

Team Members:

Tyler Dionne (tdionne2021@my.fit.edu), Kendall Kelly (kelly2021@my.fit.edu), Braden Corkum (corkumb2013@my.fit.edu)

Project Advisor:

Philip Chan, pkc@fit.edu

Project Title:

Tasteful Panthers: Food Recommendation at Dining Halls

Client: Philip Chan

Requirement Document

1. Functional Requirements

1.1 Personalized Recommendations

Description:

The system provides daily personalized meal recommendations based on user reviews and flavor profiles.

Behavior:

This system determines each individual user's personalized meal of the day in two different ways.

1. If this is a new user with no reviews, their personalized meal will be based solely off of the flavor profile they built when creating their account. So, the system will find the top rated/most liked meals that match their profile and suggest one of them.
2. If the user has some reviews then they will be matched to users that have similar flavor profiles. and suggests meals to each individual user based on the meals that similar people liked as well as their own personal flavor profile and reviews. Recommendations will be updated daily based on the most recent reviews. Below is how we most likely will find similar people and recommend meals that way:

	User A:	User B:
Meal 1:	Rated: 5	Rated: 5
Meal 2:	Rated: 5	Rated: 5
Meal 3:	?	Rated: 5

Recommend user A the third meal

1.2 Review System

Description: Users can submit, search, and view reviews. These reviews will include star ratings, text, images, videos, and tags.

- Stars
 - Can be paws or burger icons (any emoji)
- Text comment
 - Come up with a max character count so DB does not have to store it
 - Ex. 100 characters maximum
- Image/picture (google review link to image or some other host platform)
- Link to video (youtube)
- Tags
 - Tags: good for taste buds, health, restricted diets, playing sports, studying, paying attention in class

User can:

Enter Review

- Entering the 5 possible actions listed below
- Need a submit button

Search reviews

- Search for tags (specific tags)
- Search for reviews higher than a specific star
- Optionally search on words contained in text comment reviews

View Review

- After search we can see the review
- Use personalized recommendation to allow user to view reviews for that recommendation
- Be able to click on items from the leaderboard and be able to look at those reviews

See the menu for the day

Select a dish to enter review

Behavior:

Users can rate meals from 1 to 5 stars, write text reviews, upload images and videos, and add tags. The users will also be able to search for reviews by tags and keywords.

1.3 GPS-Based Notifications

Description:

The app sends notifications based on the user's location within the dining hall.

Notification

- Entering PDH (here's your recommendation of the day) (this notification includes the outputs for the personalized recommendation)
- Student is in PDH about halfway through meal
 - Use GPS location data to look for two timestamps to enter and leave (this will give a duration) Need to determine half way through meal. Want them to still have meal when we send the notification
 - We will try to get them to leave a review (ex. Was your food horrible?)
 - Want them to easily get to a "leave a review screen" from the notification (refer to section 2 on leaving reviews)

Behavior:

Notifications are triggered when users enter the dining hall to remind them of their recommended meal and to leave a review. Another reminder to leave a review is sent 30 minutes after the user's arrival.

1.4 Contests and Leaderboard

Description:

The app features daily polls as well as weekly review contests with rewards.

Contest

- For each week have a theme for the contest based on a tag
- Rank them based
- Forecast the food item with the highest rating tomorrow
 - Leaderboard on who is right may be ties accumulate a number of correct predictions over time. If there are ties just get # of days you guessed correctly
 - Someone has to enter prediction so need to provide a way for the user to predict the meal tomorrow (idea is who is going to vote for what tomorrow)
 - Give them a screen with a bunch of meals for tomorrow and they click on it and enter the contest
- Top reviews of the week
- Judged by random users (prefer somewhere while they are still in pdh)
- Weekly theme based on tags (good for x)

In total there are 4 leaderboards:

- a. Ranking of users on forecast accuracy
- b. Ranking of users on judged reviews
- c. ranking of meal suggestions based on votes

- d. ranking of today's dishes based on average ratings

Behavior:

Users participate in daily polls as well as weekly review contests. There are no rewards for the polls. However, the top three people who make the most reviews under the specified tag for that week's contests will receive rewards based on their participation and review quality.

1.5 Meal Suggestions

Description: Users can make meal suggestions for the following week's menu.

Kitchen Staff Suggestion

- Users can make suggestions to kitchen staff on meals for the upcoming week.
- In meal suggestion
 1. Name of dish
 2. Have section for reasoning
 3. Optionally for user is to enter link for recipe

Behavior:

Users can submit meal suggestions weekly and popular suggestions may be considered to add to next week's menu.

1.6 Staff Interaction with Reviews

Description: Kitchen staff can view, search, and comment on user reviews.

Kitchen Staff Can

1. See reviews
2. search reviews
 - based on tags
 - filter reviews by star ratings
3. Comment on reviews
 - kitchen staff can comment on student reviews

Behavior:

Staff can search for and view reviews as well as comment on reviews to address user feedback.

1.7 Home Screen for Diners ("dashboard")

Description: Diners will have a different home screen than kitchen staff. In this home screen there will be the following:

1. What's tasty today?:
 - a. Recommended by my tasteful twin
 - Explanation: This user matched with another user that has a similar flavor profile and they both like the same dish.
 - When the user clicks on the dish the reviews for the dish are displayed.
 - b. My favorite meals:
 - The dish I rated highest in the past
 - When this button is clicked go to enter/search/view review screen
 - c. Crowd favorite:
 - Dish with the highest rating today
 - When clicked goes to the leaderboard on today's dish ranking based on ratings.
 - d. Meal suggestion becomes reality:
 - The dish that the staff decided to cook from meal suggestions.
 - When clicked goes to meal suggestions leaderboard
2. How am I ranked?
 - a. Forecast rank: #n
 - When clicked go to leaderboard for forecasting contest
 - b. Review rank: #n
 - When clicked go to leaderboard for review contest.

