Lab 1 – TasteBuddies Product Description

Ashley Barasebwa

Old Dominion University

CS411W

Professor Sarah Hosni

31 January 2025

Version 1

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1 Introduction

Dining out holds an important place in modern society as it offers more than just a meal. Dining out offers a safe, enjoyable experience for people to share a meal together. Restaurants promote stronger bonding between individuals and increase the well-being of individuals. According to the University of Oxford (2017), communal eating increases an individual's well-being, social bonding, and happiness. Research suggests that 50% of American diners prefer to dine out in a group (HarrisPoll, 2017). Dining out also presents a convenient alternative to cooking, due to people not having the time or the skill to cook food at home. However, with rising food costs due to inflation, dining out has become a more expensive and risky decision for the average consumer.

In recent years, inflation rates for dining out have increased to 4.2%, while inflation rates for eating at home have increased 1.2%, which makes dining out more expensive than dining at home (University of Oxford, 2017). The high financial risk makes it essential for individuals to have a dining experience that provides value and aligns with their tastes and dietary needs. A common challenge is choosing a restaurant, as generic reviews often fail to reflect individual preferences. Current restaurant review platforms tend to deliver broad opinions, AI-generated content, or feedback from users with varying tastes, which makes it difficult to identify reliable recommendations. Accurate recommendations are also hard to identify because about 30% of online reviews are fabricated (Vaghasiya, 2024).

With multiple review sites and numerous restaurant options, diners often face overwhelming choices and experience decision fatigue. This results in consumers not being able to confidently choose meals they will enjoy based on taste. The issue becomes even more complex when dining in groups, as trying to accommodate everyone's dietary preferences,

allergies, and tastes often forces individuals to choose restaurants they don't enjoy to keep the peace. All these issues stated reflect a gap in the dining industry, where personalized guidance based on individual and group tastes remains insufficient.

An effective solution to the challenges of dining out should provide personalized recommendations that cater to individual tastes and dietary restrictions while accommodating group preferences. It should leverage crowdsourced data to ensure reliability and adaptability, reducing decision fatigue and enhancing user confidence in restaurant and dish selection. Also, the solution must minimize stress by enhancing the dining decision-making process and offering an intuitive user experience. TasteBuddies embodies these characteristics by utilizing tailored recommendations, personalized taste profiles, and real-time data to deliver a seamless and enjoyable dining experience. The application offers a solution to the difficulties of dining out by delivering reliable recommendations that align with taste preferences and group needs, while reducing overwhelming stress, delivering reliable recommendations and fostering a more rewarding dining experience.

2 Product Description

TasteBuddies is a cutting-edge dining recommendation platform designed to transform how individuals and groups choose restaurants and dishes. The product aims to address the common challenges of decision fatigue, group indecision, and the lack of personalization in dining experiences by providing advanced machine learning and intelligent systems. It simplifies the often overwhelming process of selecting a restaurant or dish by providing tailored suggestions that align with individual and group preferences. The process of choosing a dish that aligns with personal taste preferences can be difficult and overwhelming for individuals. The platform accommodates diverse needs, such as dietary restrictions, allergies, and specific taste

preferences, ensuring that every dining choice is both satisfying and inclusive for everyone who dines out.

2.1 Key Product Features and Capabilities

Major features of the product include taste profiles, live updates and intelligent systems. Taste profiles provide the option for users to select their favorite restaurants, dishes and input their preferences for core taste components, such as spicy, salty, sweet, sour, and savory tastes. The profile will also use machine learning to refine taste profiles and improve recommendation accuracy. Unlike other dining platforms that depend on generic reviews, TasteBuddies prioritizes personalization by incorporating user-specific taste preferences. Filters for allergies, dietary restrictions and preferred dining experiences are included to provide the user with their specific needs, so individuals can enjoy their dining outing. Live updates offer a daily dish feed, which consists of a live report and relevant reviews pertaining to a person's dining preference. These updates ensure that users always have access to fresh, relevant recommendations tailored to their preferences and food choices. Unlike traditional review platforms, where information can quickly become outdated, TasteBuddies delivers real-time insights that adapt to changing restaurant conditions.

