FP7–Project Report

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EXECUTIVE SUMMARY

College students are extraordinarily busy, and managing schoolwork, jobs, and extracurricular activities can be challenging. Achieving the balance required to maintain a healthy lifestyle can be complex with these aspects. Diet is a critical factor for wellness. Many undergraduate students cannot access family-style kitchens, so they rely upon campus dining services for their daily meals. This report describes the HCI lifecycle and user-centered design process used to create a mobile-native Northeastern University dining application prototype. The design team conducted a contextual inquiry to evaluate the users' needs and wants, then iterated on a functional prototype through feedback from heuristic evaluation and usability testing.

INTRODUCTION

Northeastern University has a nudining.com website and Dine On Campus mobile application that informs students of the daily menus from each on-campus dining establishment to ease the stress of planning meals and organizing information about when the dining halls are open. However, the current implementation of the website and app has some critical flaws, such as a lack of a native search function and support for these features on mobile devices. To address these problems, our product HuskyEats is a mobile-focused menu application for Northeastern University dining halls. Designed so students can access information on the currently served menus at each dining hall on Northeastern University's Boston campus. We developed the product following the HCI lifecycle.

First, the team conducted a contextual inquiry by interviewing the app's target audience, current Northeastern students. Observing how students use the software in their daily routines and asking for suggestions on improving the application. After each team member interviewed a user, the team merged our data by creating a work affinity diagram breaking down our observations into problems, tasks, wants, and needs. From this data, we created user personas based on the different student archetypes we interviewed, task requirement statements, and a hierarchical task inventory. From the task inventory, the design team selected nine tasks for the product to accomplish.

The first ideation of the prototype design started with paper sketches of how the user might achieve each of the nine tasks based on a material design suggested mobile best practices and components (https://m3.material.io/components) and the human-centered design philosophy, including Norman and Neilson's usability principles. The team took the best features from our paper sketches and implemented a low-fidelity prototype using the Balsamiq software design tool. After completing the low-fidelity prototype, we conducted cognitive walkthroughs and heuristic evaluations with expert users. We implemented their feedback into an improved medium-fidelity prototype with the Axure design tool. We ramped extensively on Axure, dynamic panels, repeaters, and so forth; what initially started as multiple pages, case conditions, and filters were later organized with repeaters.

The team improved the medium-fidelity prototype to high-fidelity by internally reviewing gestalt and CRAP (contrast, repetition, alignment, and proximity) principles, adding additional details and performance improvements where applicable. With the high-fidelity prototype, we conducted usability tests measuring satisfaction, effectiveness, and efficiency. Our participants were five users that were current or former students at Northeastern University. We collected usability metrics from time to complete the task, task achievement, usability rating on a scale, and overall usability of the application from a task perspective. After collecting and analyzing data from the evaluation, we re-evaluated tasks that did not meet our goal benchmark and updated our prototype to address them. After this final review, the team prepared this report and was ready to brief the design.

INTERFACE DESCRIPTION

Following the abovementioned process, we created our high-fidelity prototype for the Northeastern Dining mobile application. For visual design, we chose white and red colors to match the existing color palette suggested by Northeastern University, found here: https://brand.northeastern.edu/visual-design/color/
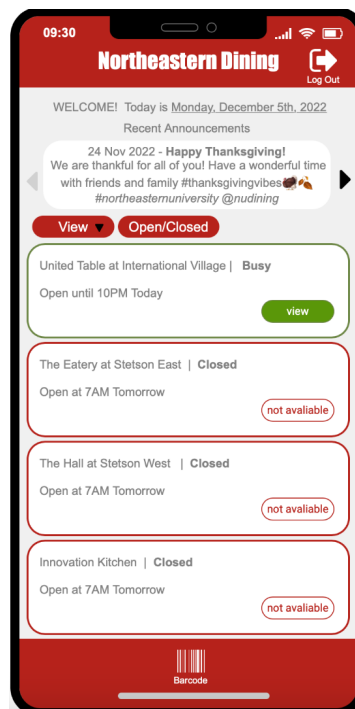
The final design incorporated the following five major sections:

1. Login
2. Homepage of the application
3. Barcode to enter dining hall
4. Dining Hall Station views for Breakfast, Lunch, and Dinner with search and filter options
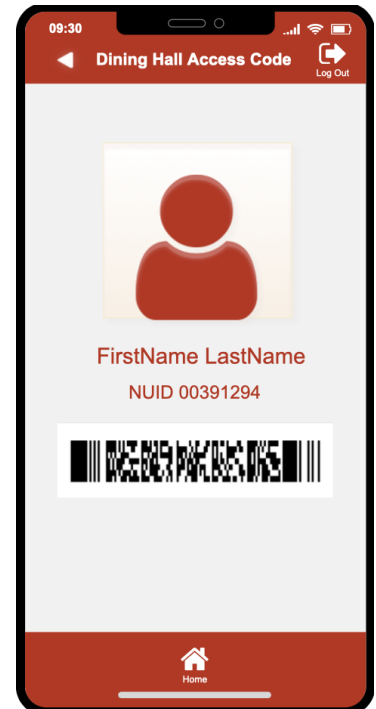5. JukeBox

High-fidelity Prototype Screens - Login, Home, Barcode
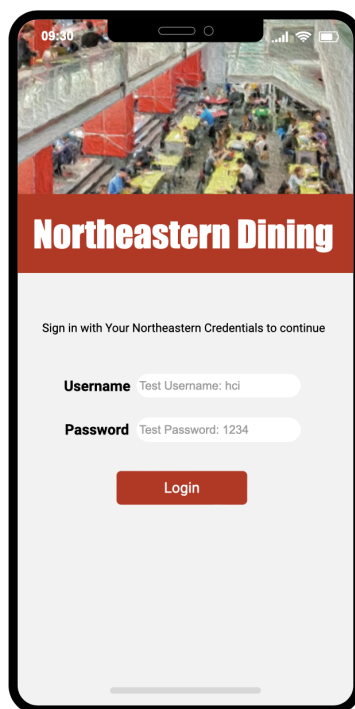
| *(a) Login* | *(b) Home Page* | *(c) Barcode Page* |

(a) **Login Screen** will allow users to enter credentials and takes the authenticated user to the Home Page

(b) **Home Page** displays the events banner, time dining hall closes, and allows users to.

1. Select the barcode icon at the bottom of the screen to open the Barcode Page
2. Select a dining hall to view what is being served at different food stations
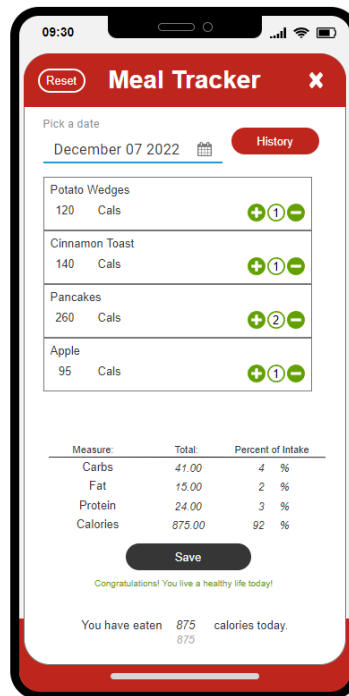
Note: United Table at International Village is currently implemented. Other dining halls will stay in action for now; hence, the page reads "*not available"* for them.

