

Business Drivers *(the why and who)*

SharePlate is a platform for food providers to serve surplus food to customers at a lower price, in order to address the growing issue of food waste and provide an alternative solution for businesses and consumers.

Due to a significant amount of decent food being discarded each day, the current food industry results in a negative impact on the environment and a waste of resources and money. SharePlate solves this problem by connecting businesses with surplus food to customers looking for affordable and fresh food options. By doing so, SharePlate promotes sustainability, provides additional profits to food providers, and gives customers affordable food.

Vision Statement *(the WHAT and HOW)*

SharePlates reduces food waste by allowing food providers, NGOs, and educational organizations to post their food surplus before closing time to sell these products to customers at a lower price. Customers can reserve food and pick it up later, bringing convenience to different schedules.

It is common for food providers to lower their prices when they have a few unsold products before closing, but there is no platform that provides this information to customers. SharePlate differentiates itself from other food providers by focusing on the food surplus and supporting sustainability

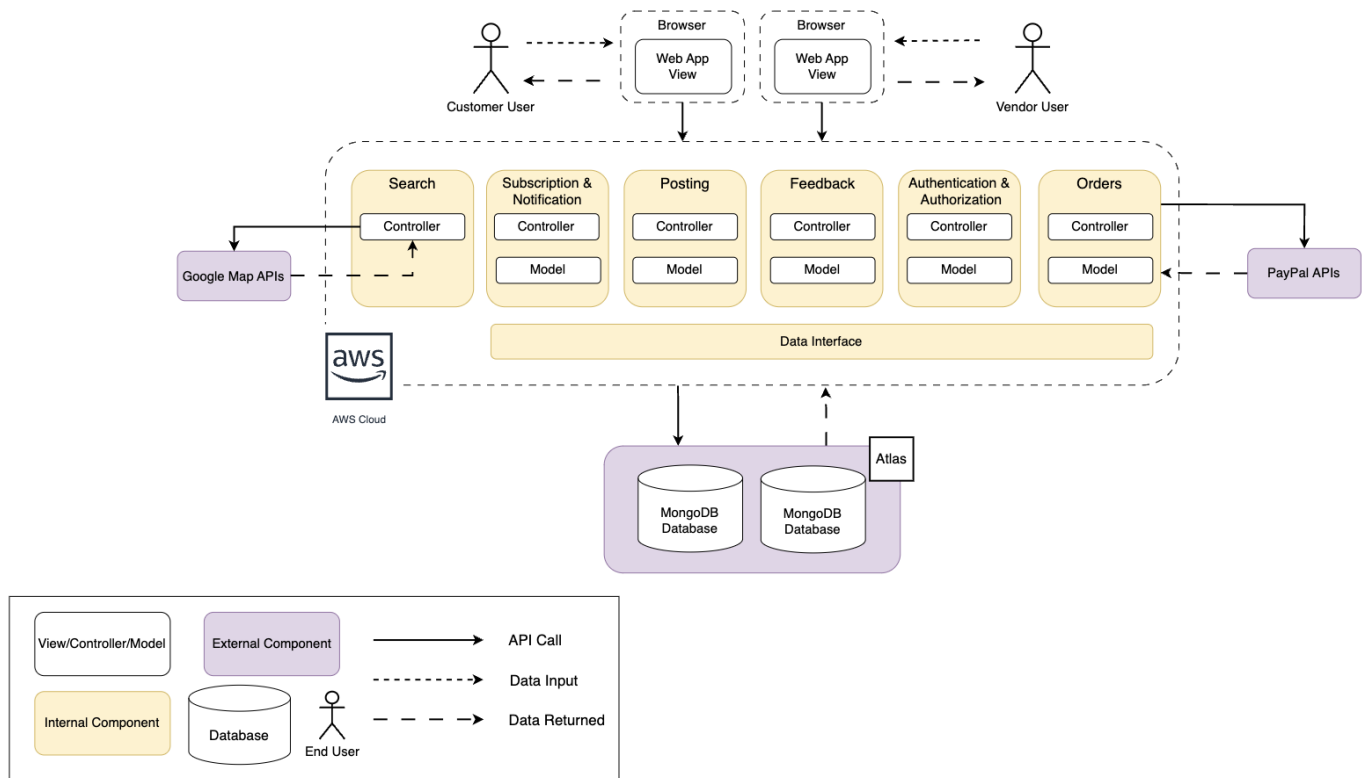
High-level functional requirements

- **Food Posting (Food Providers):** As a food provider, I can post food items for sharing or sale, along with details such as the amount available, its condition, and pick-up location.
- **Food Ordering and Pick-up (Customers):** As a customer, I can place an order for the food items posted by food providers and receive a unique pick-up code. This code can then quickly and easily retrieve the food at the designated pick-up location.
- **Food Provider Subscription and Notifications (Customers):** As a customer user, I can follow/subscribe to my favorite food providers and receive push notifications when new food items are posted for sharing or sale.
- **Map & Tag-based Search (Customers):** As a customer, I can use a map-based interface to search and navigate to the nearest food providers, view their location and distance, and get directions to their location.
- **Feedback and Rating System (Customers / Food providers):**
 - As a customer, I can provide feedback and ratings on the food resources, food providers, and the overall experience of using the platform.
 - As a food provider, I can report a no-show food getter, and the no-show rate can be used to punish or block specific clients.

Architectural decisions with rationale

- **MVC and Layer architecture styles:** The SharePlate application can be beneficial by the separation of concerns characteristics in the MVC architecture and the scalable structure in the Layer architecture, helping to ensure reliable and efficient performance for the platform.
- **MongoDB Atlas:** We might receive different or frequently change schemas from food providers or in terms of scaling out the service or feature of our platform. By providing a scalable and flexible solution for handling unstructured and semi-structured data, MongoDB can help SharePlate to accommodate changes in data structures and scale the platform's features and services as needed.
- **Google Map API:** The use of the Google Maps API in the SharePlate service provides accurate, efficient, and customizable mapping and location data that can help to enhance the user experience and provide valuable context for the platform.
- **Protocol:**
 - **RESTful API with HTTP**
Provide a flexible and scalable way of accessing and exchanging data.
 - **WebSockets**
Allow real-time updates for all users. For example, customers will be able to fetch real-time notifications and relevant posted data.

The high-level architecture diagram (HLAD)



Our system follows a typical MVC architecture. The system is equipped with 6 components which function as food posting, ordering and pick-up, subscription and notifications, map and tag-based search, feedback and rating system, and authentication respectively.

End users can interact with the frontend view module by clicking or inputting data, and the web app will request the backend for related services via REST APIs.

Our map and tag-based search components are powered by Google Map public APIs, and the application will be deployed on AWS. The database is separated from the application and will be deployed on Atlas.