

## **Software Requirements Specification**

### **Tasteful Panthers: Food Recommendation at Dining Halls**

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## **1. Introduction**

### **1.1 Purpose**

The purpose of this document is to outline the functional, interface, and performance requirements for Tasteful Panthers, a mobile application designed to provide food recommendations and review features for Panther Dining Hall. This document serves as a reference for both the development team and stakeholders.

### **1.2 Scope**

Tasteful Panthers will provide users with personalized meal recommendations, allow them to read and write reviews, and feature contests and leaderboards. The system will also provide dining hall staff with tools to monitor flagged items and analyze review data.

### **1.3 Definitions, Acronyms, and Abbreviations**

PAWS – University authentication system for login.

PDH – Panther Dining Hall.

Flag(s)/Flipping Flag(s) – A mechanism allowing users to report problematic food items or other dining hall issues. Flipping a flag is a staff permission that indicates issue resolution.

Leaderboard – A ranking system displaying top users.

### **1.4 References**

IEEE Standard for Software Requirement Specifications was used as a guideline for structuring this document.

### **1.5 Overview**

This document details the product's functionalities, user interactions, system constraints, and specific requirements, including functional, interface, and performance specifications.

## **2. Overall Description**

### **2.1 Product Perspective**

Tasteful Panthers is a mobile platform that enhances the dining experience by integrating recommendation algorithms, review management, and staff tools. It will use PAWS login authentication, real-time notifications, and GPS.

### **2.2 Product Functions**

#### **2.2.1 Required Features/Behaviors**

##### **2.2.1.1 Provide personalized recommendations**

Personalized meal recommendations are tailored meal suggestions for guests based on dietary restrictions and past food preferences. They ensure guests are aware of meal options by notifying them upon arrival at PDH

### **2.2.1.2 Review systems for users to read and write them**

Users can create reviews with text, images, star ratings, and keywords. Notifications to remind users to review after a certain amount of time spent at PDH. Flag system for users to mark menu items as problematic.

### **2.2.1.3 Contests & Leaderboards**

#### **2.2.3.1 Top Reviewer of the Week**

Leaderboard that displays the reviewer with most liked reviews each week.

#### **2.2.3.2 Tomorrow's Prediction**

Users will be able to predict what food item will have the best/highest rating for the following day. The most popular food item will be determined based on the number of associated good reviews. A good review is three or higher in star rating.

### **2.2.1.4 Address Food/Service Issues**

#### **2.2.4.1 Flagged items/reviews**

Guests can flag issues with food items or dining hall environments by adding a flag to their reviews. Other guests can see these flags, alerting them of anything to avoid until the issue is resolved.

#### **2.2.4.2 Fix Flags**

These issues can be addressed by PDH staff, and the review flag can be “flipped” once the issue is fixed. Guests can then verify that the issue was resolved or not.

## **2.3 User Characteristics**

### **2.3.1 Guests (Students & Visitors)**

Users who receive meal recommendations, submit reviews, and participate in contests.

### **2.3.2 Dining Hall Staff**

Authorized personnel who monitor flagged food items and review statistics.

## **2.4 Constraints**

- The system requires an internet connection for access.
- Restrictions must be in place to prevent offensive activities.

## **2.5 Assumptions and Dependencies**

- Users have access to a compatible mobile device with internet access.
- The system assumes compliance with PAWS authentication.

## **3. Specific Requirements**

### **3.1 Functional Requirements**

#### **3.1.1 Guests**

##### **3.1.1.1 Profile**

###### **3.1.1.1.1 Creation**

Guests can create a reviewer profile using their PAWS account. A unique username will be assigned to them, but they will be prompted to add any dietary restrictions/preferences through keyword selection. After this, the guest will be free to post/interact with reviews.

##### **3.1.1.2 Personalized Meal Recommendation**

###### **3.1.1.2.1 Recommendations**

Our algorithm will suggest personalized meals based on the guest's dietary restrictions/preferences, past reviews, and review engagement. These recommendations will be provided to the guest via mobile notification, but will also be available to the guest within the application.

