UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Software Design

Progress Report No. 1

Design Reviews

Submitted by:
Caasi, Karl Benedict
Mamanao, Kurt Marwin M.
Monoy, Justin Rhey
Poliño, Justine
Ramos, Jan Lawrence M.
Vasig, Yuan Hessed
Uy, Junichiro H.

Instructor:
Engr. Maria Rizette H. Sayo

Month, DD, YYYY

I. Objectives

To evaluate the feasibility of the proposed salon automation system design against the nine identified business problems, assessing technical implementation viability, team capability alignment, and validating the problem-solution mapping before detailed roadmap development.

II. Methods

A multi-faceted evaluation was conducted using the following structured approaches:

1. Problem-Solution Validation Matrix: Each of the nine salon problems was analyzed against its corresponding automation solution to assess technical complexity and implementation priority.
2. Technical Stack Compatibility Testing: The HTML/CSS/JS + Laravel PHP + MySQL + Hostinger architecture was evaluated for integration feasibility, security requirements, and performance characteristics specific to salon operations.
3. Role-Based Capability Assessment: Team skills were mapped against technical requirements, with particular focus on the backend engineer's dual responsibility for database design and business logic implementation.
4. Workflow Simulation Modeling: Critical user journeys (appointment booking, client management, billing processes) were simulated to identify potential bottlenecks in the proposed architecture.
5. Comparative Impact Analysis: Problems were weighted by business impact (revenue loss prevention, operational efficiency) versus implementation complexity to establish development priorities.

III. Results

Problem-Solution Analysis Validation: All nine problems demonstrate clear automation potential. Highest priority issues include:

- **Problem 1 (Manual Scheduling)**: Online booking with real-time sync presents high technical complexity but critical business impact.
- **Problem 2 (No-Shows)**: Automated reminder system requires SMS/email integration with moderate complexity.
- **Problem 3 (Customer Data)**: CRM implementation is foundational for multiple other features (retention, personalization).

Technical Architecture Assessment: The proposed stack supports all solutions but reveals integration challenges:

- Real-time synchronization for appointment booking requires WebSocket implementation.
- CRM data model must support complex relationship tracking (client-preferences-stylist-history).
- Inventory tracking requires automated alert systems with supplier integration points.

Resource and Timeline Findings:

- Backend engineer carries disproportionate workload (database design + API development + business logic).
- Laravel learning curve impacts early development phase (2-3 weeks minimum).
- Total implementation timeline exceeds single-semester capacity unless scope is carefully prioritized.

Critical Implementation Risks:

1. Database schema complexity for tracking customer preferences historically
2. Real-time availability synchronization across multiple stylist calendars
3. Payment gateway integration for deposit systems
4. Inventory tracking with automated reorder logic

IV. Conclusion

The design effectively addresses all nine salon problems through appropriate automation solutions. However, implementation feasibility is constrained by team composition and academic timeline. Success requires: strict prioritization of Problems 1-3 (scheduling, no-shows, CRM), extended Laravel training allocation, workload redistribution from backend engineer, and establishment of minimum viable product definitions for each development sprint. With focused scope management, the project remains achievable within constraints.

References

[1] Co Arthur O.. “University of Caloocan City Computer Engineering Department Honor Code,” UCC-CpE Departmental Policies, 2020.