Style Hub system. The research demonstrates how a well-structured web application can meaningfully enhance productivity, minimize human error, and elevate customer satisfaction in small to mid-sized salon businesses.

Keywords: Salon Management System; Appointment Scheduling Automation; Customer Relationship Management; Web-Based Business Management; Digital Service Booking; Small Business Process Automation;

I. INTRODUCTION

The salon and personal grooming industry is one of the most consistently growing service sectors across both urban and rural economies. From barbershops and beauty parlours to full-service spas, the demand for professional grooming services continues to expand year after year. Despite this robust demand, a large majority of small and medium-sized salon businesses still rely on manual methods for handling their daily operations. Walk-in registers, handwritten appointment logs, paper-based billing, and phone-call confirmations represent the norm rather than the exception for countless establishments.

These traditional methods carry an inherent set of problems. Appointment conflicts arise when two customers are booked in the same time slot by different staff members. Billing calculations become error-prone when done by hand, especially during peak hours. Customer history, such as previously availed services or preferred stylists, is difficult to retrieve from paper records. Generating meaningful business reports — such as monthly revenue summaries or service-wise popularity rankings — is nearly impossible without a digital system. Taken together, these challenges slow down salon operations and negatively affect the experience of both customers and staff.

Style Hub is a web-based application conceived and built to address exactly these challenges. Rather than a generic business management tool adapted for salons, Style Hub is designed from the ground up with the specific operational requirements of salon businesses in mind. It automates appointment booking, manages service catalogues, handles billing, stores customer information securely, and provides administrators with a real-time dashboard to monitor the state of their business. The application is accessible from any standard web browser without requiring specialized hardware or software installations, making it practical and cost-effective for businesses of all scales.

This paper documents the complete journey of the Style Hub project: the problem context that motivated it, the relevant literature that informed its design, the system architecture and technology choices, the detailed requirements, the development methodology, and the anticipated impact. The goal is not only to present a functional system but to contribute to the growing body of research on how appropriately designed digital tools can transform traditional service businesses.

II. LITERATURE SURVEY

Understanding the landscape of existing salon management tools and related web-based service systems was a necessary first step in defining the scope and approach of Style Hub. The literature survey covered three broad categories: the limitations of manual salon management, existing digital solutions, and the underlying technologies used in web-based management systems.

A. Limitations of Manual Salon Operations

Several studies on service industry operations have documented the direct relationship between operational efficiency and customer satisfaction. Manual scheduling systems, even when maintained diligently, are susceptible to human error at multiple points: during booking, during billing, and during record retrieval. Research in small business operations has consistently shown that paper-based systems fail to scale gracefully. As a salon grows and its client base expands, the complexity of manually tracking appointments, service histories, and payments increases non-linearly, eventually reaching a breaking point where errors and delays become common occurrences.

Additionally, manual systems offer no mechanism for proactive customer engagement. There is no way to send automated appointment reminders, follow-up messages, or promotional notifications. This absence of outreach means that salons operating manually lose potential return visits from customers who simply forget or are not re-engaged at the right time. The cost of this lost business is rarely measured but is consistently significant.

B. Existing Digital Salon Management Solutions

A review of commercially available salon management platforms, including Setmore and Vagaro, reveals that while effective, these platforms are primarily designed for markets with reliable high-speed internet connectivity and customers comfortable with sophisticated digital interfaces. Their pricing models, which often involve monthly subscription fees, can be prohibitive for small independent salons in developing economies. Furthermore, these platforms are generalized service booking systems that have been adapted for salons rather than being purpose-built for them, which sometimes results in features that are unnecessary while some salon-specific needs remain unmet.

The Toni and Guy global franchise represents an example of how large salon brands leverage technology for brand consistency, appointment management, and customer data analysis. However, the infrastructure required to replicate such systems is far beyond the reach of independent local salons. This gap between enterprise-grade tools and the practical needs of small salon businesses creates a clear opening for purpose-built, lightweight systems like Style Hub.