###### **3.1.1.2.2 Getting Recommendation When Entering PDH**

GPS services will be used to send meal recommendations upon the guest's arrival to PDH. Guests will need to allow location services on their mobile device in order to receive recommendations as they walk in PDH.

###### **3.1.1.2.3 Tasteful Twin**

Guests will be suggested meals according to the preferences of a similar user. Similar means they both enjoy the same meals/cuisine.

##### **3.1.1.3 Writing Reviews**

###### **3.1.1.3.1 Text Reviews**

Guests can submit written reviews describing their meal/experience.

###### **3.1.1.3.2 Media**

Images and/or YouTube links can be included in guest reviews to enhance feedback.

###### **3.1.1.3.3 Star Ratings**

Guests can assign a star rating to their review. Star ratings can range from one star to five stars.

#### **3.1.1.3.4 Keywords/Tags**

Keywords/hashtags can be added to reviews, making it easier for other guests to search for reviews according to specific meal types.

#### **3.1.1.3.5 Flag Issues**

Guests can highlight any issues with their meal/experience by submitting a flagged review. Once an issue has been fixed, guests can verify on the same review that the problem was handled.

### **3.1.1.4 Contests**

#### **3.1.1.4.1 Top Reviewer of the Week**

A weekly, ongoing contest will take place that keeps track of the highest rated reviewers.

#### **3.1.1.4.2 Tomorrow's Prediction**

Guests can participate in a challenge to predict the most popular meal for the next day.

#### **3.1.1.4.3 Vote on Suggested Meals**

Guests can like or not like meal suggestions from other guests. These likes, similar to meal reviews, are tallied to help PDH staff decide on what new meals they will cook.

### **3.1.1.5 Leaderboards**

#### **3.1.1.5.1 Top Reviewer of the Week**

Reviewers will be displayed on the weekly top reviewer leaderboard according to their ranking i.e. highest rated at the top and so forth. Usernames will be displayed along with a bar graphic and the reviewer's total number of likes tallied from their reviews that week. Guests can view where they rank on the leaderboard from their dashboard. Guests with no likes are unranked.

#### **3.1.1.5.2 Highest Rated Food Items**

The highest rated food items for the current day will be displayed on a leaderboard accessible from the guest's dashboard. Food items are ranked according to the number of total star rankings they receive from associated reviews.

#### **3.1.1.5.3 Most Successful Guessers**

Guests who are successful at guessing in the contest prediction tomorrow's most popular food item will earn a spot on the most successful guessers leaderboard. This

weekly leaderboard tallies the number of correct guesses each guest makes and ranks guests accordingly with most correct guesses at the top and so forth. Usernames will be displayed along with a bar graphic and the guest's total number of correct guesses that week. Guests can view where they rank on the leaderboard from their dashboard. Guests with no likes are unranked.

#### **3.1.1.5.4 Most Popular Meal Suggestions**

Guests will have access to a leaderboard depicting the week's most supported meal suggestion based on guest likes. The meal suggestion will be displayed along with a bar graphic and the total number of likes received for that suggestion. Guests can access this leaderboard from their dashboard.

#### **3.1.1.6 Liking Reviews**

Guests have the ability to like or not like reviews from other guests. These likes are tallied for each reviewer and count towards their weekly "likeness" which determines if they place on the reviewer leaderboard each week.

#### **3.1.1.7 Suggest New Meals**

##### **3.1.1.7.1 Text Suggestions**

Guests can submit written meal suggestions.

##### **3.1.1.7.2 Media**

Images and/or recipe links can be included to enhance meal suggestions.

##### **3.1.1.7.4 Keywords/Tags**

Keywords/hashtags can be added to suggestions, making it easier for other guests to search for suggestions according to specific meals.

### **3.1.2 Staff**

#### **3.1.2.1 Profile**

##### **3.1.2.1.1 Creation**

Staff can create a PDH worker profile using their PAWS staff account. A unique username will be given to them, along with flag and review data permissions. They will be unable to write/create reviews or suggestions.

##### **3.1.2.2 Address Review Flags**

Staff can handle issue flags that show up on guest reviews. They will be able to see all reviews that contain a flag. These flags

indicate that an issue exists in some area of PDH, either food or environment related. Flipping a flag means that the issue was handled, which is visible to all guests to ensure they are aware of the issue status.