Compared to other food-catering applications, TasteBuddies uses crowdsourced data to provide real-time insights and updates. Competing platforms may offer general restaurant reviews, but they lack the ability to provide users with immediate, location-specific details on wait times, dish availability, and operational status. The crowdsourced data ensures that information is up-to-date and reflects accurate dining trends and user feedback. Crowdsourced data also allows users to report on restaurant wait times, dish availability, and if a restaurant is currently closed to a community. By integrating data from a wide range of reliable sources, the

platform delivers accurate and dynamic suggestions that adapt to changing circumstances, such as new menu items or the quality of the dining experience.

This feature not only enhances user convenience but also helps restaurants reach their target audiences more effectively by showcasing their most popular or unique dining offerings. Google API is an application programming interface that displays the current and expected business levels of a restaurant in real time through Google's crowd data.

The integration of the Google API adds a dynamic and practical feature to the platform by providing real-time insights into restaurant activity. This information is valuable to customers, allowing prospective diners to view a restaurant's current availability. It also enables users to make more informed decisions about where and when to dine. This functionality helps users avoid long wait times by identifying less crowded periods, and ensuring a more seamless and enjoyable dining experience. Additionally, this feature is particularly useful for individuals and groups with busy schedules, allowing them to plan their dining visits more efficiently. By utilizing this real-time data, the platform enhances user convenience and satisfaction while contributing to a more efficient and enjoyable dining ecosystem.

2.2 Major Components (Hardware/Software)

Major components are displayed in a major component diagram that entails the presentation layer, application layer and data layer. The presentation layer consists of the user interface, social features and dining filters. The user interface contains a smartphone application and a web application. Social features include TasteBuddies, SuperTasteBuddies and DailyDish feed which contains new dishes and curated reviews. Dining filters use the location, food dish and occasion in the presentation layer. The application layer includes a web server, user profile manager, taste matching algorithm, recommendation algorithm, group dining algorithm and

location services. The user profile manager contains user registration and login preferences. The group dining algorithm allows the pairing of other users for recommendations. The data layer offers a PostgresQL database that provides user data, review data and restaurant data. The data layer also contains a storage and CDN that provides images, reviews and social posts. All the layers in the major component diagram help offer tailored recommendations for all users and interactive experiences that keep users engaged and informed about the best dining options available.

3 Identification of Case Study

TasteBuddies is designed for a wide range of users, such as adventurous eaters, travelers, foodies, and groups of people who want to dine out together. For individual diners, the platform caters to both adventurous eaters seeking new culinary experiences and conservative eaters who prefer familiar options. Travelers and food enthusiasts, or "foodies," will also benefit from personalized recommendations tailored to their tastes and preferences. Groups of people are another key audience, as the platform simplifies the challenge of finding dining options that accommodate diverse preferences, dietary restrictions, and group dynamics. TasteBuddies is also for Restaurants, the platform provides a valuable tool for dining restaurants aiming to attract specific clientele or promote dynamic menus. The product also contributes to the local economy by encouraging diners to explore nearby establishments, promoting economic activity in the surrounding community. Event organizers and businesses adjacent to restaurants, such as retail stores, stand to benefit from the increased foot traffic generated by TasteBuddies users.

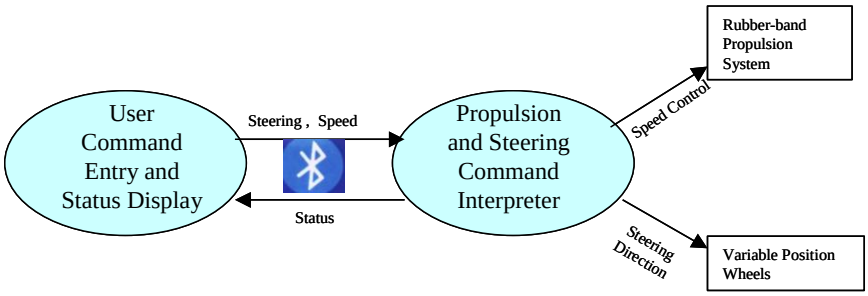
TasteBuddies is designed to enhance the dining experience for individuals by offering personalized and convenient solutions to common challenges of choosing a restaurant. One key feature is dish recommendations, where the platform analyzes a user’s taste profile and suggests

dishes they are likely to enjoy based on taste preferences and dietary needs. Additionally, restaurant recommendations allow diners to discover new dining spots that match their culinary interests and location. For group restaurant recommendations, TasteBuddies offers a unique feature that helps groups of diners find a restaurant that caters to everyone's tastes, dietary restrictions, and preferences. Whether a group has vegan, gluten-free, or other dietary needs, the platform ensures that everyone is considered in the decision-making process, minimizing the stress and frustration of group indecision when dining out.

