St. John Paul II College of Davao

Ascribo: Dynamic Enrollment Mobile Appointment Application

In Partial Fulfillment of the Requirements

for the Subject CC106 - Application Development

and Emerging Technologies 2555C

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Executive Summary

Imagine walking into the enrollment process at St. John Paul II College of Davao (SJP2CD) and completing it quickly, efficiently, and with minimal stress—this is the vision behind Ascribo, a dynamic enrollment appointment application designed to transform the student enrollment experience.

Enrollment at SJP2CD is often long, tedious, and stressful for both students and staff. Ascribo addresses this by automating enlistment processes: it checks student eligibility based on prior grades, year level, and term, and suggests subjects to enroll in, including failed subjects if applicable. Administrative verification is retained to ensure accuracy and fairness.

The application also integrates online payment and appointment scheduling, reducing the need for physical trips to the school and minimizing crowd congestion. This allows staff to manage enrollments more efficiently, while students enjoy a guided, less stressful process.

Ascribo's main users are students, faculty, and administrative staff, all of whom benefit from increased efficiency, accuracy, and convenience. Though not yet implemented, the application demonstrates strong potential to revolutionize enrollment at SJP2CD by combining automation with human oversight and leveraging technology to reduce bottlenecks in school operations.

By streamlining enrollment, reducing congestion, and empowering students and staff alike, Ascribo showcases how targeted digital solutions can improve the educational experience, enhance operational efficiency, and pave the way for future technological innovations in education.

Mobile Application Description

Enrollment at St. John Paul II College of Davao (SJP2CD) is widely recognized as a lengthy and stressful process, often causing congestion for students and administrative staff (Smith, 2021). To address this challenge, **Ascribo** was developed as a dynamic enrollment appointment application designed to automate key aspects of enrollment while maintaining administrative verification for accuracy

and fairness. The application aims to streamline enlistment, subject plotting, and payment procedures, ultimately enhancing operational efficiency and user experience (Jones, 2020).

Purpose and Objectives

The primary purpose of Ascribo is to improve the enrollment process at SJP2CD by reducing manual workload and wait times. Its objectives include:

1. Automating eligibility checking for enrollment based on students' previous grades, year level, and term (Firebase, n.d.).
2. Assisting students with subject plotting, including failed subjects, while adhering to credit limits (W3Schools, n.d.).
3. Integrating an online payment system and appointment scheduling to minimize congestion (Stripe, n.d.).
   Ensuring administrative verification to maintain accuracy and fairness in enrollment decisions (Lee, 2019).

Key Features

- Automated Eligibility Checking: Calculates students' eligibility for enrollment.
- Subject Plotting: Recommends subjects according to academic requirements and failed subjects.
- Administrative Verification: Allows staff to confirm automated recommendations.
- Online Payment System: Facilitates digital fee payments, reducing physical trips (Stripe, n.d.).
- Appointment Scheduling: Provides students with assigned enrollment times to avoid overcrowding.

Technology Used

- Programming Languages: Kotlin for the mobile application, PHP, HTML, and JavaScript for the admin interface.
- Development Tools: Android Studio for mobile app development, web development tools for the admin interface, and Firebase for database management and authentication.

User Interface (UI)

The UI is designed to be clean, intuitive, and user-friendly, guiding students through the enrollment process with minimal steps (Lee, 2019). Screenshots below illustrates the workflow, including login, eligibility checking, subject plotting, payment, and appointment scheduling.