### **3.1.2.3 Meal Suggestions**

Staff will have access to the meal suggestions submitted by guests. Found on their home interface, they can scroll through meal suggestions from guests by recency. Staff will be able to share any meal suggestions that they decided to cook/incorporate into the PDH menu for that day. This is done from their dashboard and is visible from the guest dashboard.

### **3.1.2.4 Data**

#### **3.1.2.4.1 Reviews**

Staff will have access to a graph view of review data that will depict how PDH is performing. They can sort by star rating, keywords, or flags to narrow their observations. Staff can also narrow the data down by day of the week, or group all days together.

#### **3.1.2.4.2 Meal Suggestions**

Staff will have access to the meal suggestion submitted by guests and the ratings leaderboard. The meal suggestion leaderboard depicts the suggestions with the highest support according to guest likes. Staff can then decide whether any of these meal suggestions are to be incorporated into future PDH menus.

### **3.1.3 Guests & Staff**

#### **3.1.3.1 Accounts**

##### **3.1.3.1.1 Login**

Guests and staff will be prompted with a login page whenever they open the application after having closed it. This page will also display if they logout.

##### **3.1.3.1.2 Logout**

Guests and staff will have the ability to logout of the application from their reviewer profile. The login page will display once successfully logged out.

#### **3.1.3.2 Searching/Filtering**

Guests and staff have the ability to search for specific reviews, suggestions, or reviewers from the current week. Filters on reviews or suggestions will be automatically made based on which section of the home page they are in. They will also be able to apply



search filters like publish date, keywords, likes, star ratings, and flags to narrow their search. Searching will lead them to a page displaying results related to their search input. If searching for a reviewer, Guests and staff can then select the reviewer and look at reviews and suggestions created by that reviewer from that week.

## **3.2 Interface Requirements**

### **3.2.1 Guests**

#### **3.2.1.1 Home**

##### **3.2.1.1.1 Reviews**

Guests will be able to see reviews submitted by other guests from that week. Reviews will be displayed according to the publish date, so most recent reviews will be displayed first. Guests can scroll down to view more reviews.

##### **3.2.1.1.2 Suggestions**

Guests will be able to see suggestions submitted by other guests from that week. Suggestions will be displayed according to the publish date, so most recent suggestions will be displayed first. Guests can scroll down to view more suggestions.

##### **3.2.1.1.3 Review Creation**

Guests will have the ability to create reviews in the feedback interface. This page will include dropdowns for them to select keywords/tags associated with the review. There will be a star scroller from one to five stars for them to rate their feedback. There will be a textbox for them to write their review. Guests will also have the ability to insert images and/or YouTube links to enhance their review. Lastly, guests can include a flag if the review covers an issue with a food item or something else in PDH.

##### **3.2.1.1.4 Suggestion Creation**

Guests will have the ability to create meal suggestions in the feedback interface. This page will include dropdowns for them to select keywords/tags associated with the suggestion. There will be a textbox for them to write their suggestions. Guests will also have the ability to insert images and/or recipe links to enhance their suggestion.

#### **3.2.1.2 Dashboard**

##### **3.2.1.2.1 What is Tasty Today?**

###### **3.2.1.2.1.1 Meal Suggestions**

Guests can view the ranking of meal suggestions from their dashboard. When clicked, the guest is directed to the leaderboard of meal suggestions. This page will also display the meal suggestion that PDH decided to serve that day, if any.

#### **3.2.1.2.1.2 Crowd Favorite**

Guests can participate in the contest to predict tomorrow's highest rated food item and view the current day's most popular meal rankings from the dashboard.

#### **3.2.1.2.1.3 Your Favorite**

In case the guest forgets, their meal recommendation will be available in the dashboard. Guests can select the meal recommendation to view what was sent to them in their meal recommendation notification. Guests can also view meals available at PDH that they liked in the past. This is based on past metrics like submitted reviews and engagement with other guest feedback.

#### **3.2.1.2.1.4 Tasteful Twin**

Automated recommendation from "Tasteful Twin" which is another user with similar meal preferences. When clicked, the n common meals are displayed.

