

**GlamSync: A Desktop-Based Inventory Management with Point-of-Sale
System for Miss Ivey Browsthetic Salon**

A Capstone Project Proposal

**Presented to the Faculty of the
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Methodology

The proponents of this research utilized **Agile Development** as their research methodology model, as it was considered the most effective approach for developing the software, **GlamSync**. Agile methodology was chosen because of its iterative and flexible nature, which helps for continuous improvements and adaptability throughout the development process. This research model significantly aided the proponents in systematically developing the software, since it is structured into specific segments known as **sprints**.



Technical Background

- **Technologies to be used**

The system GlamSync will be developed by using modern desktop-based technologies to properly ensure efficiency and continuous point-of-sale and inventory management for IV Browsthetic. The integrated development environment that the proponents utilize in the development of this system will be Visual Studio because of its smooth optimization in creating large projects such as GlamSync. Visual Studio also provides a user-friendly interface such as its drag and drop capabilities to provide more efficiency in creating the design and focusing more on the complex structures such as the backend and the database

of the code. In terms of the database, the proponents utilize SQL Server Management Studio since aside from its complex features such as its comprehensive data management, and its ability to provide a GUI per database, it also supports integration with Visual Studio which makes the connection of databases in the system in an efficient manner. It is also easier to back up and restore databases as to why it is the most suitable on the system.

Calendar of Activities

The development process of the system, GlamSync, will undergo and follow a systematic timeline that consists of key phases:

- **Requirements Gathering Analysis and Planning (weeks 1 to 2)**

During this timeframe, the proponents interview the admin of the Salon Ms. Jalene Dela Cruz regarding the problem in managing their sales, and Ms. Ivy Hervera, the owner of the Salon for suggestions and other main problems of the salon that required the need to develop a desktop-based system/application.

- **System/Application Design (weeks 3 to 4)**

During this period, the proponents will focus on designing the system, which serves as a blueprint for development. This includes planning how different parts of the system will work together, how data will be stored, and how users will interact with the application.

Initially, the proponents plan the system's structure, deciding on the main components, features, and technologies to be used. They also constructed an outline of how the front end (user interface) will appear on the system for proper visualization of how the application will look like. After planning, the proponents now then proceed to design the user interface (UI) by creating simple sketches or mockups of the system's layout.

- **System Development (weeks 5 to 7)**

During this period, the researchers will focus on developing the entire GlamSync system, including its user interface, core functionalities, and database integration. The system's UI will be designed using C# Windows Forms, ensuring a user-friendly and efficient experience. Key features such as button functionalities, secure login with role-based access, inventory management, and sales transaction processing will be implemented. Microsoft SQL Server Management Studio will be integrated for real-time data storage, while validation and error-handling mechanisms will ensure system stability. By the end of this phase, a fully functional prototype will be ready for testing and bug fixing.

- **Debugging and Testing (weeks 8 to 10)**

During this phase, the proponents will now proceed with thoroughly testing the functionalities of the GlamSync system to ensure it performs as expected. Each module, including the login system, inventory management, and other functionalities, will undergo unit testing to identify and fix any bugs or errors. After that, integration testing will be done to properly verify that all modules work together as a complete system. The proponents will also perform user testing by allowing selected salon staff (including the owner) to interact with the system and provide feedback on usability and performance. Any errors or issues encountered will be documented and resolved to enhance the system's overall stability and reliability.

- **Deployment (weeks 10 to 11)**

During this phase, the proponents will proceed with the deployment of the GlamSync system to Ms. Ivey Browsthetic Salon. The system will be installed on the salon's desktop computers, ensuring that all hardware and software requirements are met. Final configurations will be made, including connecting the system to its local SSMS/SQL database and setting up user accounts with appropriate access levels. The proponents will also conduct a brief orientation for the salon staff and the owner to familiarize them with the system's features. After deployment, the system will be monitored closely for any issues, and necessary adjustments or improvements will be made based on user feedback.

Resources

To fully complete the development process of GlamSync, the following resources are required and utilized:

- **Hardware**

A desktop PC or laptop equipped with an Intel i5 processor, a minimum of 8 gigabytes of RAM, and at least 256 gigabytes of storage is essential for ensuring a seamless and uninterrupted development process. These hardware specifications provide sufficient processing power, memory, and storage capacity to handle various development tasks efficiently, including coding, compiling, testing, and running applications. With a reliable system that meets these requirements, developers can work continuously without experiencing significant slowdowns, crashes, or hardware failures, which will enhance productivity and maintain workflow efficiency.