(c) **Barcode Page** allows users to scan their barcode at the dining hall register to enter the dining hall
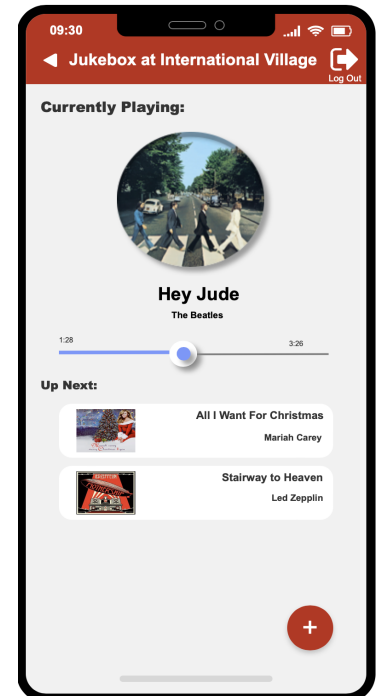
High-fidelity Prototype Screens - Dining Hall, Calorie Tracker, JukeBox
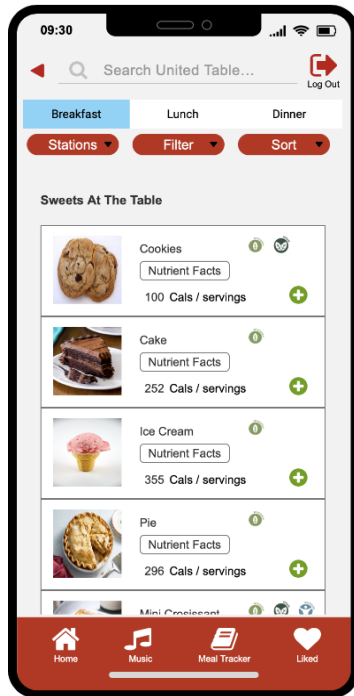
(d) Dining Hall Page

(e) Calorie Tracker

(f) JukeBox

(d) **Dining Hall Page** is the focal point of the application design, where the user can see stations and food items and search by ingredient or filter. Users are redirected to this page when they select the dining establishment on the home page.

This page contains,

1. Menu items are organized into *Breakfast, Lunch, and Dinner* sections
2. Stations and the food items that are served in these stations.

    By default, all the stations are in alphabetical order when this page is loaded, except the Desserts and Coffee sections at the end for user convenience. Users can select a station from the drop-down or scroll down to view all stations.

3. Drop down for station selection
4. Search bar to search food items by ingredients
5. Filter section to filter menu items by *Balanced, Vegan, and Vegetarian* options and a search field in conjunction with these filters
6. Nutrient Information for each of the menu items
7. Options to add items to calorie tracker, with a confirmation message *'Item added to tracker'*

(e) **Calorie Tracker Page** calculates the number of Calories, Carbs, Fat, and Protein in the items added to this page.

The *Save* button will bring a history map of the calories consumed in the past few days.

(Note: Since we do not have a database to store data on the tracker yet, we are limited by the features of Axure for this page.)

(f) **Jukebox Page** allows users to add a song to the queue of songs at the International Village dining hall.

More details about these pages and achievable actions are described in detail in the Tasks Achievable in our prototype section below.

Insights that drove design decisions:

The team conducted user Interviews to understand the problems, wants, and needs of users that are not addressed by the existing website or the application. We worked in an iterative ideation and design process and developed a low-fidelity prototype, got expert evaluation feedback, and developed a medium-fidelity prototype with all the working functionality of the application, tested it, and submitted it to our instructors; after receiving a go-ahead from the instructors, we created our high-fidelity prototype and conducted Usability testing of design challenge tasks, followed by another testing of the entire application to test each screen and the flow from screen to screen. We analyzed our findings, redesigned where necessary to fix issues we agreed upon as a team critical to the functionality, and all the group members retested our prototype.

Usability issues observed in Usability testing, along with severity, are recorded at the end of this document.

Where applicable, the tasks below show screenshots of how we started with our low-fidelity prototype and came to develop it into a high-fidelity prototype from testing, evaluation, feedback, and analysis.

Usage Scenarios- Tasks achievable on our high fidelity prototype:

### Task 1: Log in with Northeastern credentials

This task concerns how users can log in to the dining app with their northeastern university credentials.

To log in to the application:
- Enter your username and password into the input fields
- Press the "Login" button

When a user enters the correct credentials, they are taken to the Home Page; empty credentials and invalid credentials result in an error.
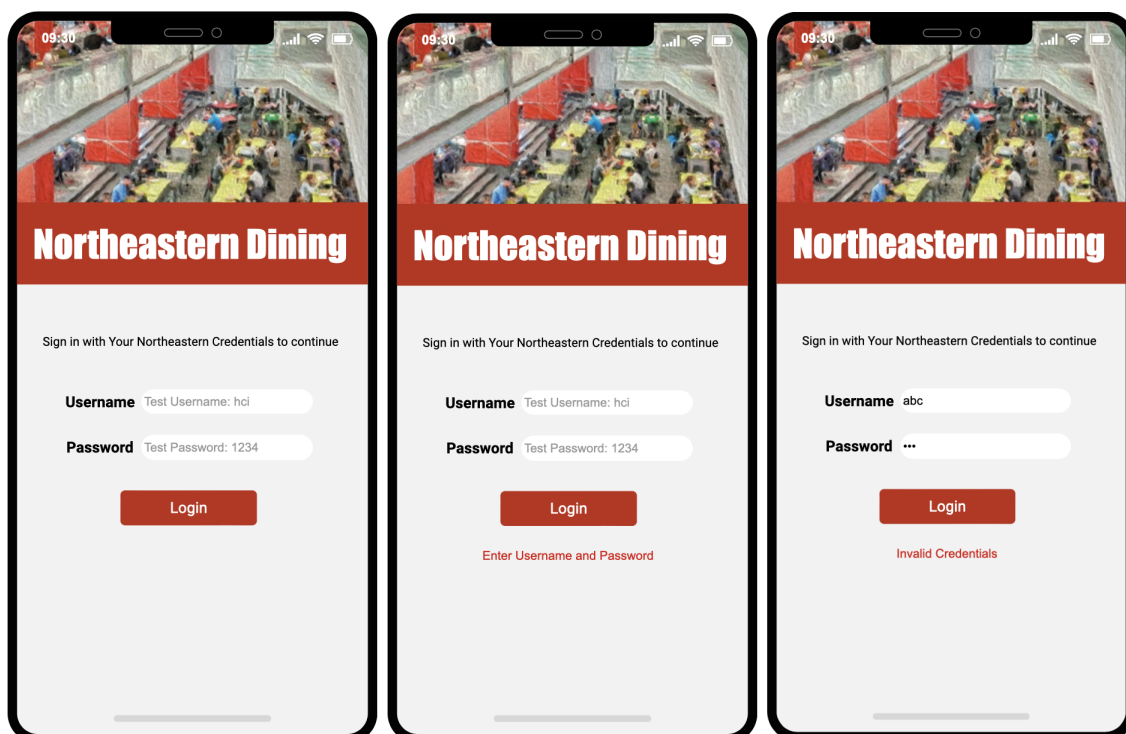
Task 2a: Look at Menu based on the dining hall

This task concerns how students can view the menu for a meal in a specific dining location.

After logging in, the user is redirected to the homepage. Here they can select the dining hall to view the menu.