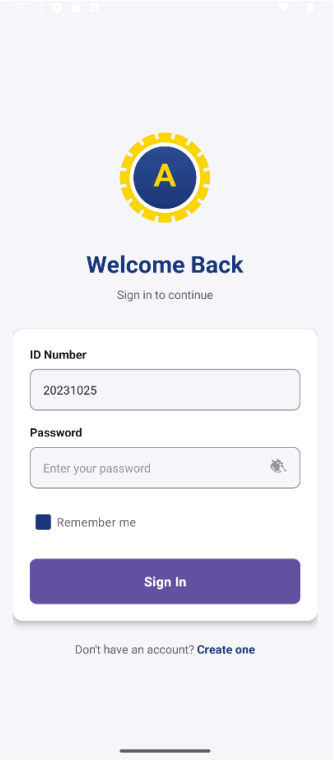

Figure 1: Login Screen

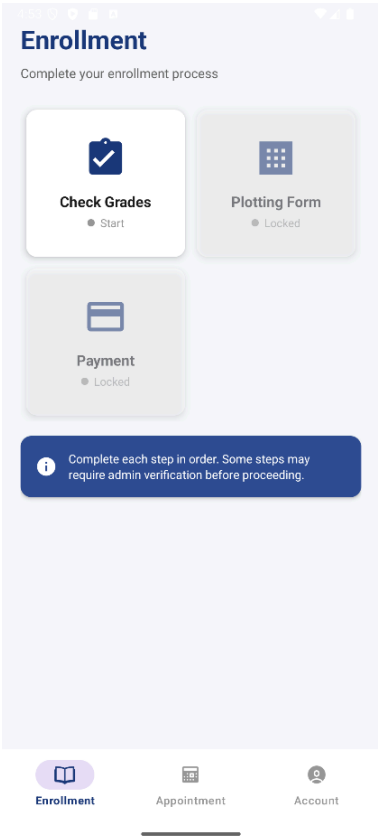

Figure 2: Enrollment Screen

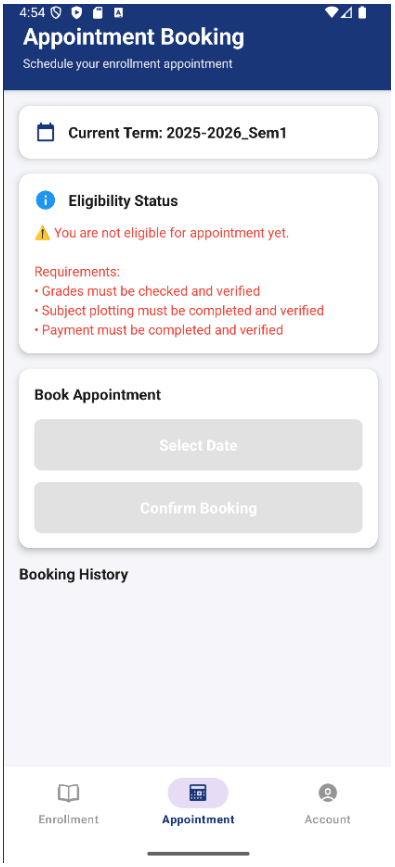

Figure 3: Appointment Screen

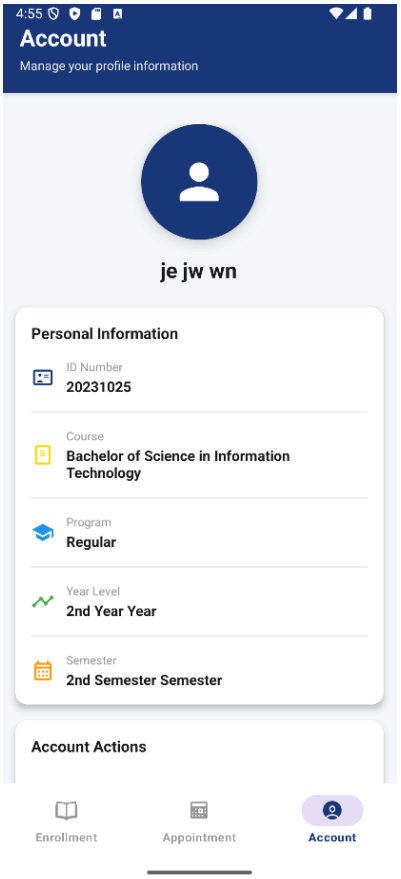

Figure 4: Account Screen

Technical Description

Ascribo primarily focuses on automating the enrollment process. It collects student data such as prior grades, year, and term level to determine eligibility and suggests subjects for enrollment, taking into account failed subjects and credit limits. While the system automates these core tasks, administrative staff still verify all outputs to ensure accuracy and fairness. The online payment system is integrated to facilitate transactions, and appointment scheduling helps guide students through the enrollment process. Additional features, such as notifications, have not yet been implemented, as the current version emphasizes process efficiency over supplementary quality-of-life enhancements (Jones, 2020).

Expected Benefits

For Students:

- Reduces stress and confusion during enrollment by guiding them through the process.
- Minimizes time spent in queues and manual checking of requirements.
- Provides clarity on what subjects they can enroll in based on eligibility.

For Administrators:

- Streamlines verification and enlistment processes, reducing repetitive manual work.
- Allows staff to focus on essential administrative tasks rather than handling every enrollment step.
- Reduces errors in eligibility checking and subject plotting through basic automation.