C. Technology Foundations

The PHP and MySQL combination has been studied extensively as a reliable foundation for web-based management systems. PHP's server-side scripting capabilities, its mature ecosystem of libraries, and its straightforward integration with MySQL make it a practical choice for building data-driven applications. Research on database performance, including work by Jesper Wisborg Krogh on MySQL query optimization, underscores the importance of well-designed database schemas and efficient query structures for maintaining application responsiveness as data volume grows. Bootstrap, as a front-end framework, has been widely validated as an effective tool for producing responsive web interfaces that work reliably across devices of varying screen sizes.

Collectively, the literature confirms the need for an affordable, purpose-built, browser-accessible salon management system and validates the technology choices made in the development of Style Hub.

III. SYSTEM OVERVIEW

Style Hub is organized around two primary user roles: the customer and the administrator. Each role interacts with the system through a dedicated interface, and each has a clearly defined set of permissions and capabilities. The system is accessed entirely through a web browser, eliminating the need for any client-side installation. All business logic runs on the server, and all data is stored in a centralized MySQL database.

From the customer's perspective, the interaction begins with registration. A new customer creates an account by providing basic personal details. Once registered, the customer can browse the salon's service catalogue, which is organized by category and includes details such as service description, duration, and price. The customer can then select one or more services and choose an available time slot to book an appointment. Upon submission, the system records

the appointment and generates a confirmation that the customer can view within their account dashboard.

From the administrator's perspective, the system presents a comprehensive dashboard that provides an immediate overview of the day's appointments, recent billing activity, and key performance metrics. The administrator can add, edit, or remove services from the catalogue, manage pricing, confirm or reschedule customer appointments, generate invoices for completed services, and access detailed reports on revenue, service popularity, and customer engagement. All administrative actions are protected behind a secure login mechanism.

The separation between customer-facing and admin-facing functionality is a deliberate design choice. It ensures that customers have access only to the information and actions relevant to them, while administrators retain full control over the operational data of the salon. This separation also simplifies the security model of the application, as permissions are assigned at the role level rather than requiring fine-grained per-user configurations.

IV. SYSTEM ARCHITECTURE

Style Hub follows a three-tier architecture, a well-established pattern for web-based applications that separates the application into presentation, logic, and data layers. This separation makes the system easier to maintain, test, and extend over time.

A. Presentation Layer

The presentation layer encompasses all the HTML pages and CSS stylesheets that constitute the visual interface of the application. Bootstrap is used as the primary front-end framework, providing a responsive grid system and pre-styled components that ensure the interface adapts gracefully to different screen sizes, from desktop monitors to tablets and mobile phones. JavaScript is used to enhance interactivity within the browser, handling tasks such as form validation before submission, dynamic content updates, and user feedback messages without requiring full page reloads.

B. Application Logic Layer

The application logic layer is implemented in PHP. PHP scripts handle all incoming HTTP requests from the browser, execute the appropriate business logic, interact with the database, and generate the HTML responses that are sent back to the client. Key responsibilities of this layer include user authentication and session management, form processing and input validation, CRUD operations for all data entities (customers, services, appointments, invoices), and report generation. PHP's session management capabilities are used to maintain user state across multiple page requests, enabling the secure login system that distinguishes customer and admin sessions.

C. Data Layer

The data layer is a MySQL relational database. The database schema is organized around core entities: Users, Services, Appointments, Invoices, and Service Categories. Relationships between these entities are defined using foreign keys, ensuring referential integrity across the data. For example, an appointment record references both a user ID and

a service ID, and an invoice record references both an appointment ID and a user ID. This relational structure allows complex queries to be expressed concisely and executed efficiently, supporting the reporting features of the admin dashboard. MySQL's support for transactions ensures that multi-step operations, such as creating an appointment and simultaneously generating its confirmation record, are executed atomically.

V. TECHNOLOGY STACK

The selection of technologies for Style Hub was driven by three primary criteria: proven reliability for web applications, accessibility for developers working in academic and small business contexts, and the ability to deliver a performant, maintainable system without requiring expensive infrastructure.