Low-fidelity	Medium-fidelity	High-fidelity
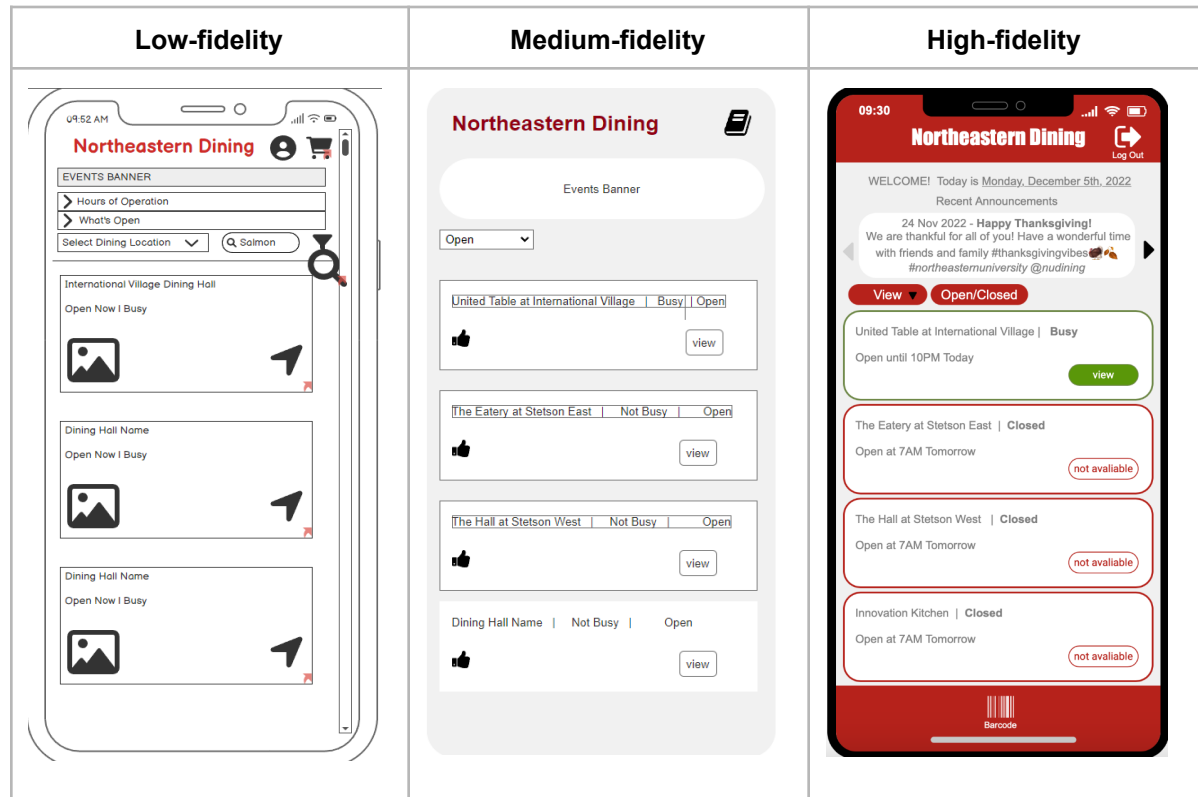
Design progress with insights from user interviews and expert evaluation:

Tracker was initially misinterpreted as checking out items from all the dining establishments in the low-fidelity prototype and hence the cart icon. We updated this to function as a calorie/nutrient tracker in the medium fidelity prototype.

Multiple fields for Hours of operation and What's Open on the website were improved to a drop-down that shows open or closed locations in the Medium-fidelity prototype and, finally, as a full-fledged implementation with different views and tags on the high fidelity Prototype. This also shows how long a dining hall is open

Task 2b: Look up menu items by meal (breakfast, lunch, dinner)

This task concerns how students can view the menu for a meal in a specific dining location. This task is specific to the homepage and dining vendor/ dining hall view. The following is a usage scenario description for how they can accomplish these tasks.

To access today's menu (breakfast, lunch, or dinner):
- Login to Northeastern Dining App with your student username and password
- Upon success, you should be able to enter the homepage of the Dinning App

- On the homepage, you can choose a dining location by pressing/clicking on the "view" button on the card of the dining hall
- On the dining hall/restaurant view, there will be three buttons labeled breakfast, lunch, and dinner that when pressed will toggle and display the menu associated with the selection
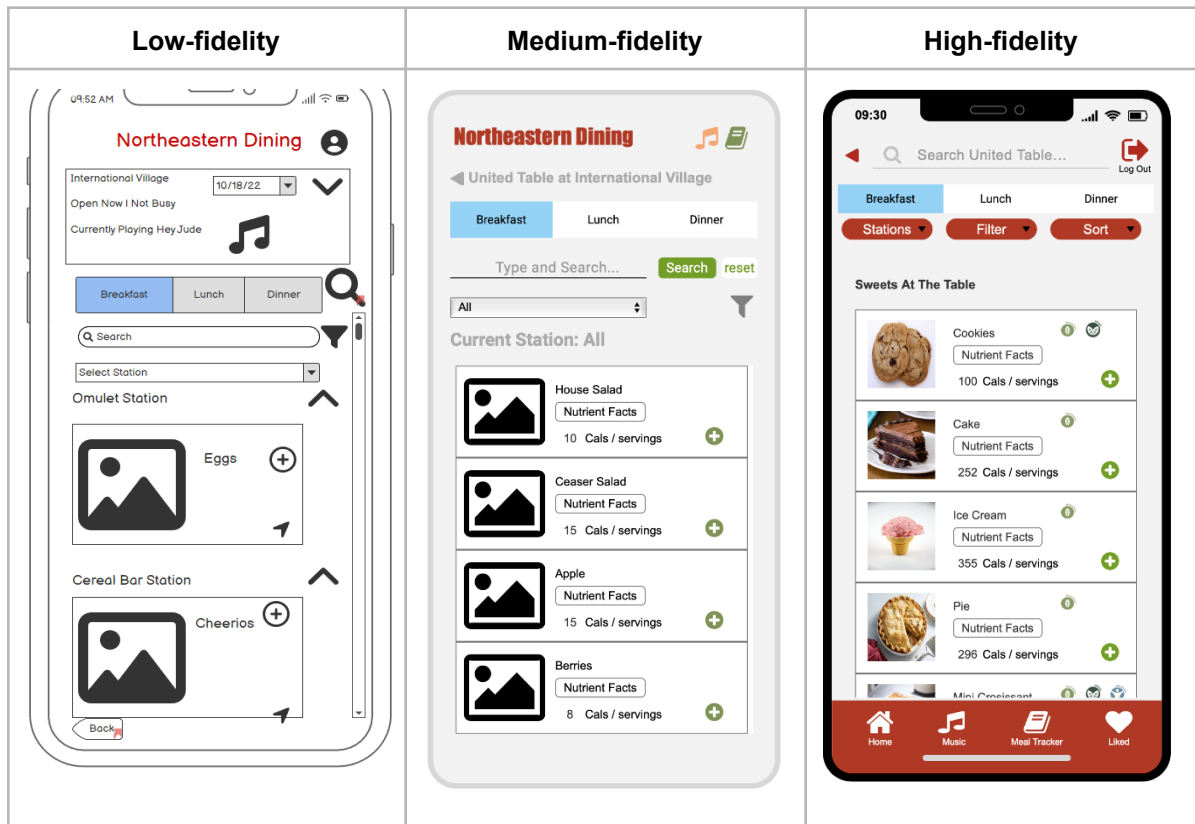
Low-fidelity	Medium-fidelity	High-fidelity

Design progress with insights from user interviews and expert evaluation:

Low-fidelity prototype had a section that was showing the status of the dining hall whether open, busy, what song was playing and had a date drop-down menu. However, this section was not very useful from the feedback received, so these details were moved to screens like Home Page and JukeBox page, which were more helpful.