For School Operations:

- Helps manage student traffic during enrollment, reducing congestion.
- Provides a centralized system for tracking enrollments and payments.
- Serves as a foundation for future improvements, like notifications or enhanced UI, without overhauling the entire workflow.

SWOT Analysis

Strength	Weakness	Opportunities	Threats
Automates key enrollment processes (eligibility checking, subject plotting). Reduces manual	Lacks quality-of-life features (notifications, reminders, enhanced UI). Not fully polished	Potential to expand to other school operations (attendance, scheduling, records). Opportunity to	Resistance from school staff or students to adopt a new system. Competing enrollment solutions or

workload for staff. Helps students navigate enrollment efficiently. Centralizes enrollment and payment processes.	or fine-tuned. Limited current functionality beyond core enrollment processes.	implement additional features in the future (notifications, reports). Scalable for use in other schools or campuses.	manual processes entrenched in the institution. Technical issues or limitations affecting reliability.

Table 1: SWOT Analysis of Ascribo

The SWOT analysis highlights that Ascribo's main strengths lie in its ability to automate enrollment processes and reduce manual workload, which directly benefits both students and administrative staff. Despite these advantages, the application has weaknesses such as missing notifications, limited quality-of-life features, and the current lack of polish, which could affect user experience.

Looking forward, there are significant opportunities for growth. The app could expand to cover other school operations, integrate additional features, and potentially scale to other schools or campuses. However, there are threats to consider, including resistance to adopting a new system, competing solutions, or potential technical issues that may impact reliability. By leveraging its strengths, addressing weaknesses gradually, and proactively preparing for external threats, Ascribo can maximize its impact and become a foundational tool for digitalizing enrollment at SJP2CD.

Value Proposition Canvas

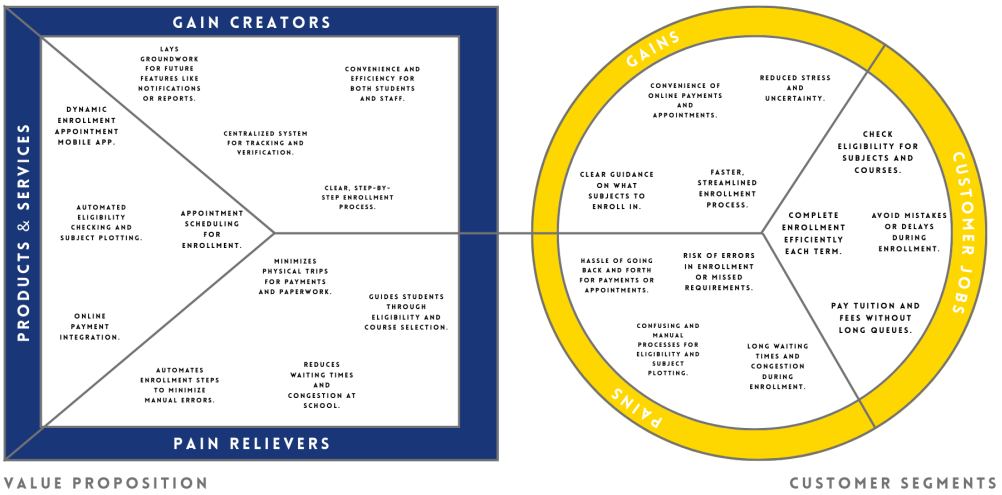

Figure : Value Proposition Canvas of Ascribo

The primary users of Ascribo are students and administrative staff at St. John Paul II College of Davao. These users face a time-consuming, confusing, and error-prone enrollment process, often resulting in long queues and unnecessary stress. Ascribo provides value by automating key enrollment steps, guiding students through eligibility and course selection, integrating online payments, and scheduling appointments to reduce congestion. By streamlining the process and centralizing verification, the app makes enrollment faster, clearer, and less stressful, while laying the foundation for future enhancements such as notifications or reports.

Market Study

Target Market

The primary users of Ascribo are students and administrative staff at St. John Paul II College of Davao (SJP2CD). Students range from freshmen to seniors who must complete enrollment each term and require guidance on eligibility, subject selection, and fee payment. Administrative staff handle verification, enrollment approvals, and manage student records. Their main needs include a faster, accurate, and organized enrollment process that reduces manual workload, long queues, and errors.

