## 

[1. Introduction](#_q71w7tgkci9o)

[1.1 Purpose](#_v8a9zhrf87hm)

[1.2 Scope](#_ny6rovwm6ngc)

[2. Development Methodology](#_57yrwz74dsdy)

[2.1 Chosen Methodology: Agile/Scrum](#_1xy3pbr5t16x)

[2.2 Sprint Structure](#_qd7rmsi8v97e)

[3. Product Backlog](#_x0g7tcb9j7ax)

[3.1 Key Backlog Items](#_yd35gsi1f62y)

[4. Rationale for Design Decisions](#_dhkfuf3dedu)

[4.1 Technology Choices](#_m6x68pucg99f)

## **1. Introduction**

### **1.1 Purpose**

This document outlines the development process for the GlowVibe web application. It describes the approach and methodology used, as well as the rationale behind key design and technology choices made throughout the project. The goal is to document our development workflow and decision-making process to ensure transparency and a smooth project execution.

## **2. Development Methodology**

### **2.1 Chosen Methodology: Agile/Scrum**

For this project, we chose the **Agile** methodology with the **Scrum** framework. We felt this approach would give us the flexibility to adapt to changes, receive continuous feedback, and maintain a steady development pace.

**Why ?**

* **Iterative Development:** Breaking down the project into manageable sprints helped us focus on delivering functional features incrementally.
* **Collaborative and Transparent:** Scrum facilitated regular meetings with stakeholders, which kept everyone aligned and ensured we met user expectations.
* **Quick Adaptation:** The Agile framework allowed us to adjust to changing requirements without disrupting the overall progress of the project.

### **2.2 Sprint Structure**

We followed a typical **2-week sprint cycle** to keep development moving forward steadily.

* **Sprint Planning:** At the beginning of each sprint, the team reviewed the backlog and selected tasks to work on based on priorities.
* **Daily Standups:** Short meetings were held daily to discuss progress, blockers, and next steps.
* **Sprint Review:** At the end of each sprint, we presented the completed features to stakeholders for feedback.
* **Sprint Retrospective:** After every sprint, we discussed what worked well, what could be improved, and made adjustments for the next sprint.

## **3. Product Backlog**

### **3.1 Key Backlog Items**

The product backlog consisted of the core features and improvements that were prioritized based on business needs and user feedback.

Key items in the backlog included:

* **User Registration and Profile Management:** Allow users to sign up, log in, and manage their profiles.
* **Appointment Scheduling System:** Enable clients to book, modify, or cancel appointments with beauty professionals.
* **Service Catalog and Reviews:** Offer users a catalog of services, allow for filtering, and collect ratings and reviews.
* **Admin Dashboard:** Provide administrators with an interface to manage users, services, and appointments.

## **4. Rationale for Design Decisions**

### **4.1 Technology Choices**

We selected the following technologies based on their ability to meet the project's requirements and our team's familiarity with them:

* **React for Frontend Development:** React was chosen because of its efficiency in building interactive user interfaces. Its component-based architecture allowed for reusability and easy state management.
* **Node.js for Backend Development:** Node.js is fast and suitable for handling concurrent requests, which makes it a good fit for a service that will likely experience high traffic.
* **MongoDB for Database:** MongoDB’s NoSQL structure gives us flexibility in storing data that can evolve over time, which is ideal for the dynamic nature of the GlowVibe platform.

### **4.2 Design Patterns**

Several design patterns were applied to ensure a well-structured, maintainable, and user-friendly system:

* **Well-Structured Design:** The architecture is modular, making the system easier to scale and manage.
* **Maintainable Architecture:** The **Singleton Pattern** ensures a single database connection instance, improving performance and stability.
* **User-Friendly Interfaces:** The **Factory Pattern** generates appointment booking types based on user preferences, simplifying the interface.
* **Mediator Pattern:** Used in the Notification System to centralize communication, reducing dependencies and ensuring timely notifications.

## **5. Development Tools**

### **5.1 Tools and Technologies Used**

**1)Version Control:GitHub was used for version control, ensuring that everyone on the team could collaborate effectively and track changes.**

**2)Code Editors: VS Code was our primary code editor for both frontend and backend development, providing a fast and efficient coding environment.**

**3)Project Management:We used Jira to manage our tasks, sprints, and milestones, which helped us stay on track and ensure deadlines were met.**

**4)CI/CD Tools:docker/githup action**

**5)API Testing: Postman was used to ensure our APIs were working as expected and that the data flow between frontend and backend was correct.**

**6. Testing Plan**

**6.1 Unit Testing**

**Unit testing was crucial for verifying the correctness of our code.**

### **6.2 Integration Testing**

**We tested the integration of different system components (frontend, backend, and database) using:**

* **Postman: Used for API testing to validate that requests were being processed correctly.**

### **6.3 User Acceptance Testing (UAT)**

**We involved real users to test common use cases, like booking appointments and searching for services. Their feedback helped us identify any user experience issues, allowing us to improve the system before final release.**

## **7. Conclusion**

**The development of the GlowVibe platform followed a careful and structured process that focused on delivering a user-friendly, reliable, and scalable product. By using Agile/Scrum methodology, we ensured that the team remained adaptable to changes and delivered incremental improvements. The design choices, technologies, and testing strategies were all selected to ensure the project’s long-term success and to provide an intuitive, seamless experience for both clients and beauty professionals.**