Task 3: Look up specific foods and ingredients

This task concerns how students can search for specific food and view the food ingredients and health recommendations. This task is specific to the search bar on the homepage. The following is a usage scenario description for how they can accomplish these tasks.

To look up specific food items:
- Navigate to a dining hall menu
- Select one of the Breakfasts, Lunch, or Dinner meals
- On the search bar, type 'eggs', 'coffee' etc. and click on search
- Menu items that match this search are displayed

To search for food items by ingredients:
- Navigate to a dining hall menu
- click the filter icon next to the search bar
- Enter the desired ingredient to filter by
- click apply in the filter modal
- Menu items that match the chosen criteria will be displayed in the body of the page below the form
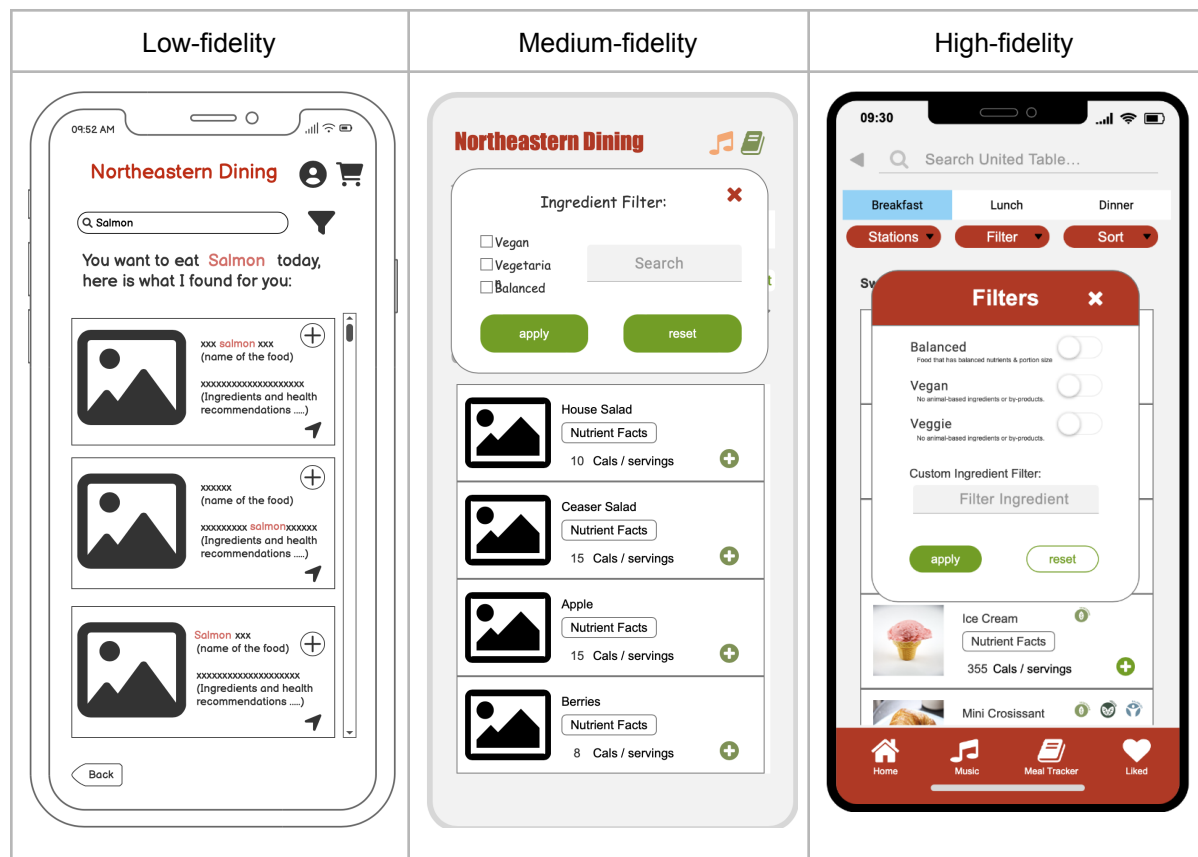
Low-fidelity	Medium-fidelity	High-fidelity

Design progress with insights from user interviews and expert evaluation:

Low-fidelity prototype had search implemented but not filter. From user feedback, the following things need to be updated - the Filter window needed manual intervention to close, and there was no confirmation message that a filter was applied. So, we updated the Filter to close once applied.

Task 4: Display each menu by station

The app should be able to display each menu by station. For example, a user should be able to view what foods are available at the Mediterranean Kitchen station at United Table at International Village.

To select a specific food station:
- Navigate to a dining hall page
- Select a food station from the drop-down labeled "Food station"
- Press the select button next to the drop-down
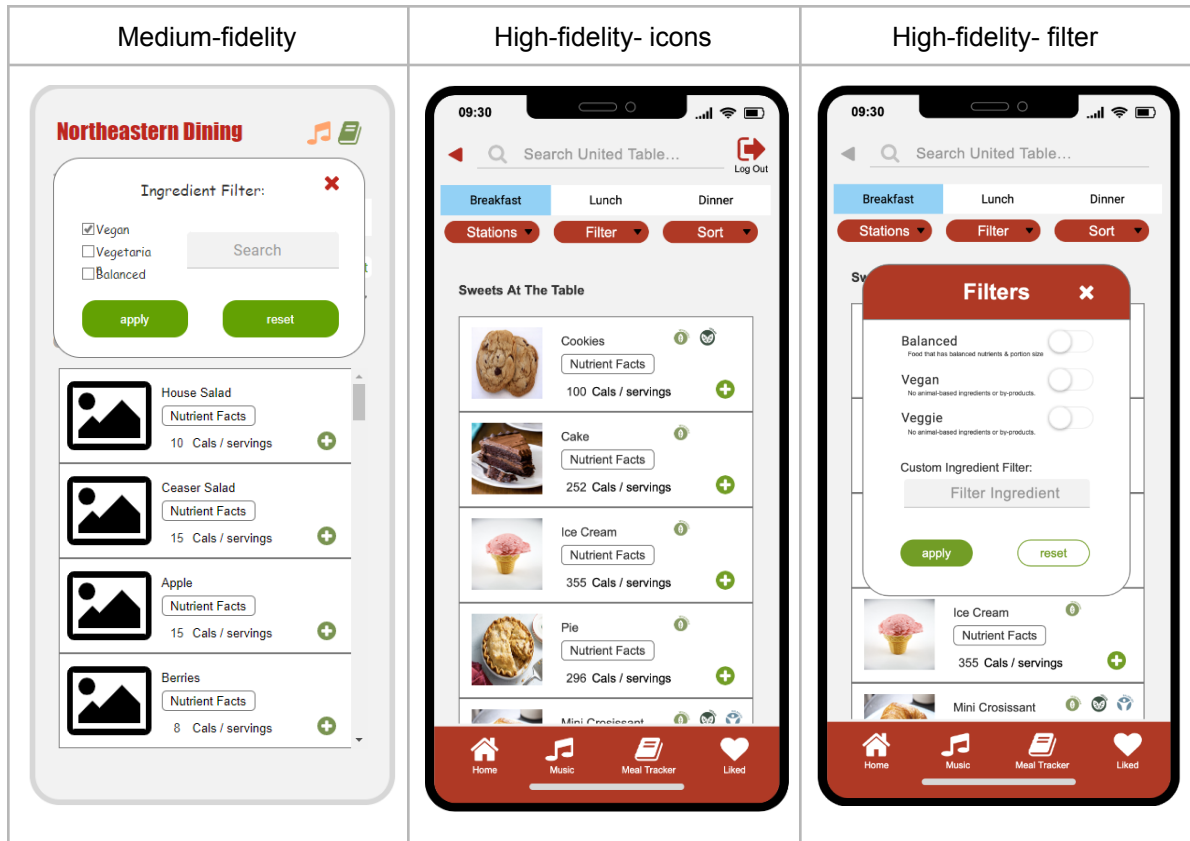
● View the results on the page