To further improve the dining experience, opt-in live updates keep users informed about real-time changes in restaurant availability, special promotions, and any upcoming significant events. For example, diners can opt-in to receive notifications about daily specials or limited-time menu items, ensuring they never miss out on exciting offers or new dining opportunities. These live updates are provided by both restaurants, which can share real-time data directly with users, and crowdsourced data from other diners, which adds to restaurant offerings and customer satisfaction. Restaurants can benefit from TasteBuddies by using the platform to communicate directly with diners through live updates. These updates can include new menu items, limited-time offers, or promotions that cater to specific customer needs. For example, a restaurant could alert customers about a seasonal dish or a happy hour special, encouraging more dining visits and increasing customer engagement.

The platform also facilitates targeted client outreach, allowing restaurants to reach their desired audience more effectively. By leveraging customer data and preferences, TasteBuddies can help restaurants market specific dishes or events to users who are most likely to be interested, thereby boosting customer retention and satisfaction. In the future, TasteBuddies has the potential to expand its impact further. Community event organizers may use the platform to

recommend dining options for event attendees, while global expansion could make TasteBuddies an essential tool for international travelers. Additionally, food supply vendors could leverage the platform's insights to better align their offerings with evolving consumer preferences and market trends. By addressing these varied needs, TasteBuddies is well-positioned to become an essential resource for diners, restaurants, and communities.



4 Product Prototype Description

- Provide a top-level description of the CS 411W prototype as it relates to the end product from CS 410 (i.e., the goal).
- Are capabilities reduced or eliminated? Simulated – modeled?
- Include a *Table of Comparison between RWP and Prototype* in section 4.2

Figure 1: Product XYZ Major Functional Component Diagram

Product XYZ Major Functional Component Diagram

<Note the format of labeling the figure: figure/table number should be bold followed by a line break with the title of figure/table in italics>

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Table 1: Table of Comparison Between RWP and Prototype

Table of Comparison Between RWP and Prototype

Feature	Prototype	Real World Product
a propulsion system	Rubber band	Belt
fixed position wheels	Same as RWP	Same as Prototype
variable position wheels	Same as RWP	Same as Prototype
cockpit	Simulated using PC-based display and Bluetooth	Operator will use
Exhaust distribution element	Simulated on PC-display	Real combustion

<Note: A figure/table should be embedded within a section. There should be text before and after a table/figure. A section should neither start nor end with a figure/table.>

5 Glossary

Crowdsourced Data: User-generated data on restaurant wait times, dish availability, and quality, among others.

Curated Reviews: Reviews presented and weighted based on users with similar Taste Profiles.

Daily Dish Report: Provides live updates from TasteBuddies and restaurants such as new reviews, specials, and dishes.

Data clustering: Grouping diners in a group that is more similar to determine taste profiles and recommendations

Dining Filters: Ability to filter restaurants by location, cuisine, occasion, and how busy they are.

Generic reviews: The issue of unauthentic online reviews, which the app addresses by focusing on personalized recommendations.

Google API: An external tool integrated into the app that provides real-time data on how busy a restaurant is.

Group Dining Algorithm: Algorithm that combines multiple users profiles and provides reviews for restaurants and dishes that best match the group preferences.

Group Indecision: Conflicting opinions and preferences of a group lead to more difficult decision making which causes delays.

High financial risk: The risk of losing/wasting money based on a decision.

ODU: Old Dominion University.

Overwhelming choice: An excessive number of options to choose from which makes decisions difficult.

Recommendation Algorithm: Algorithm that provides users with relevant recommendations based on their matched TasteBuddies, taste profile, and interacted content.

Restaurants: Venue that provides a sit-down dining experience where primary revenue is prepared food. It must have a nice bathroom.

Safe space: Space where people are free to express and enjoy their interest without fear of being judged.

Social engagement: Promote users to interact with one another and be involved within the community.

Super TasteBuddies: Taste influencers or food experts that have specialized knowledge and can recommend specific cuisines or dishes.

Tailored Recommendations: Personalized recommendations based on a user's taste profile.

TasteBuddies: Users with highly similar taste profiles which lead to improved recommendations based on aligned tastes.

Taste Matching Algorithm: A key Algorithm of the app that pairs users based on similar taste profiles.

Taste Profiles: Personalized profiles created by each user based on their taste preferences, such as preferences for spicy, sweet, salty, etc.

6 References

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