Behavior: This home screen will act as a sort of hub with several links/buttons that lead to other pages in the application. On this page diners will be able to see their recommended meal of the day as well as access the review page, contests, and settings.

1.8 Home Screen for Staff ("dashboard")

Description: This page will be a separate homepage for kitchen staff only.

1. Student reviews button:
 - This button will bring kitchen staff to the student reviews page, where they will be able to search for reviews by tags and sort/filter them by the amount of stars the reviews have.

- Staff will also be able to comment on reviews, but cannot leave a review themselves.
- 2. Top rated meals button:
 - This button will bring staff to a page that shows them the top rated meals at that time.
- 3. Lowest rated meals button:
 - This button will bring the staff to a page that shows the staff all of the meals that are rated low (1 or 2 stars).
- 4. Analytics button:
 - This button will bring the staff to the leaderboards where they'll be able to see the suggested meals and which are the most popular.

Behavior: The staff's home screen will allow staff to easily navigate between different pages. These pages will include a review page where they can search for, view, and comment on student reviews, a page for most popular meals, a page for least popular meals, and a page where they can view all of the leaderboards.

1.9 Profiles

User can turn on/off notifications, default is on.

1. Student profiles:
 - Must use an @fit.edu email address
 - Name
 - There must be an image and youtube account for the image and video links.
 - Add favorite categories and tags to profile (e.g. good for studying, spicy, etc.)
2. Kitchen staff profile:
 - Admin login
 - No personal info, just one account for PDH kitchen staf

2. Non-Functional Requirements

2.1 Performance Requirements

- Response Time: The application should be able to load recommendations and reviews within five seconds and notifications within ten seconds. We want the application to function at a fairly fast rate in order to create a better experience for the users.

- Accuracy: Recommendations should be relevant to the user's flavor profile and previous reviews with a minimum of 80% accuracy. Ensuring accuracy will contribute to a positive experience when using the application as well as encourage current users to keep using the app and new users to join.

- Concurrency: This application will need to be able to handle multiple people using the application at one time. Several users will be submitting reviews, searching reviews, and setting off the notifications all at the same time. Our application will need to be able to handle this kind of traffic.

2.2 Usability Requirements

- User Interface: The app must have a user-friendly interface. It should be clear how to switch between screens as well as how to navigate throughout the entire application. The key functions such as submitting/searching reviews, polls, recommended meals, and leaderboards should be displayed in a way that is very clear to the user.

2.3 Reliability

- Availability: The app should not crash often. The app should be at least 90% functional at any given time. The 10% would include issues with loading pages and other things of this nature.

- Error Handling: The app should be able to handle errors quickly and provide corresponding messages to users. For example, if there is some issue when trying to save a user's response to a poll, an error message will be displayed saying something like "Unfortunately, we are unable to save your response at this time. Our apologies for the inconvenience!" .

2.4 Security

- Authentication: When signing up, users must sign up with their @fit.edu emails, whether they be student or staff. Kitchen staff will have their own admin login which will have different access. For example, users can submit reviews but kitchen staff cannot.

2.5 Compatibility

- Platforms: This application will be compatible with Android mobile phones.

- Devices: The app must be tested on a screen that matches the average screen size of any given Android mobile phone.

3. Interface Requirements

3.1 User Interface

- Home Screen: This is the page that users will see whenever they open the app. This page should display the daily personalized meal recommendations as well as current polls and contests. This will include leaderboard information, results of polls, or pending polls.
- Personal Profile Screen: This screen will allow users to view their personal information such as their name, email, and flavor profile. The personal profile screen will also display past reviews/ratings and any contest information if there is any.
- Review Screen: This screen allows users to submit and view reviews for different meals. This page must be able to upload pictures/videos, tag reviews, and have a search bar so that you are able to search for reviews by tags.
- Notifications: There will be GPS-based alerts and reminders that will be sent to the user's phone. When the application is opened, the notification will be displayed in the app.

3.2 System Interface

- Backend API: This will manage communication between the mobile app and server. It is important for getting profiles, generating recommendations, processing any contests or polls, and submitting reviews. The backend API will also be essential for updating our databases in real time.
- Database: This will store all important information for the application such as user profiles, reviews, meal recommendations, and leaderboard data. It also must be structured for queries to handle information about the user's flavor profile or what tags have been placed on what reviews. This will be essential for matching profiles, creating recommendations, and searching for specific reviews.

4. Specific Requirements

- When a user clicks the button to submit a review, a confirmation message will be displayed on the screen within two seconds in order to confirm that the review has been submitted successfully.
- When a user submits a review, the review should be stored in the database and should be visible under reviews for that meal within five seconds.

- When searching for reviews, users should also include tags related to dietary restrictions such as, gluten free, vegan, dairy free, etc. They should also be able to use keywords related to the name of the dish, such as chicken or pasta.
- The system should send a notification to the user when he/she is within 100 feet of the panther dining hall.
- The system should send a notification 30 minutes after the user is within 100 feet of the panther dining hall to remind them to review their meal.
- The system should have both a student dashboard and a kitchen staff dashboard. The dashboard will be loaded based on the account type at sign in.
- The system should not allow students to create staff accounts.
- The system should not allow staff to create student accounts.