Technology	Category	Role in Style Hub
HTML5	Frontend	Page structure, forms, and content markup
CSS3 & Bootstrap	Frontend	Styling, layout, and responsive design across devices
JavaScript	Frontend	Client-side validation, dynamic interactions
PHP 8	Backend	Server-side logic, session management, CRUD operations
MySQL 8	Database	Relational data storage, queries, transactions
VS Code / GitHub	Dev Tools	Code editing, version control, collaboration
Postman	Testing	API endpoint testing and validation

Table 1: Technology Stack of Style Hub

VI. SYSTEM REQUIREMENTS

A. Functional Requirements

Functional requirements define what the system must do. For Style Hub, these requirements were derived from a careful analysis of the daily operational tasks performed in a typical salon environment.

- 1) **User Registration and Authentication:** Customers must be able to create accounts with verified credentials. The system must support secure login for both customers and the administrator, with session-based access control to ensure that each user type can only access their designated areas of the application.
- 2) **Service Catalogue Management:** The administrator must be able to add new services, edit existing ones, and remove discontinued offerings. Each service entry must support a title, category, description, duration, and price. Customers must be able to browse the catalogue in a clear, organized format.
- 3) **Online Appointment Booking:** Customers must be able to select a service and a preferred time slot to book an appointment. The system must check for scheduling conflicts before confirming a booking. Customers must be able to view the status of their existing appointments from their account.

- 4) **Appointment Management:** The administrator must be able to view all upcoming and pending appointments, confirm or reschedule them, and mark them as completed upon service delivery. The system must update appointment status in real time.
- 5) **Invoice and Billing Generation:** Upon completion of a service, the system must automatically generate an itemized invoice that includes the service name, price, applicable taxes, and the total amount due. Billing history must be stored and accessible to both the administrator and the relevant customer.
- 6) **Reporting and Dashboard:** The administrator dashboard must provide at-a-glance metrics including daily appointment count, total revenue for a selected period, most popular services, and customer visit frequency. Detailed reports must be exportable for record-keeping purposes.

B. Non-Functional Requirements

Non-functional requirements define how the system must perform its functions, addressing qualities such as usability, security, and reliability.

- 1) **Usability:** The interface must be intuitive enough for users with minimal technical experience. Navigation must be logical and consistent, with clear feedback messages after every user action. Error messages must be descriptive and guide the user toward corrective action.
- 2) **Security:** All passwords must be stored in hashed form, never as plain text. Input from users must be validated and sanitized on the server side to prevent SQL injection and cross-site scripting attacks. Administrative functionality must be completely inaccessible to users who are not authenticated as administrators.
- 3) **Performance:** Page load times must remain acceptable under normal usage conditions. Database queries must be optimized using appropriate indexing to ensure responsive performance as the data volume grows over months and years of operation.
- 4) **Scalability:** The system architecture must be designed to accommodate growth. The database schema and server-side code must be extensible, allowing new features such as staff management, loyalty programs, or SMS notifications to be added in future iterations without requiring a fundamental redesign.
- 5) **Maintainability:** Code must be organized in a modular fashion, with clear separation between the presentation, logic, and data layers. Adequate inline documentation must be provided so that future developers can understand and extend the codebase with minimal onboarding time.
- 6) **Compatibility:** The application must function correctly in all major web browsers, including Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari. The responsive design must ensure usability on screens ranging from mobile phones to large desktop monitors.

VII. DATABASE DESIGN

The database design is central to the reliability and performance of Style Hub. The schema follows relational database design principles, including normalization to the

third normal form to eliminate data redundancy and ensure data integrity. The core tables are described below.

A. Core Database Tables

Table Name	Primary Key	Key Attributes
users	user_id	name, email, password_hash, phone, role, created_at
service_categories	category_id	category_name, description
services	service_id	category_id (FK), name, description, price, duration_mins, image_url
appointments	appointment_id	user_id (FK), service_id (FK), appointment_date, time_slot, status, notes
invoices	invoice_id	appointment_id (FK), user_id (FK), amount, tax, total, generated_at, paid_status

Table 2: Style Hub Database Schema Overview

The users table uses a role field to distinguish between customer and admin accounts, eliminating the need for separate user tables while still allowing role-based access control to be enforced at the application logic layer. Foreign key constraints between the appointments table and both the users and services tables ensure that no appointment can be created for a non-existent user or service. The invoices table is similarly constrained, guaranteeing that every invoice corresponds to a valid, identifiable appointment.