### **3.2.1.2.2 How am I ranked?**

#### **3.2.1.2.2.1 Tomorrow's Prediction**

Guests can view their guesser ranking for the prediction contest from their dashboard. They can also view the top guessers for that week on the prediction leaderboard.

#### **3.2.1.2.2.2 Top Reviewer Leaderboard**

Guests can view their reviewer ranking based on the number of review likes they have received that week. They can also view the top reviewers for that week on the top reviewer leaderboard.

### **3.2.1.3 Profile**

Profile page for each guest will display their username along with reviews and suggestions submitted for that week. Reviews and suggestions can be deleted from this page. Other guests can view profile pages.

### **3.2.2 Staff**

#### **3.2.2.1 Home**

##### **3.2.2.1.1 Flagged Reviews**

Staff will be able to see flagged reviews submitted by guests from that week. Reviews will be displayed according to the publish date, so most recent reviews will be displayed first. Staff can scroll down to view more flagged reviews, if any.

##### **3.2.2.1.2 Suggestions**

Staff will be able to see meal suggestions submitted by guests from that week. Suggestions will be displayed according to the publish date, so most recent meal suggestions will be displayed first. Staff can scroll down to view more suggestions.

#### **3.2.2.2 Dashboard**

##### **3.2.2.2.1 Address Flags**

Staff will have access to an interface for addressing review flags. By clicking on the address flags portion of their dashboard, they will be directed to a page where they can select the flagged review to resolve and enter a short comment describing the status of the issue or how they fixed it. Submitting this flag flip will reflect the change for all guests, allowing them to see that the issue was resolved. Guests can view the staff comment about the issue resolution, if there is one. The flagged review is then removed from the staff homepage.

##### **3.2.2.2.2 Data**

###### **3.2.2.2.2.1 Review Data**

Staff have access to an interface where they can view a graph of review data by day or by the week. This data is meant to display PDH performance for staff. They can sort by star rating, keywords, or flags to narrow their observations.

###### **3.2.2.2.2.2 Suggestion Data**

Staff have access to suggestion data where they can view the suggestion leaderboard that depicts most popular meal suggestions based on guest likes. From this interface, they can share any meal suggestions that they decided to cook/incorporate into the PDH menu for that day. This update is visible to guests in their meal suggestion interface.

### **3.2.2.3 Profile**

Staff profile pages show their username, and reviews that they have resolved.

## **3.2.3 Guests & Staff**

### **3.2.3.1 Login**

The application will provide a login interface for user authentication. Guests and staff will login with their PAWS account.

### **3.2.3.2 Search/Filter**

Guests and staff can search through reviews/suggestions and/or usernames on their home screen. Searching through reviews vs suggestions will be determined by which part of the homescreen they are in. Guests can search through all reviews and suggestions, whereas staff are only able to search through flagged reviews and suggestions. Dropdowns with search filters will be available to help guests and staff narrow down their search. Clicking the search symbol will submit their search query, prompting the application to display search results related to their query.

### **3.2.3.3 Settings/Logout**

Guests and staff will have access to the settings interface available on their personal profile page. The settings button will take them to a page that includes application information and the logout button.

## **3.3 Performance Requirements**

### **3.3.1 Guests**

#### **3.3.1.1 Review/Suggestion Publication**

Once reviews or suggestions have been created, publishing them will take no more than 5 seconds.

#### **3.3.1.2 Review/Suggestion Deletion**

Review or suggestion deletion will take no longer than 5 seconds.

### **3.3.2 Staff**

#### **3.3.2.1 Issue Resolution**

Flipping a flag will be reflected within 2 seconds of the staff member's resolution.

### **3.3.3 Guests & Staff**

#### **3.3.3.1 Page Traversal**

The system will load pages within 1 second.

#### **3.3.3.2 Search**

Search results will be displayed within 3 seconds.

**3.3.3.3 Login**

Once PAWS authentication is complete, login will take no more than 5 seconds

**3.3.3.4 Logout**

Guest and staff logout will take less than 2 seconds to return them to the login interface.