Project Plan

Tasteful Panthers: Food Recommendation at Dining Halls

Team Members
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Meetings
Initial meeting: January 22, 2025 at 3 pm (Jiahao and Anthony)
Scheduled biweekly meetings starting on February 7, 2025 at 4 pm

Goal and Motivation
- The goal of Tasteful Panthers is to provide personalized dining recommendations for guests at Panther Dining Hall (PDH) as they walk in the door.
- We want to improve the campus dining experience by simplifying the meal decision process and providing a connected mobile platform for PDH guests to interact via food reviews.
- Tasteful Panthers also aims to improve PDH service/quality by allowing guests to report any food issues to PDH staff through the app.

Approach
1. Guests can receive personalized dining recommendations
   - With personalized dining recommendations, guests can receive tailored meal suggestions as they walk into PDH.
   - The app will take user data and feedback such as dietary restrictions/preferences, past meal choices, and food reviews/interactions to provide guests with a daily food recommendation that fits their individual tastes.
   - This feature ensures that guests are immediately aware of dining options that fit their preferences.

2. Guests can write reviews on food items
   - Guests have the ability to leave feedback on their food through reviews, sharing their thoughts on the various components that made up their meal.
   - This feature allows guests to provide any satisfactions as well as issues pertaining to their food.
   - Reviews can then help other guests to make informed decisions when picking their next meal.
   - App notifies users to post reviews 10-20 minutes after entering PDH

3. Guests can receive incentives for making reviews/interacting with the app

- To boost engagement, guests can participate in contests with leaderboards, such as:
- Top Reviewer of the Week: Guests can write multiple reviews, which are rated by other guests (e.g. like or not). Reviewers are ranked on the number of positive ratings their reviews receive. Top users are displayed on a weekly leaderboard.
- Tomorrow's Prediction: Guests will be able to predict the highest rated food item for the next day, which will depend on tomorrow's review ratings associated with the food item.

4. Dining staff can interact with reviews that have issues
   - PDH staff can engage directly with low rated reviews that pose issues with food quality or a problem with the dining environment.
   - Reviews that highlight an issue will be marked with a red flag, and once the issue is resolved, dining staff can flip this flag to green to alert guests of the fix.
   - Reviews will stay active for guests to confirm that the issue was handled.

Novel Features/Functionalities
1. GPS-Enabled Personal Recommendation
   - This falls under both a feature and functionality of the app.
   - Guest's real-time location will be used to send the personal meal recommendation as a notification on their mobile device.
   - This ensures that guests receive a timely recommendation rather than one that occurs at a random time or location.

2. High-Level Meal Prediction Algorithm
   - This is the most important functionality of Tasteful Panthers as it analyzes a guest's previous dining history, preferences, and reviews to predict meals they are most likely to enjoy.
   - The algorithm will consider factors like personal preferences, dietary restrictions, trending meals, user interactions with reviews, and even other user preferences to offer an accurate meal suggestion.
   - May incorporate AI, but keywords or tags in user preferences and reviews will definitely be used.

Algorithms and Tools
- Apple iOS application language, Swift
- IDE for application development, XCode or VSCode
- Web/Information Scraping algorithm for retrieving PDH menu items
- Sorting algorithm for menu items based on keywords found in reviews and user profiles, we will need to program this ourselves
- Encryption tool, possibly a library included in swift, for user private information like passwords
- Database for storing encrypted information, SQLite or CoreData
- Emulator for iPhones, XCode or VSCode both have extensions for an iPhone emulator

Technical Challenges

- We plan to use Swift as our programming language, but we are new to this language.
- We will need to create an algorithm for providing meal recommendations. Although we are all versed in sorting algorithms, this will still be a challenge.
- Working with encryption tools to protect user information will be challenging, since none of us have experience with encryption/decryption.

Milestone 1 (Feb 24)
- Compare and select technical tools for Database, Web/Information Scraping, and IDE (XCode or VSCode)
- Provide small ("hello world") demo(s) to evaluate the tools for Database, Web Scraping, and IDE (simple ui in Swift)
- Resolve technical challenges: UI and Swift development - we will all need to learn Swift and be able to program with it somewhere
- Compare and select collaboration tools for software development, documents/presentations, communication, task calendar
- Create Requirements Document
- Create Design Document
- Create Test Plan

Milestone 2 (Mar 26)
- Implement, test, and demo user accounts with signup/login page
- Implement, test, and demo web/information scraping algorithm for retrieving PDH menu items
- Implement, test, and demo writing and reading reviews on mobile GUI, including: text reviews, star ratings, and tags for categorization
- Implement, test, and demo database for saving account information and reviews

Milestone 3 (Apr 21)
- Implement, test, and demo writing reviews with images and videos.
- Implement, test, and demo personalized recommendation algorithm for meals
- Implement, test, and demo notifications, including: personalized meal recommendation upon entering PDH and review reminder while guest is still in PDH
- Implement, test, and demo contests and leaderboards to encourage good reviews, including: review contest judged by randomly selected users with a weekly leaderboard for top reviewers and prediction contest for users to predict the highest rated food item for the next day based on review star ratings

Task matrix for Milestone 1

Task	Alex	Jiahao	Anthony	Lexi
Compare and Contrast Technical Tools	Web/Information Scraping	IDE	Database	IDE
Tool Demos	Web/Information Scraping	IDE	Database	IDE

Resolve Technical Challenges	Swift, sorting algorithm	Swift, sorting algorithm	Swift, algorithm, encryption/decryption	Swift, sorting algorithm
Collaboration Tools	Communication	Documents/presentations	Software development	Task calendar
Requirements Document	Write 40%	Write 20%	Write 20%	Write 20%
Design Document	Write 20%	Write 20%	Write 20%	Write 40%
Test Plan	Write 20%	Write 20%	Write 40%	Write 20%

Approval from Faculty Advisor
"I have discussed with the team and approved this project plan. I will evaluate the progress and assign a grade for each of the three milestones."
Signature: _____ Date: _____