Low-fidelity	Medium-fidelity	High-fidelity
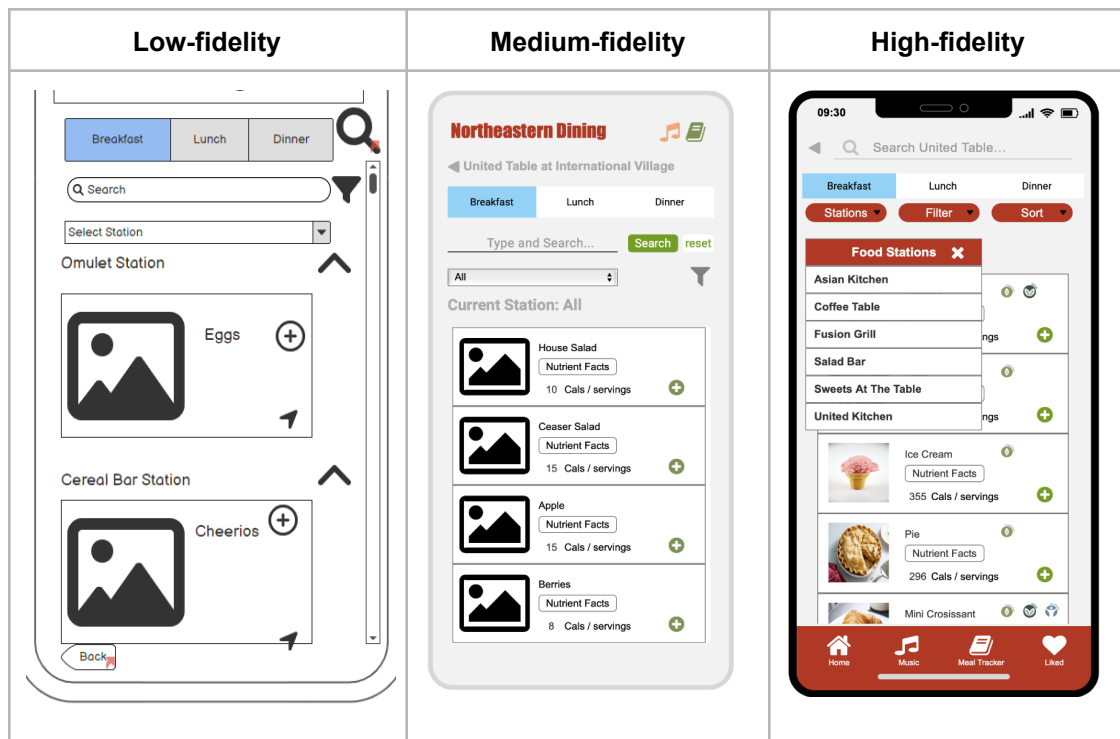
Design progress with insights from user interviews and expert evaluation:

Medium-fidelity prototype needed a user to select the station from a drop-down. Users could only see one station at a time. However, this was not what every user wanted. The high-fidelity prototype introduced scroll functionality. All the stations were displayed, by default, in Alphabetical order. Users can also choose to select one station from the drop-down.

Tasks 5 and 6: Each menu item should contain dietary indicators such as vegetarian, vegan, or balanced options. A user should be able to filter based on these dietary indicators. Also, the user should be able to filter foods by ingredients.

To filter items by dietary constraint:
● You will see a [Filter] button below Lunch
● By clicking the button, a modal window will jump out
● Check the dietary restrictions (Vegan, balanced diet, vegetation, etc.) you would like to apply
● Click apply
● Each menu item that meets the criteria for a dietary will have an icon corresponding matching the selected constraints

Medium-fidelity	High-fidelity- icons	High-fidelity- filter

Design progress with insights from user interviews and expert evaluation:

Our Medium Fidelity prototype coded these values into the repeaters, For the high fidelity prototype, we introduced Balanced, Vegan, Vegetarian icons in High fidelity prototype to work with filter window

Task 7: The app should let users view the ingredients, calories, portions, and nutrient information for each menu item.

This task concerns how users can view the nutritional information for each menu item.

<u>To view the ingredients of each menu item:</u>
- Navigate a dining hall menu
- Click the "view nutritional info" button for a food menu item

Low-fidelity	Medium-fidelity	High-fidelity
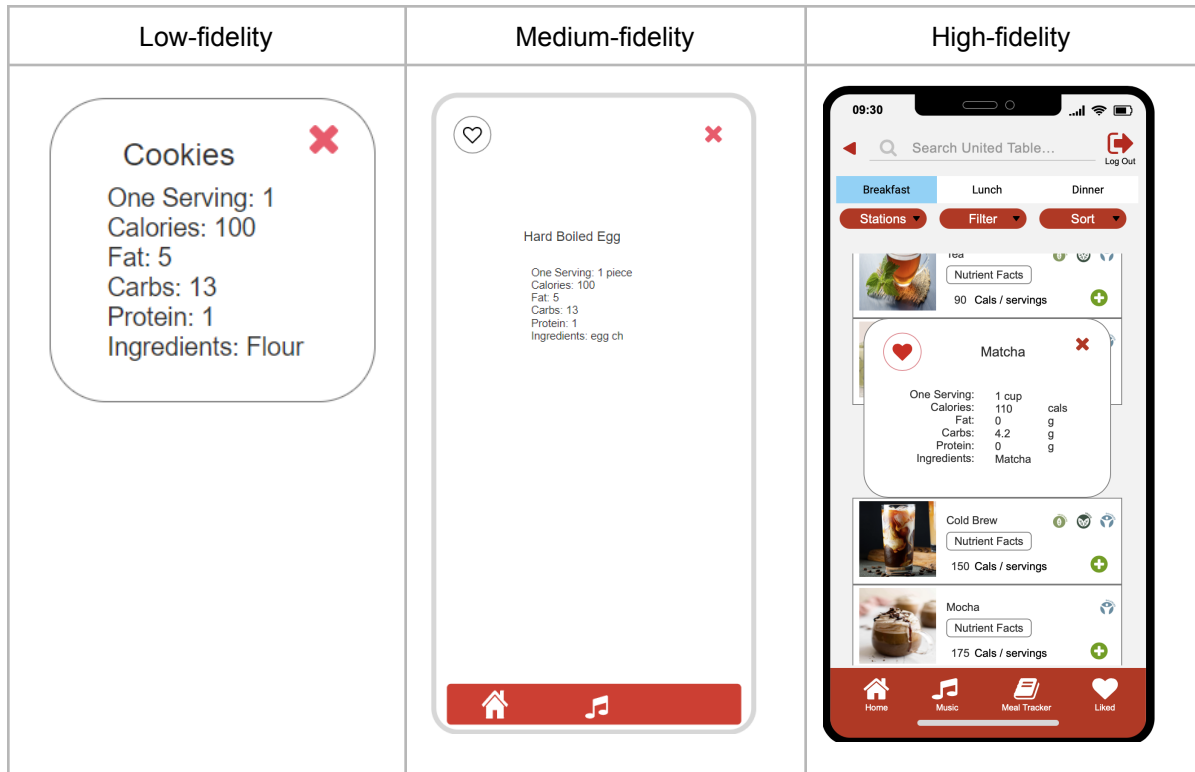
Design progress with insights from user interviews and expert evaluation:

