# Lab 1 – TasteBuddies Product Description

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# 1 Introduction

Dining out plays an important role in people's lives; it is not only used as a chance to eat great foods but also to provide social engagement, a safe space, and bring people together to enjoy each other's company. Studies show that people hold communal eating in high regard as 50% of American diners prefer to eat out in a group (Oxford, 2017; Harris Poll, 2017). Dining out in a group of family and friends can help with a person's social bonding and well-being. While cooking at home is always a viable option, it can be inferior when compared to dining out as people may not have enough time, cooking skills, or other resources to get the same quality or experience. While dining out does provide all these benefits, it does also come with its challenges, one of which being inflation which has become more prominent in recent times.

Over the past year, inflation has driven the prices of items up 2.53% and the cost of dining out has risen even higher by 4.1% (Grieve, 2024; Vaghasiya, 2024). The rise in prices creates challenges, as it can cause people to avoid dining out in fear of wasting money or an experience they won't enjoy. While the financial risk is a major challenge opposing dining out, it is not the only concern that creates challenges. Other challenges that are present when choosing to dine out are the overwhelming number of dishes and restaurants to choose from and the online reviews not being a true reflection of the food's taste. Large groups of people can also be a challenge as they can struggle to agree on what to eat as their preferences can differ or people may have certain dietary restrictions and or allergies. All these challenges that can stem from dining out can lead to a frustrating and unenjoyable dining experience and can be traced back to the high financial risk.

To counteract these challenges and give individuals the greatest chance of an enjoyable dining experience, a solution must be put in place. One solution is to ensure people are finding the foods that align with their tastes, which would allow for dishes and restaurants to be found

based solely on an individual's tastes and preferences. This can be achieved through personalization, which would allow for a person to get tailored recommendations rather than having to rely on the generic reviews of others who might not share similar tastes. Everyone's taste profiles are not the same so it's important that recommendations are reflective of an individual's taste profile. In addition, this solution can be taken further and consider the taste profiles of many people to eliminate the struggle of group indecision. This will help in reducing food waste as it will make it more likely people will enjoy food and not have to send it back. It will also help in ensuring that people will have the enjoyable dining experience they are looking for which leads to more money being spent, higher tips, and both customers and restaurants being happy and benefiting. For those that want this level of personalization among other features, Look no further than TasteBuddies.

# 2 Product Description

TasteBuddies is an application that is designed to help make the dining experience the best it can be by finding the food that is right for an individual's taste. TasteBuddies will help individuals find foods that best fit their tastes and reduce the chances of meal dissatisfaction and wasting money. By using and interacting with the app, the Tastebuddies taste profile algorithm will better learn the user, and in return be able to give better recommendations. It is important to note that users can also connect with “taste buddies”, which are users who have similar tastes to them, and get recommendations from them as well. The app will not only connect users to food they will enjoy, but also to a community of people who have a love for food.

## 2.1 Key Product Features and Capabilities

What makes TasteBuddies unique is its real time updates and the emphasis it puts on personalization. Taste profiles are a notable example of this, as they will allow users to set their

food preferences and indicate dishes they already enjoy, enabling recommendations that are continuously improved over time through machine learning. The filters for the taste profile will also include aspects like allergies, dietary restrictions, and the user's preferred dining experience. Personalization isn't the only thing Tastebuddies is capable of, as it will also allow users to get live updates to ensure the users get a good dining experience.

The live updates feature of TasteBuddies will allow users to know exactly what is going on in the restaurant in real-time. The Daily Dish Report provides live updates for the restaurant that will show users the specials available for the day and the latest reviews and dishes. Crowdsourced data is also used in the app, which, through the reports of other users, will allow users to see things like wait times, dish availability, and if a restaurant is unexpectedly closed. Another key feature of the app is its integration with the Google API, which allows users to see the activity level in each restaurant to aid users who prefer to avoid loud and crowded establishments. Both the personalization and the live updates would not be possible without the intelligent systems of TasteBuddies.

The intelligent systems of TasteBuddies are what allow it to enhance the user's dining experience. The app will prioritize reviews from users with similar tastes to ensure that reviews are relevant. The system also allows TasteBuddies to improve the group dining experience by taking the preferences of everyone in the group and matching them to the restaurants that fit the preferences of the group. The final major feature that the intelligent systems make TasteBuddies capable of is matching the recommendations to the mood of the users. All these features of Tastebuddies are what make it stand out from other review-based apps and allow it to enhance the user dining experience.

TasteBuddies is designed for diner's benefit and to help overcome the challenges that are presented with eating out. The app keeps up and evolves with the user's taste to ensure that the

food they are getting is food they will enjoy. This would eliminate the worry people might have of spending money just to be dissatisfied with their meal. The app will also help in facilitating decision making both in a group and as an individual, which will save people time. TasteBuddies take the overwhelming number of restaurants and food choices and limit them down to things the diner enjoys, helping them come to a decision easier. TasteBuddies makes dining out a less frustrating experience by learning what the diner wants and giving them the best option to fit their needs. This will help overcome the challenges involved in dining out and make the experience more enjoyable and easier to carry out.