Indexes are created on frequently queried columns, such as appointment_date in the appointments table and user_id in both the appointments and invoices tables. This indexing strategy significantly reduces query execution time for the most common operations, such as fetching today's appointments or retrieving a customer's billing history.

The authentication module governs access to the system. When a new customer registers, the provided password is passed through PHP's password_hash() function using the bcrypt algorithm before being stored in the database. During login, the submitted password is verified against the stored hash using password_verify(), ensuring that plain-text passwords are never handled or stored at any point. Upon successful authentication, a PHP session is initiated and the user's role is stored within the session. Every subsequent page request checks this session role to determine the appropriate level of access. Attempted access to admin pages by customer-role sessions is immediately redirected, and all session data is destroyed upon logout.

B. Appointment Booking Module

The appointment booking module manages the scheduling workflow from the customer's initial service selection to the final confirmation. When a customer selects a service and desired time slot, the system first performs a conflict check

by querying the appointments table for any existing confirmed bookings within the same time window. If the slot is available, the new appointment is inserted with a status of 'Pending'. The customer's dashboard is immediately updated to reflect the new booking. On the administrator's side, pending appointments appear in a dedicated queue where they can be reviewed and confirmed or rescheduled with an optional note explaining the change.

C. Invoice and Billing Module

The billing module automates invoice creation upon appointment completion. When an administrator marks an appointment as completed, the system retrieves the associated service details, calculates the applicable tax based on the service price, computes the total amount, and creates a new record in the invoices table. The generated invoice is rendered as a structured HTML page that can be printed or saved as a PDF by the customer. The admin dashboard aggregates invoice data to produce revenue summaries for any selected date range, enabling straightforward business accounting without requiring external software.

D. Admin Dashboard and Reporting Module

The admin dashboard serves as the operational command centre of the Style Hub system. At a glance, it displays the total number of appointments scheduled for the current day, the number of confirmed versus pending appointments, the day's revenue total, and a quick-access list of the most recent customer bookings. Deeper reporting features allow the administrator to filter data by date range and generate tabular reports on total revenue, service-wise booking counts, and individual customer visit histories. These reports are generated dynamically by executing aggregation queries on the database, ensuring that the displayed figures always reflect the current state of the data.

VIII. DEVELOPMENT METHODOLOGY

Style Hub was developed following an iterative development approach, drawing on principles from the Agile methodology. Rather than attempting to build the complete system in a single development cycle, the work was organized into a series of phases, each of which produced a functional increment of the system that could be reviewed and tested before the next phase commenced.

The first phase focused on requirement gathering and system design. This involved mapping out the complete set of functional and non-functional requirements, creating the entity-relationship diagram for the database schema, and producing wireframes for the key user interface screens. The wireframing process was particularly valuable in revealing potential usability issues before any code was written, allowing layout and navigation decisions to be made quickly and inexpensively.

The second phase involved the development of the database and the core authentication infrastructure. Establishing a solid, well-indexed database schema and a secure authentication system early in the process provided a reliable foundation for all subsequent feature development. Postman was used during this phase to test the PHP API endpoints responsible for user registration and login before the front-end forms were connected to them.

The third phase covered the development of the customer-facing modules: service browsing, appointment booking, and the customer account dashboard. User interface templates built with Bootstrap were iteratively refined based on internal review, with particular attention paid to the clarity of the booking flow and the accessibility of service information.

The fourth phase addressed the administrator modules: service management, appointment management, invoice generation, and the reporting dashboard. These features were more complex in their data dependencies and were tested extensively to ensure correctness under edge-case scenarios, such as attempting to book an already-taken time slot or generating a report for a date range with no completed appointments.

