Lab 1 – TasteBuddies Product Description

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1 Introduction

Food is one of the most basic needs for survival, but over centuries it has grown to mean much more than just sustenance. Different regions and cultures have grown different produce and grains and raised livestock, both of which have shaped their unique culinary traditions. Today, people continue to experiment with different fusions and new cuisines, driven by their love for food. It brings people together, whether it be a feast cooked at home or a night out with friends. A study by the University of Oxford has shown that communal dining can significantly improve individual wellbeing, mental health, and overall happiness (Dunbar, 2017). The benefits of communal dining extend to providing valuable social bonding and interaction. It is clear that food brings people together in ways that go beyond basic survival.

When deciding to gather for a meal, individuals and groups face two main choices: to cook at home or to dine out. While home-cooked meals are often considered the more economical option, many individuals, especially within Millennials and Generation Z, face obstacles that make this choice difficult. Research indicates that over 70% of individuals in these demographics report a lack of time to cook or grocery shop for necessary ingredients (Smith, 2022). Additionally, many lack the space, tools, or basic skills needed to cook, with 45% of Gen Z individuals reporting they do not have basic cooking skills (Brown, 2023). This has led to large numbers choosing to dine out instead. As these individual preferences continue to grow, the effects of these decisions can be seen on both the wider and local economies. In 2023, consumer spending on dining out exceeded $1.5 trillion (National Restaurant Association, 2023). The number of families choosing to dine out continues to grow reaching and even exceeding pre-pandemic rate (Jones, 2023). It’s clear that dining out offers not only convenience and

practicality for busy individuals but also opportunities for social connection and enjoyable experiences.

However, dining out has its challenges, primarily due to rising costs. While general inflation is up 2.53%, restaurant inflation is up even higher at 4.1% (U.S. Bureau of Labor Statistics, 2024), causing dining out to become a financial risk for many. Further, the choice of where to dine has become increasingly difficult. While there is still good information on review sites, the growing number of platforms makes it increasingly difficult to sift through them all. Additionally, generic or falsified reviews have become a widespread issue. Many restaurants incentivize positive reviews with discounts or freebies, leading to inconsistent feedback. Even more troubling, some restaurants use AI-generated reviews to boost their ratings, or even use false negatives to lower competitors' ratings. Reports indicate that around 30% of online reviews are fake, with up to 50% of reviews manipulated in some way (Johnson, 2024). Additionally, it can be difficult for diners to trust legitimate reviews, as preferences vary greatly among individuals. This issue is compounded when deciding where to eat as a group, as members may have different tastes or dietary restrictions.

With the growing number of restaurants and review sites, alongside the difficulty of identifying dishes people will enjoy, diners can feel overwhelmed. A solution is needed to simplify this process. This solution should offer trustworthy recommendations tailored to individual preferences. Additionally, it should accommodate group dining scenarios, balancing different tastes and dietary restrictions for individuals to enjoy a shared dining experience. TasteBuddies aims to provide this solution by focusing on personalized recommendations for both individuals and groups. This will be done by shifting the review focus towards individual dishes.

Through TasteBuddies, users receive a more accurate picture of their potential dining experience. Each user's taste profile will be established during account setup and will evolve based on feedback from dishes they've tried. Using these profiles, users will be matched with others who share similar tastes, giving higher weight to reviews from these matches. Users will also be able to filter their searches by criteria such as cost and cuisine and even request group recommendations. This group dining feature allows users to add multiple profiles to a search so that TasteBuddies can weigh reviews accordingly and suggest options that best match the entire group's preferences.

TasteBuddies aims to remove the guesswork and stress associated with choosing where and what to eat. By providing reliable and personalized recommendations, Tastebuddies reduces the financial risk that diners face while enhancing their dining experiences. In turn, restaurants benefit from less food waste and increased revenue, helping to boost the local economy and overall community happiness.

2 Product Description

TasteBuddies is an application designed to help users decide where to dine by offering personalized recommendations, real-time updates, and group dining options. The goal is to take the stress out of choosing where to dine while creating a more enjoyable experience tailored to individual and group preferences.