- **Software**

For the development of the system, Microsoft Visual Studio will be utilized as the primary integrated development environment (IDE), as it provides comprehensive features that support efficient coding, debugging, and testing. The system will be developed using C# as the programming language, which offers strong object-oriented capabilities. In terms of database management, Microsoft SQL Server Management Studio (SSMS) will be used to ease the organization, retrieval, and manipulation of data efficiently. SSMS provides a user-friendly interface for managing databases, writing and executing SQL queries, and ensuring smooth communication between the application and the database.

Requirements Analysis

Phase 1: Plan

During the planning phase, the researchers brainstorm ideas for their capstone project. Each researcher contributes suggestions and ideas to come up with the most suitable system to develop. After finalizing the system's ideas and planning its various functions, the researchers agreed to search for a suitable client who could benefit from their system. After meeting with potential

clients, the researcher decided to make Ms. Ivey Browsthetic Salon their client, as two of the members had personally experienced their services. The researchers conducted interviews to gather information about the salon's current inventory management and point-of-sales processes. They also discuss the challenges the salon faces with manual processes and collect suggestions for features to include in the proposed system. The researchers carefully note and document the needs and wants of the clients in the system during the interviews. The gathered information will help the researcher to guide them on how they will do the system and to know what the system should look like. The design phase was next in which the researchers should identify the design and function of the system based on the gathered data from their client.

Requirements Documentation

Phase 1: Plan

After gathering information on the client's business current situation, the researcher started working on the system's paper. The researcher began with the introduction where the project context, purpose and description, objectives, scope, and limitations were discussed. After the introduction is finalized, the researchers proceed with making the technical background that contains a discussion on the current technologies that are used in developing the proposed system, calendar of activities, and resources, along with the hardware and software that are needed in the proposed system. The researchers then proceeded into the methodology, where they explained the requirements analysis, along with the requirements documentation and the design of the software.

Design of Software, System, Product, and/or Processes

Phase 2: Design

In the design phase, the researchers created a blueprint to show how the system would be structured. This step is essential as it helps researchers improve the system's design, helping them prevent errors that could affect its overall functionality. To visualize the system's layout, the researchers used Canva to make a wireframe. This plan made it easier for the researchers to

understand the process and ensure everything was well-organized. These design steps are essential to keep the system on track and ensure a smoother development process.

Phase 3: Development

In this phase, the proponents will now proceed on the actual construction of the GlamSync system based on the finalized design specifications and requirements gathered from the earlier phases. The development process includes coding the application using C# in Windows Forms, building the user interface, and implementing all planned functionalities such as login authentication, Point-of-Sales, services, stocks, appointments, expenses, and sales reports. The researchers will also integrate the SQL SSMS database to enable real-time data storage and retrieval. This phase will also involve modular development, where each component of the system such as the Appointment module, and other functionalities mentioned earlier will be develop and tested individually before being combined into a single responsive system.

Phase 4: Testing

In this phase, the proponents, will conduct a series of testing on the system/ application, Glamsync to ensure its reliability, accuracy, and overall performance. The process begins with unit testing, where each individual module such as the login system, inventory management, and Point-of-Sale module is tested separately to identify and resolve any functionality issues. After successful unit testing, integration testing is conducted to evaluate how well the modules work together as a unified system. The researchers will then perform system testing to verify that the entire application meets the original requirements and behaves as expected under various condition that the client proposed. Also, user acceptance testing (UAT) will be carried out by allowing selected end-users, such as salon staff, to operate the system in a controlled environment and provide feedback on its usability and performance. Any bugs, errors, or areas for improvement identified during this phase will be addressed to ensure the system is stable, user-friendly, and ready for deployment.

Phase 5: Deployment

In this phase, the GlamSync system will be officially installed and implemented in the actual working environment of the salon, Ms. IV Browsthetic. The researchers will ensure that all hardware and software components are properly configured, and that the system runs smoothly on the target computers/laptops. User accounts will be set up according to role-based access, which are the Admin and Cashier, and essential data such as initial product inventory and user credentials will be preloaded into the system. A brief training and orientation session will be conducted to help staff understand how to navigate and use the system effectively. After that, the proponents will monitor the system's performance in real-time usage and provide support if technical issues occurs. Feedback from users will also be gathered during this phase to make minor adjustments or improvements for better system efficiency and user satisfaction.

Phase 6: Review

In this final phase, the researchers will evaluate the overall performance and effectiveness of the deployed GlamSync system. The review process involves gathering feedback from the end-users, including salon staff and management, to assess whether the system meets their operational needs and expectations. System logs, user experiences, and recorded issues during the deployment will be analyzed to identify any persistent problems or areas that may require further improvement. The researchers will also review the system's functionality against the initial requirements and design objectives to ensure all features were implemented as planned.