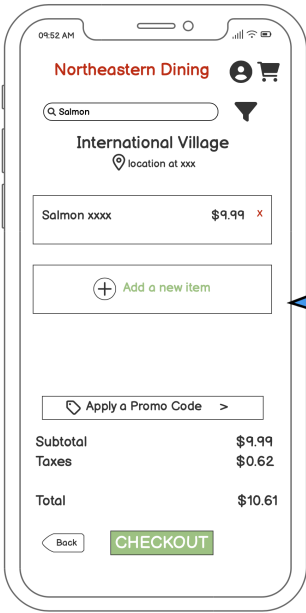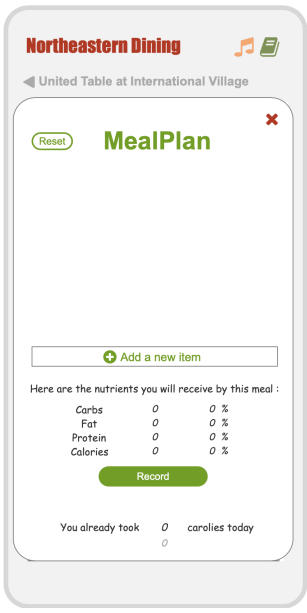We made good improvements in learning Axure functionalities for the nutrient details of each item. In the low-fidelity prototype, there was a sample nutrient detail. For the Medium- fidelity prototype, Calorie information was obtained for each menu item; we created nutrient details pop-ups in the initial version. However, by introducing repeaters for dynamic panels, we could no longer use pop-ups, as repeaters did not allow them. For the High-fidelity prototype, we could show this detail on the menu page without the redirection to a different page. This has dramatically improved user satisfaction. A favorite option is also added to all nutrients and is tracked on the Liked page.
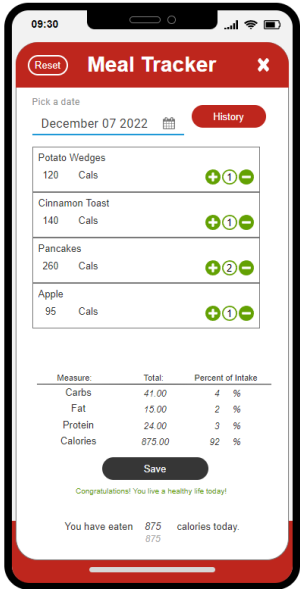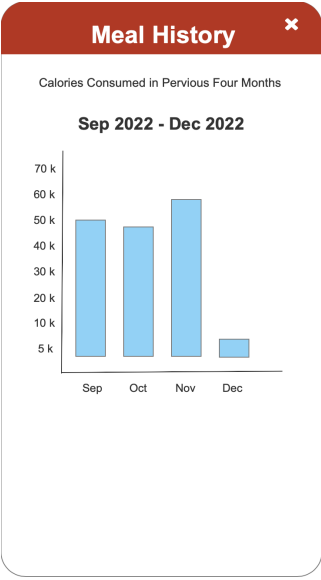
Task 8: The app should enable users to plan and track their meals. Display at minimum total calories for each meal of the day, percent of daily carbs/fat/protein on the user's daily goals.

This task concerns how users can add food items to their Meal Tracker and track their meals. The meal planning tracker allows users to add food items and calculates the calories for the user automatically from the nutrition information of the food item. Users can plan their meals for the day using this page. Users can add many food items if the calorie count goes beyond a specific amount; this page also warns that calorie intake is getting high.

To add menu items to the Meal Tracker:
- Navigate a dining hall menu page
- click the "plus icon" on a menu item display card in the upper right corner

Low-fidelity	Medium-fidelity	Design Progress
		As mentioned in Task 1, In the low-fidelity prototype, we initially misinterpreted the meal tracker as checking out items from all the dining establishments. We updated this to function as a calorie/nutrient tracker in the medium fidelity prototype.

High-fidelity - Tracker	High Fidelity - History	Design Progress
		In the high-fidelity prototype evaluation, we received feedback that % of the users are not described. The Save button keeps compounding calories when no additional changes are made on the screen. We fixed these by adding a % description and deactivating the save button when there are no changes. It also introduced the history of calorie tracking in the High-fidelity prototype.

Task 9: Add a song to the jukebox playlist in the dining hall.

This task concerns how users can add songs to the music playlist in the dining hall. Jukebox allows users to view the songs playing at the dining hall and add their favorites to the queue.

Medium-fidelity	High-fidelity	High-fidelity: Song Form
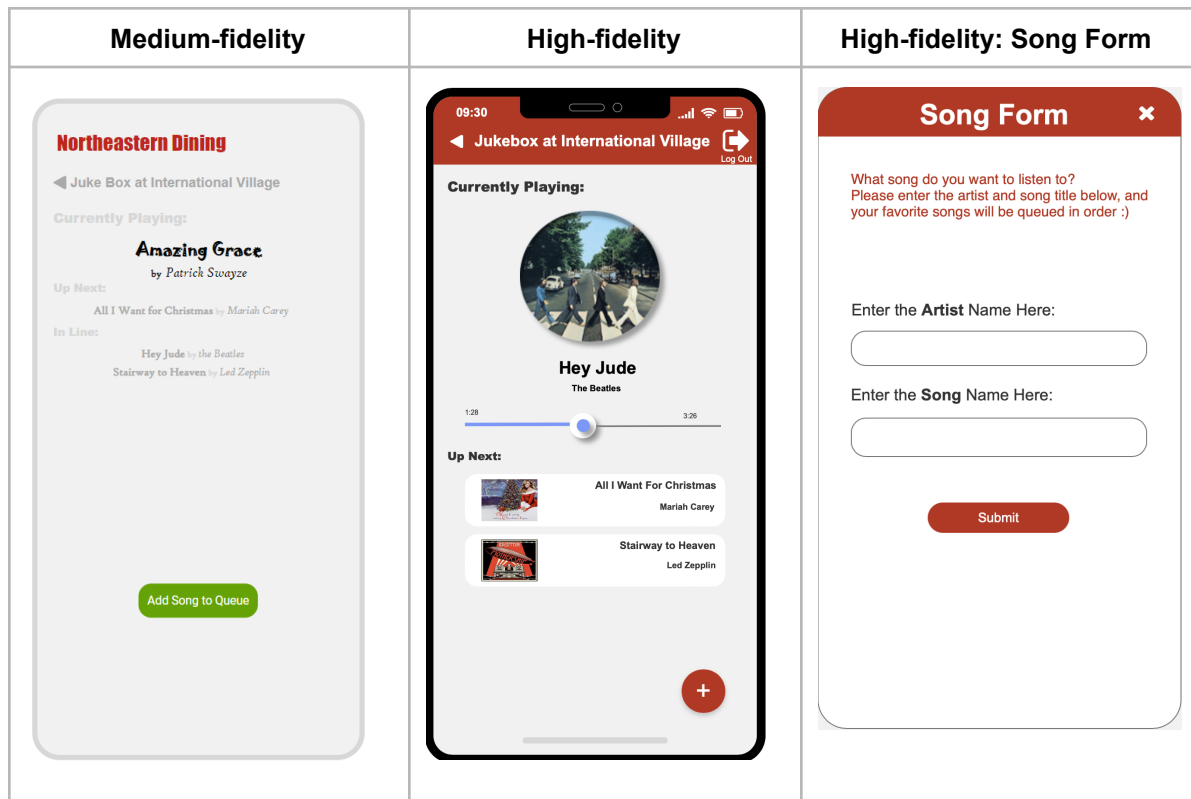
Other design considerations:

