

Integration and Design Decisions:

A layered architecture was chosen to clearly separate concerns, making the system easier to maintain, test, and scale. The Presentation Layer focuses on user-facing interactions and request handling, while the Business Logic Layer centralizes the core application rules and entity relationships. The Persistence Layer manages data storage and retrieval, ensuring clean separation from the business rules. By employing the Facade pattern, the Presentation Layer interacts with a simplified interface, preventing it from needing to understand the internal complexities of the Business Logic layer. This reduces coupling between layers and allows for smoother integration and changes over time.

At this stage, the design prioritizes clarity and maintainability over specific implementation optimizations. For example, the exact choice of database technology (SQL vs. NoSQL), caching strategies, or advanced authentication mechanisms have not been finalized. Deferring these decisions allows the team to focus first on a solid conceptual foundation. Additionally, while the current approach ensures a clean separation of concerns, it may require extra steps when integrating new features or improving performance later. These decisions will be revisited and refined as the project evolves and more detailed requirements emerge.