2.1 Key Product Features and Capabilities

The core of what makes TasteBuddies unique is its Taste Profiles for individual users. Users will set their taste profile during account creation, consisting of information such as current favorite restaurants and dishes, as well as allergies, dietary restrictions, and several other factors. Users will be presented with a series of photos and choices to gauge their interest in certain dishes or environments. This information will be processed into their Taste Profile, which will

then be used to match them with other users that have similar tastes and preferences. This unique feature is what allows TasteBuddies to curate their recommendations and reviews to the individual diners. By tailoring these recommendations to users' specific tastes and preferences, TasteBuddies reduces the likelihood of unsatisfactory dining experiences and enhances the overall user satisfaction.

TasteBuddies will also integrate live updates in order to keep its users informed. These updates will be crowdsourced from other users as well as the restaurants themselves and will contain information such as the newest specials or dishes a restaurant is offering, as well as alerts, such as the restaurant selling out of an item, abnormal spikes in business and crowds, or unexpected closure. These real-time updates ensure users have the most accurate information when deciding where to dine, reducing the chances of a negative dining experience. These updates will be passed to the user through the Daily Dish. The Daily Dish is a feed that the user will be greeted with when they log into the app. This feed contains these live updates and featured specials from local restaurants, as well as reviews and reminders that are personalized to the user. The reviews offered will be from users with similar taste profiles, as well as any friends the user has made within the app. The Daily Dish will also occasionally have a reminder from the user's list of saved dishes, allowing the user to view all this relevant information in one convenient location.

Additional intelligent systems for TasteBuddies will include its ability to search for restaurants for an individual, as well as its group dining option. The group dining feature will allow users to add multiple taste profiles to a search and provide the user with suggestions for restaurants and dishes that best match the group that is dining.

2.2 Major Components

These components have been broken down into a traditional three-layer architecture consisting of presentation, application, and data layers. The presentation layer will be the main user interface between diners and restaurants. This is where the Daily Dish will operate as well, using real-time updates from the application layer to relay information directly to the users. The application layer is where the core of our algorithms will operate. Algorithms for taste matching, group dining, and recommendations will communicate with the data layer in order for the app to provide all its features to the user. Real-time feedback will also be processed in the application layer. Our data layer is where all this information will be stored. Using a PostgreSQL database will allow TasteBuddies to keep all of its data organized and accessible. This architecture will help TasteBuddies run fast and smooth, ensuring users reliably receive real-time updates and personalized recommendations that will enhance their dining experience.

3 Identification of Case Study

The TasteBuddies user base includes both diners looking for enjoyable dining experiences and restaurants looking to reach their target customers. Travelers and tourists have a lot to gain considering 25% of the average travel budget is reported to be spent on dining out (U.S. Travel Association, 2020). Additionally, group organizers benefit from TasteBuddies' group dining feature which combines taste profiles to suggest restaurants that cater to everyone's preferences, reducing the stress of planning group outings.

Restaurants will benefit from TasteBuddies by connecting with diners who are more likely to enjoy what they offer, thanks to personalized recommendations. The Daily Dish feature allows restaurants to feature specials and dishes, expanding their reach to a wider audience. With more visibility and happier guests, restaurants will benefit from less waste due to food being sent back

or unsold specials. In turn, the local economy will also benefit from these recommendations, as happy diners are more likely to return to the area and explore the nearby businesses.

Prototype testing will be conducted in a localized area to ensure the recommendations are relevant and meaningful. The case study group will include local diners, group organizers, and restaurant industry workers, whose feedback will be used to refine the app's features and improve the user experience. Focusing on a local community will allow TasteBuddies to test real-world scenarios and optimize recommendation algorithms for group dining and individual preferences.

Looking forward, as the user base grows, TasteBuddies will expand its reach, making it a powerful tool for travelers seeking their next favorite meal and for group organizers planning large events. As more users join, the recommendation algorithms will continue to improve and recommendation accuracy will grow. Additionally, engagement features such as badges and rewards encourage user participation and foster partnerships with restaurants looking to expand their customer base. While TasteBuddies' mission to connect diners with food they love remains constant, its impact and value will continue to grow as the platform and community expand and evolve.

4 Product Prototype Description

4.3 Prototype Architecture (Hardware/Software)

4.4 Prototype Features and Capabilities

4.5 Prototype Development Challenges

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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.

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