It is worth mentioning the care we took in the high-fidelity prototype. Where applicable, all the pages followed a similar layout, positioning of icons, and labeling so that the user didn't have to remember them. Log out button is available on all pages to allow the user to exit. A confirmation message is added to confirm the log-out action to prevent errors. Rulers were used to align the positioning of icons and text.

HIGH-FIDELITY PROTOTYPE

Public Axure Link: https://ewjkmb.axshare.com

SUMMATIVE EVALUATION METHODOLOGY

1. Evaluation Objectives
- o   Verify the user can complete the tasks outlined effectively and efficiently.
- o   Identify areas to improve the current prototype design.

2. Tasks / Scenarios

Test Scenario:

You are a Northeastern University student trying hard to balance wellness and your studies. You rely on the northeastern dining hall app to manage your diet and plan your daily meals.

Task 1: To access the international village dining hall, you must provide the cashier with your student bar code. Please login to the app and display the bar code associated with your account.

Task 2: You are hungry and want to find what foods are available during breakfast, lunch, and dinner today. On the app, try to open the lunch menu for the international village.

Task 3: You are craving smoked salmon today. Open the NEU Dining App to see if any station for the international village is serving salmon for lunch or dinner today.

Task 4: You are craving something sweet after class and want to see what deserts are available. In the app, navigate to the "sweets at the table" station and view the deserts.

Task 5: You have tried to adopt healthier habits and eat more balanced foods. Apply the balanced filter to the international village lunch menu and view the items displayed.

Task 6: You are allergic to chocolate and want to verify what foods you can eat that do not have chocolate. In the app, open the filter modal, add chocolate to the ingredient filter, and filter out all food chocolate.

Task 7: You have been trying to lose weight recently, although you want to eat chocolate cake for dinner. Verify that the cake is under 200 calories per serving.

Task 8: You are tracking your macronutrient intake to train for an upcoming marathon; add some foods to your meal plan and verify you are consuming at least 20 grams of protein for today's meal plan.

Task 9: You enjoy listening to music; you would like to listen to their music while eating. In the app, navigate to the jukebox page, and add a song to the dining hall playlist.

3. Participants

Our team conducted usability tests with five users in total. The table below lists the users interviewed for the usability tests; these users were each considered a member of our user personas created during our initial contextual analysis. Being a graduate student or undergraduate student at Northeastern University. So their feedback on the usability of our prototype fits what a real user might experience in a production environment.

Team Member	Tester Name	When
Michael Maquera	Kevin M	November 27 at 5 pm
Michael Maquera	David K	November 26 at 6 pm
Srijha Thammareddy	Abhinav P	November 27 at 9 pm
Srijha Thammareddy	Shantanu D	Dec 2 at 9 pm
Meishan Li	Yuxuan T	November 28 at 6 pm
Meishan Li	Shiwei Z	Dec 1 at 7 pm

4. Usability Metrics

Usability Metric	Measure
Task-based efficiency	Task completion time in seconds

| Task-based effectiveness	Task completion rate
Task-based satisfaction	Task-based usability questionnaire
Overall usability	System usability scale

5. Procedure

For the usability test sessions, we presented the testers with a laptop computer that displayed the qualtrics survey and a cell phone with the prototype. The moderators followed a brief created by the team that explained the survey process. While the user was the observer was timing the total time it took the tester to complete each task for the task-based efficiency metric.

RESULTS

1. Task Completion Rates

Task Number	Usability Metric	Measure	Target	Benchmark	Observed
Task 1 - Login	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Task 2 - Lookup breakfast, lunch, and dinner	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Task 3 - Search single item	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Task 4 - Display by station	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Task 5 - Filter by dietary indicator	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Task 6 - Filter by ingredient	Completion Rate	Task Success Observed by Moderator	80%	N/A	0%
Task 7 - View ingredients	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Task 8 - Meal tracker	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Task 9 - Add a song to jukebox list	Completion Rate	Task Success Observed by Moderator	80%	N/A	100%
Overall	Overall Completion	Task Success	80%	N/A	88.99%