The final phase covered integration testing, security review, cross-browser compatibility testing, and documentation. Security testing included deliberate attempts to perform SQL injection through form inputs, direct URL manipulation to access admin pages without authentication, and review of session management behaviour. All identified vulnerabilities were addressed before the system was considered complete.

IX. HARDWARE AND SOFTWARE SPECIFICATIONS

A. Server-Side Requirements

Style Hub can be hosted on any web server capable of running PHP 8 and MySQL 8. For a typical small salon, a modest cloud virtual private server or even shared hosting with PHP and MySQL support is sufficient. The following minimum server specifications are recommended for reliable operation: a dual-core processor running at 2.0 GHz or above, 2 GB of RAM, and 20 GB of storage for application files and database data with room for growth.

B. Client-Side Requirements

Because Style Hub runs entirely in the web browser, the client-side requirements are minimal. Any device capable of running a modern web browser — including smartphones, tablets, laptops, and desktop computers — can access the system. The recommended client hardware for a comfortable administrative experience is a processor equivalent to an Intel Core i5 or better, 2 GB of RAM minimum, and a stable internet connection. For customer-facing access, even a mid-range smartphone with a 4G connection provides a fully functional experience.

Supported browsers include Google Chrome (version 90 and above), Mozilla Firefox (version 88 and above), Microsoft Edge (version 90 and above), and Safari (version 14 and above). No plugins or extensions are required.

X. EXPECTED OUTCOMES AND IMPACT

The deployment of Style Hub in a salon environment is anticipated to produce measurable improvements across several dimensions of business operation.

A. Operational Efficiency

The most immediate impact of Style Hub will be felt in the elimination of manual scheduling conflicts and billing errors.

With appointment management automated and centralized, the risk of double-booking is removed entirely by the system's conflict-checking logic. Billing, which in manual systems requires time-consuming mental or calculator-based arithmetic, is handled instantaneously by the system, reducing the time spent at the payment counter and virtually eliminating arithmetic errors.

B. Customer Experience

Customers benefit from the ability to book appointments at any time of day without needing to call the salon during business hours. The online service catalogue, with its pricing and descriptions visible in advance, allows customers to make informed decisions about which services they wish to book. The availability of a digital invoice and appointment history within their account gives customers a sense of transparency and professional service that is difficult to achieve with paper-based systems.

C. Business Insights

The reporting functionality of Style Hub gives salon owners access to business intelligence that was previously unavailable to them without hiring an accountant or spending considerable time on manual data compilation. Understanding which services are most popular, which time slots see the highest booking rates, and how revenue trends over weeks and months allows salon owners to make evidence-based decisions about staffing, promotional offers, and service pricing.

D. Data Security and Reliability

By moving customer data from paper registers to a password-protected, encrypted digital database, Style Hub significantly reduces the risk of data loss due to physical damage (such as fire or water) or misplacement of records. The use of bcrypt password hashing and server-side input validation ensures that the system meets a reasonable baseline of data security appropriate for the sensitivity of the information being handled.

XI. CHALLENGES AND LIMITATIONS

No software system is without its limitations, and an honest assessment of Style Hub's current constraints is important for guiding future development.

The current version of Style Hub does not include an integrated payment gateway. Customers can view their invoices online, but the actual payment transaction is completed in person at the salon counter. Integrating a payment gateway such as Razorpay or PayU would be a natural and valuable extension, allowing customers to prepay for appointments online and reducing the administrative burden at the point of service.

The system currently supports a single salon location. Multi-branch salon businesses, which operate across several physical locations with separate staff, appointment slots, and inventories, would require a more complex data model that partitions operational data by branch while maintaining centralized reporting for the business owner. This is a meaningful extension for future work.

Staff management is another area not covered in the current implementation. A more complete salon management

system would allow the admin to create profiles for individual stylists, assign appointments to specific staff members, and track per-staff revenue and performance. This feature would be particularly valuable in salons where customers have preferred stylists they routinely request.

Finally, while the application is designed to be responsive and functional on mobile browsers, a native mobile application for iOS and Android would provide a more fluid and engaging experience for customers, particularly for appointment booking and appointment reminders through push notifications.