Market Description and Potential Challenges

Currently, enrollment at SJP2CD is conducted manually through counters, kiosks, and printed forms. While some schools may use basic online portals for information dissemination, most processes remain paper-based, requiring students to queue for verification, payments, and enlistment. Potential challenges for Ascribo include user adoption, as students and staff may be resistant to change from familiar manual processes. Technical issues such as internet connectivity, device compatibility, or server downtime could affect reliability. Cost considerations may also arise if maintenance or hosting fees need to be covered by the school.

Competitors and Competitive Advantage

Existing solutions in other schools or generic enrollment platforms may offer partial automation, such as online forms or scheduling. However, these often lack integrated eligibility checking, automated subject plotting, and administrative verification tailored to a specific institution. Ascribo's competitive advantage lies in its focused, process-driven design that automates the critical enrollment workflow while keeping administrative oversight, reducing congestion, minimizing errors, and providing a user-friendly experience specifically for SJP2CD. This combination makes it more suitable than general-purpose enrollment apps or fully manual systems.

Feasibility Study

Technical Feasibility

The Ascribo application was developed entirely by a single team member and successfully implements core enrollment processes, including automated eligibility checking, subject plotting, and a functional admin panel. While there are areas for improvement—such as scalability, performance under heavy usage, and refinement of the admin interface—the available tools (Kotlin, PHP, HTML, JavaScript, Firebase) and team skills were sufficient to build a working prototype. This demonstrates that the project is technically feasible, though additional optimization would be required for full-scale deployment.

Operational Feasibility

Ascribo is operationally usable and can guide students through enrollment efficiently. However, the system relies on administrative staff for manual verification to ensure accuracy and maintain trust in sensitive educational data. While this requires human involvement, it also reinforces the reliability of the enrollment process. Staff and students can adopt the system with minimal training, making operational implementation feasible, particularly in a controlled rollout.

Economic Feasibility

The project is cost-effective, as it leverages existing development tools and platforms. The rapid development of a functional prototype demonstrates that the system can be produced and maintained without significant financial investment. Future improvements may require additional resources, but the current version is economically viable for small-scale testing and initial deployment.

Schedule Feasibility

The application was developed in three days, showing that the core functionality can be completed within a short timeframe. Even with potential improvements and scaling considerations, the project can be realistically completed on schedule with a focused development plan, making it highly feasible from a time management perspective.

Project Implementation and Cost-Benefit Analysis

Project Implementation Plan

Development Phase

Planning and Requirements Gathering

The team analyzed the enrollment process at SJP2CD to identify pain points such as long queues, manual verification, and subject plotting issues. Core functional requirements, including eligibility checking, subject plotting, online payment, and appointment scheduling, were defined.

Design and Prototyping

Wireframes and mockups were created for both the student-facing mobile app and the administrative panel. The focus was on a clear, intuitive interface and guided workflow for enrollment.

App Development

The mobile application was developed in Kotlin, while the admin panel was built using PHP, HTML, and JavaScript. Core functionalities such as automated eligibility checking, subject plotting, appointment scheduling, and payment integration were implemented.

Testing and Debugging

The app underwent trial runs to ensure correct eligibility logic, subject plotting, and functional integration of the admin panel. Debugging addressed errors related to logic, UI flow, and data management.

Deployment

A prototype (v1.0) was prepared for demonstration purposes, capable of handling up to 5 appointments per day, allowing staff and students to test the workflow and usability.

Feedback and Improvement

Feedback from simulated users and self-assessment guided iterative improvements. Future versions aim to scale capacity, refine the admin panel, and add features such as notifications.