### 2.2 Major Components (Hardware/Software)

The system behind TasteBuddies uses a three-tier architecture. The first layer is the presentation layer, which users such as diners and restaurant managers interact with. Diner interaction will involve aspects like getting recommendations, looking at the feed, and getting information regarding restaurants. For restaurant managers, they will interact by updating their information such as specials, dishes, operating hours, and other information customers would need. These interactions can take place on both the TasteBuddies mobile app and desktop app. Regardless of how diners choose to use the app, they will be able to interact with both restaurants and other diners. This is made possible through the presentation layer, which is comparable to the ambiance of a kitchen.

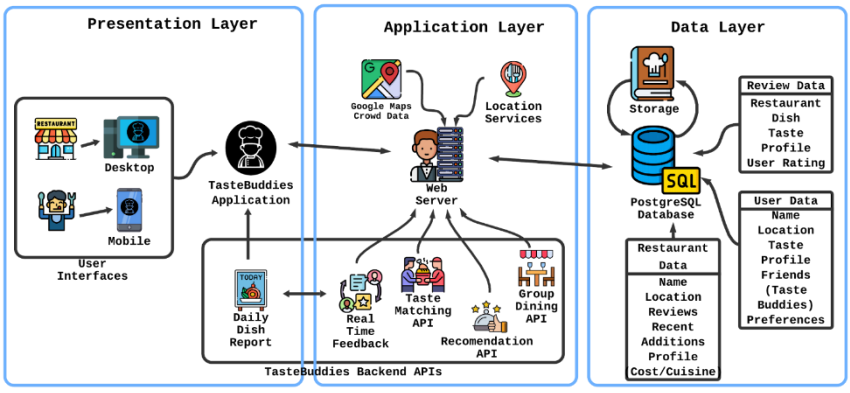
The next layer of Tastebuddies is the application layer, which deals with the behind-the -scenes and is like the “kitchen” of the system. This layer contains all the content needed to bring users the best experience when using the app and has a couple of key aspects that ensure users are getting this experience. The first of these is location services, which will ensure users are getting recommendations that are near or local to them. The next aspect is the three APIs that

TasteBuddies uses. The taste-matching API is how TasteBuddies can recommend users to each other if they have similar taste profiles. The recommendation API is what matches the users to the different dishes, specials, and restaurants based on their own taste profiles. The final Api is the group dining API which, as the name suggests, allows TasteBuddies to combine the preferences of many in a group and recommend a restaurant based on everyone's taste profiles.

The final layer is the data layer, where all the data of users, restaurants, and other aspects of the app are stored. This layer can be seen as the “fridge” as it keeps things organized. A PostgreSQL database is what is used to keep all the information coming into the app stored and organized. This layer functions by taking user-inputted information, such as a user's taste profile and passing this information through the webserver to the user profile so it can be saved in the PostgreSQL database. This information will then be pulled anytime the APIs need to use it. The more users interact with the app and leave reviews, the more data is stored from them in the PostgreSQL database, which will lead to better tailored reviews. All the layers mentioned allow for TasteBuddies to operate flexibly, similarly to a kitchen.

**Figure 1**

*Major Functional Components Diagram*



## 3 Identification of Case Study

Tastebuddies is designed for the many types of individuals that love food. The several types of eaters can include picky eaters, individuals always looking for something new to try, travelers looking for the local meals, or large groups with differing tastes. No matter the type of eater, TasteBuddies is there to accommodate them all. TasteBuddies is also designed in a way that benefits restaurants as it can help them attract new clientele and give their food more promotion. This will directly correlate to boosts in the local economy as the more guests enjoy their dining experience the more likely they are to spend impulsively (Mohanty, 2023). On top of all this, TasteBuddies will also bring more community wellbeing by encouraging people to eat out more, which in return increases socialization and promotes a sense of connection within the community (Thurnell-Read, 2021).

As talked about before, Tastebuddies is not only used as a food recommendation source but also to form connections with others and promote a community of food enjoyers. The features that TasteBuddies have such as dish recommendations, restaurant recommendations, group matching, and live updates are some of the reasons why people should be using TasteBuddies. By using the app people will not have to look up information regarding different restaurants separately and have all the information needed in one place. The diners can also stay informed on the types of specials and events going on within the different restaurants. Working with restaurants and crowdsourcing gives diners a huge advantage and makes it so they know what is happening at the restaurants ahead of time, can avoid long lines, and ensure their time is not wasted. All the concepts mentioned above contribute to greater customer satisfaction which benefits not only customers but restaurants.

TasteBuddies as an app has a lot of potential for growth in the future. Local event organizers can eventually use the app to determine what restaurant should be used to cater for

their event. They can do so by looking at data on the foods that are trending on TasteBuddies in a specific area. TasteBuddies also has the potential to expand globally and bring people food recommendations from many distinct cultures and areas globally. Food supply vendors are another potential future user as they could use the app to monitor trends and see what they need to supply to restaurants. The design of the app has a lot of potential to attract many different users which could include catering and other needs.

# 4 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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