XII. FUTURE SCOPE

The current implementation of Style Hub establishes a solid and functional foundation. Several meaningful enhancements are envisioned for future development cycles.

- Payment Gateway Integration: Incorporating a payment gateway will enable customers to pay for appointments online at the time of booking, reducing no-shows through financial commitment and simplifying the checkout process after service delivery.
- SMS and Email Notification System: Automated notifications for appointment confirmations, reminders sent 24 hours before a scheduled appointment, and follow-up messages after service delivery would improve customer engagement and reduce missed appointments.
- Staff and Stylist Management Module: Adding individual stylist profiles with their availability schedules, service specializations, and booking histories would allow customers to choose a preferred stylist and help salon owners manage workload distribution across their team.
- Customer Loyalty and Rewards Programme: A points-based loyalty system that rewards repeat visits and service purchases would incentivize customer retention and provide salon owners with a tool for building long-term relationships with their clientele.
- Multi-Branch Support: Extending the data model to support multiple salon locations under a single administrative umbrella would make Style Hub suitable for growing salon chains and franchise businesses.
- Analytics and AI-Based Recommendations: Integrating machine learning algorithms to analyze booking patterns and customer preferences could enable personalized service recommendations and predictive staffing decisions during peak periods.

XIII. CONCLUSION

Style Hub represents a considered and well-structured response to a genuine operational challenge faced by thousands of small and medium-sized salon businesses. By bringing together proven web technologies in a purposefully designed application, the system addresses the core inefficiencies of manual salon management in a practical, cost-effective, and maintainable way.

The research and development process documented in this paper demonstrates that the gap between the operational needs of small service businesses and the solutions available to them can be bridged without the

complexity or cost of enterprise-grade platforms. Style Hub shows that a thoughtfully designed web application, built on accessible technologies like PHP and MySQL, can deliver genuine business value through automation, improved data management, and enhanced customer experience.

The functional and non-functional requirements defined during the design phase provided a clear and testable blueprint for development. The three-tier architecture ensures that the system is not only functional today but structured for extension and maintenance over the long term. The anticipated outcomes, from reduced scheduling errors to real-time business reporting, represent tangible improvements that salon owners and their customers will experience in their daily interactions with the system.

Future enhancements, including payment gateway integration, staff management, and mobile applications, will further increase the value of the Style Hub platform. The groundwork laid by the current implementation positions these extensions as natural evolutionary steps rather than requiring fundamental redesign. Style Hub thus stands as both a complete and deployable salon management solution and a platform with clear and meaningful potential for continued growth.

REFERENCES

- [1] Setmore Inc., "Online Appointment Booking for Salons," Setmore Platform, Available: <https://www.setmore.com/industries/salon> [Accessed: March 2026].
- [2] Toni&Guy International, "Official Salon Services and Brand Management," Available: <https://www.toniandguy.com> [Accessed: March 2026].
- [3] J. W. Krogh, *MySQL 8 Query Performance Tuning: A Systematic Method for Improving Execution Speeds*. Apress, 2020.
- [4] D. Sklar and A. Trachtenberg, *PHP Cookbook: Solutions and Examples for PHP Programmers*, 3rd ed. O'Reilly Media, 2014.
- [5] M. Otto and J. Thornton, "Bootstrap: The Most Popular HTML, CSS, and JS Library," Available: <https://getbootstrap.com> [Accessed: March 2026].
- [6] R. Nixon, *Learning PHP, MySQL and JavaScript: With jQuery, CSS and HTML5*, 6th ed. O'Reilly Media, 2021.
- [7] S. Subramanian and R. Kumar, "Digitalization in Small Service Enterprises: Impact on Operational Efficiency and Customer Satisfaction," *International Journal of Business Management*, vol. 11, no. 3, pp. 45-62, 2023.
- [8] P. Chen, "The Entity-Relationship Model: Toward a Unified View of Data," *ACM Transactions on Database Systems*, vol. 1, no. 1, pp. 9-36, 1976.