Timeline

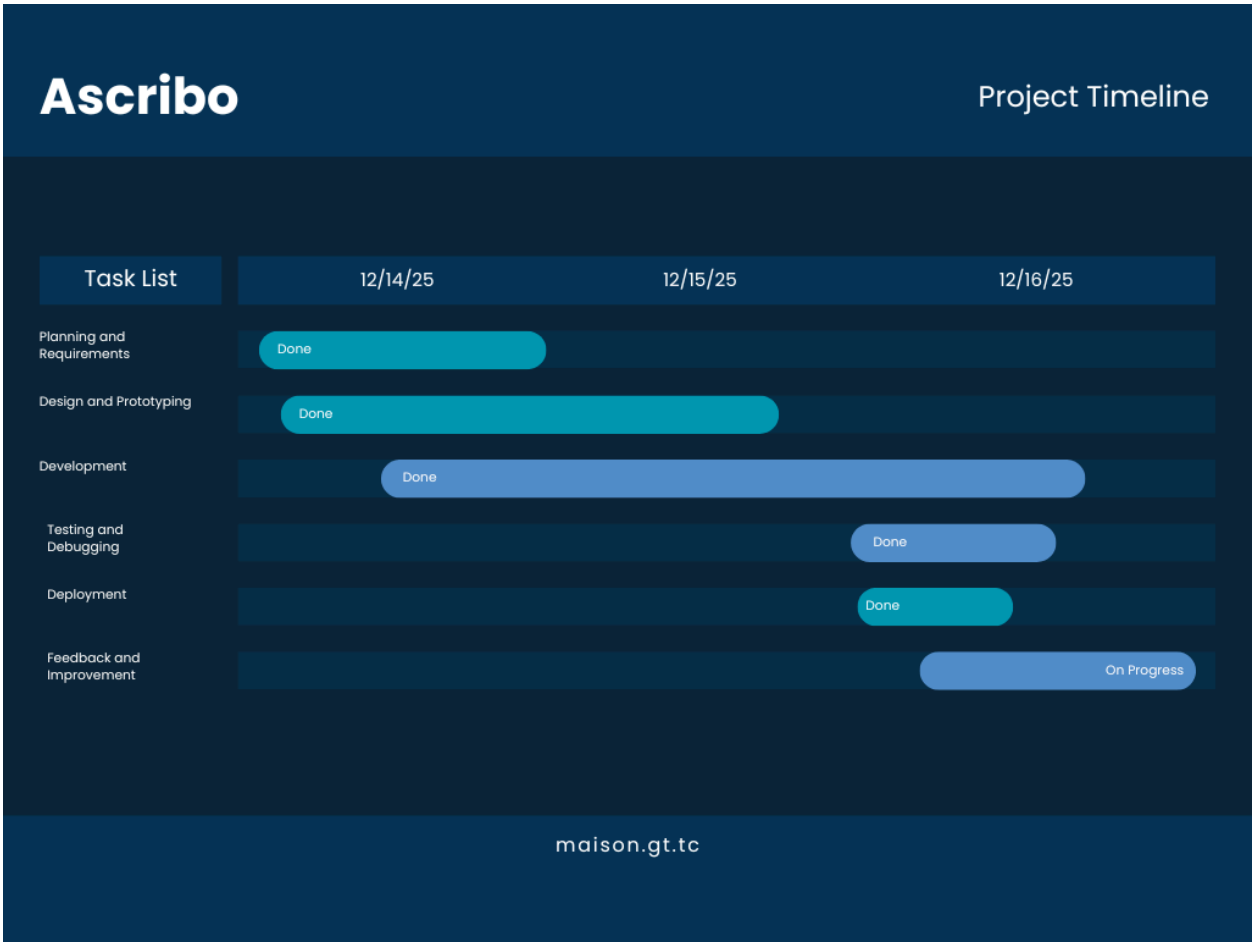

Figure : Gantt Chart of Ascribo

Team Roles and Responsibilities

- Programmer & Developer: Responsible for coding the mobile app (Kotlin) and the admin panel (PHP/HTML/JS).
- Researcher: Gathers requirements, studies current enrollment processes, and documents observations.
- Tester: Conducts testing and debugging of core functionalities. *(Handled by another team member)*
- Designer: Creates UI/UX layouts, wireframes, and prototypes. *(Handled by another team member)*

Note: In this project, the main developer also acted as the researcher, while the other team member supported the project as tester and designer. This collaboration demonstrates how the team managed to

develop a functional app prototype in a short timeframe despite limited resources.

Cost-Benefit Analysis

Estimated Cost

The development of Ascribo required minimal financial expenditure. No paid software or hosting services were used, and the project relied entirely on free development tools (Android Studio, web development tools, and Firebase free tier). The main costs were time and labor, including intensive coding sessions and testing over three days, as well as electricity and personal sustenance during long development hours. Any additional costs, such as future scaling or hosting for a full deployment, were not incurred at this stage.

Expected Benefits

- Time Savings and Efficiency: Automates enrollment processes, reducing manual verification, queues, and delays for both students and staff.
- Data Management and Communication: Centralizes student records, subject plotting, and appointments, improving administrative oversight.
  Positive User Experience: Provides a guided and structured enrollment workflow, reducing stress for students and workload for administrators.
- Long-Term School Benefits: Serves as a foundation for digitalizing enrollment operations, enabling sustainable and scalable improvements in school management processes.

Overall, the minimal initial costs and high potential benefits make Ascribo a highly cost-effective solution for improving enrollment processes at SJP2CD.

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