	Rate	Observed by Moderator			

Task Completion Rate %
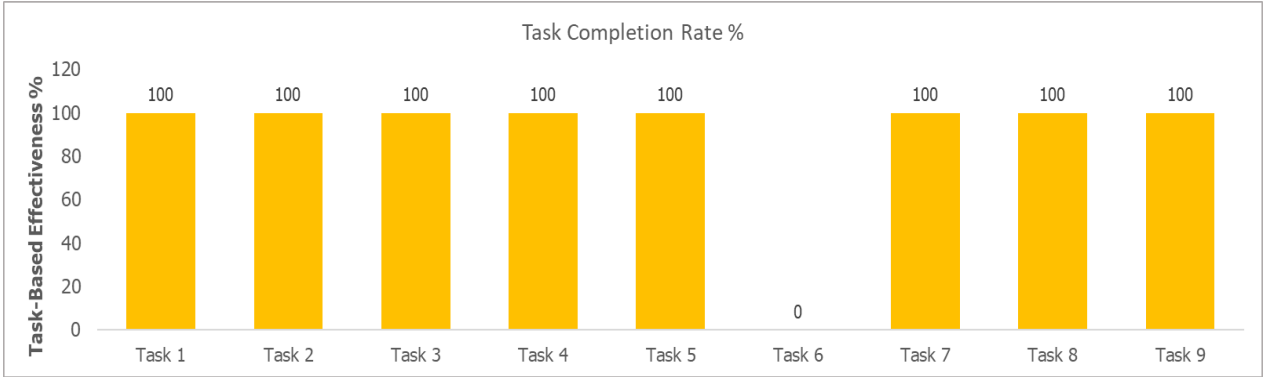
2. Time on Task

Task Number	Usability Metric	Target	Benchmark (seconds)	Observed (seconds)
Task 1 - Login	Task Completion Time (seconds)	80%	5s	6.20s
Task 2 - lookup breakfast, lunch, and dinner	Task Completion Time (seconds)	80%	12s	14.60s
Task 3 - search single item	Task Completion Time (seconds)	80%	12s	17.20s
Task 4 - display by station	Task Completion Time (seconds)	80%	5s	7.20s
Task 5 - filter by dietary indicator	Task Completion Time (seconds)	80%	10s	13.00s
Task 6 - filter by ingredient	Task Completion Time (seconds)	80%	35s	39.40s
Task 7 - view ingredients	Task Completion Time (seconds)	80%	5s	6.80s
Task 8 - meal tracker	Task Completion Time (seconds)	80%	45s	59.80s
Task 9 - add a song to jukebox list	Task Completion Time (seconds)	80%	15s	19.80s
Average Time To Complete A Task	Time (Seconds)	80%	16s	20.40s
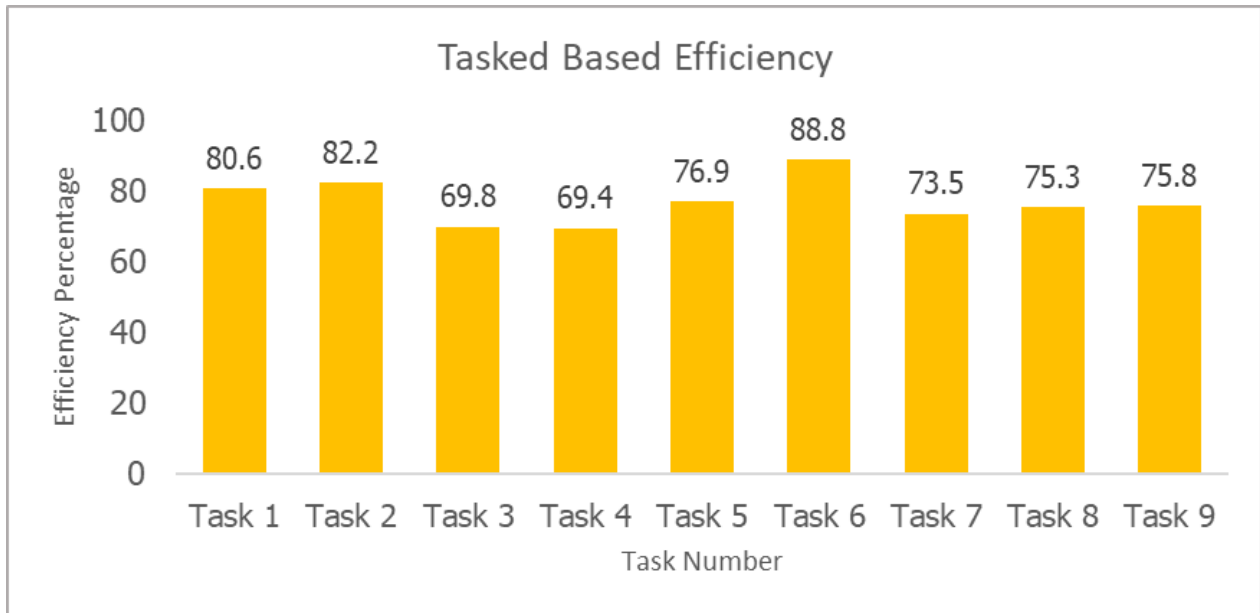
3. Task-Based Usability

Task	Usability metric	Measure	Benchmark	Target (out of 5)	Observed (out of 5)
Task 1 - Login	Tasked Based Usability	ASQ	N/A	4	4.90
Task 2 - lookup breakfast, lunch, and dinner	Tasked Based Usability	ASQ	N/A	4	4.86
Task 3 - search single item	Tasked Based Usability	ASQ	N/A	4	4.60
Task 4 - display by station	Tasked Based Usability	ASQ	N/A	4	4.80
Task 5 - filter by dietary indicator	Tasked Based Usability	ASQ	N/A	4	4.13
Task 6 - filter by ingredient	Tasked Based Usability	ASQ	N/A	4	3.40
Task 7 - view ingredients	Tasked Based Usability	ASQ	N/A	4	4.66
Task 8 - meal tracker	Tasked Based Usability	ASQ	N/A	4	3.66
Task 9 - add a song to jukebox list	Tasked Based Usability	ASQ	N/A	4	4.8
Average	Tasked Based	ASQ	N/A	4	4.42

Task-Based Usability	Usability				
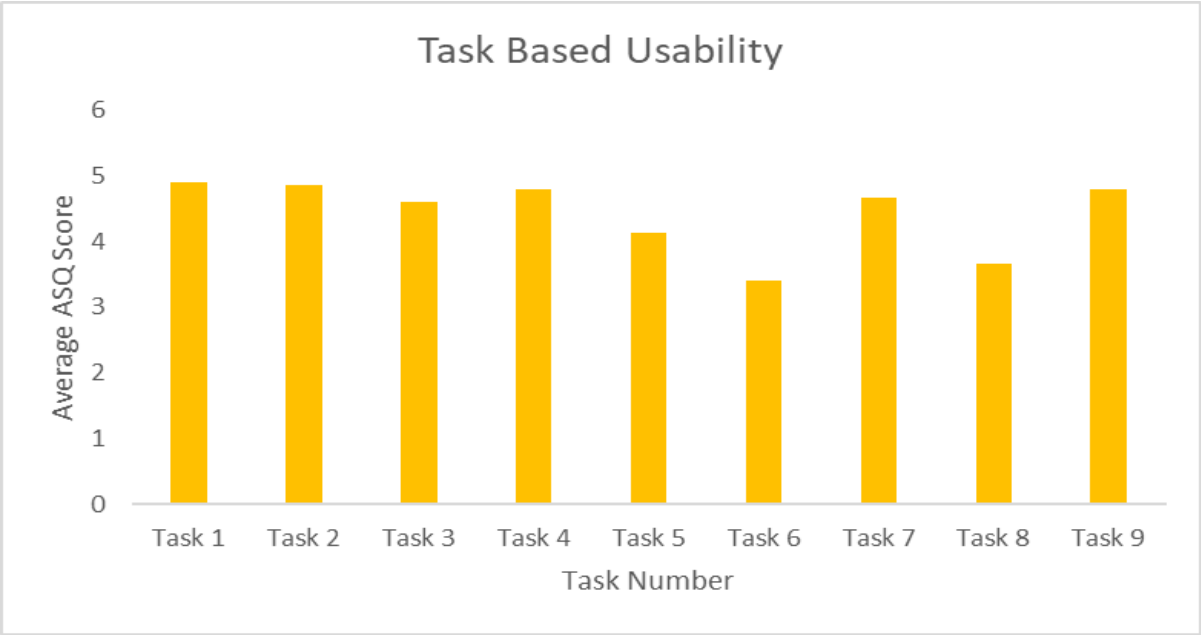
4. Overall Perceived Usability

Usability Metric	Measure	Benchmark	Target	Observed
Perceived Overall Usability	SUS	68	80	79.5

5. Usability Issues

Task/Screen/ Context	Usability Issue	Design Change Recommendation	Severity	Status (Fixed / not changed)
Dining Hall Page	The user is unsure what the navigation icons do at the bottom of the screen. Leads to confusion in navigation across the application.	Add text labels with each icon to describe their functionality.	Level 4	Fixed
Meal Tracker	The user needs clarification when items are added to the meal tracker, leading to unnecessary additions to the tracker log.	Add notifications when an item is added to the meal tracker.	Level 2	Fixed

Dining Hall Page	The user is unsure what the definition of a balanced, vegetarian, or vegan definitions are on the filter menu	Add descriptive labels to the filter selector buttons to explain what the filtering criteria are.	level 3	Fixed
Dining Hall Page	The user is unsure when an ingredient filter has been applied.	Add a toast notification or pop-up to show that an ingredient filter has been applied.	Level 3	Fixed
Dining Hall Page	The user could not apply filters consistently to desired items and ingredients	Verify that the data inside the application is accurate and filters are applied accordingly.	level 5	Fixed
Dining Hall Page	The filter pop-up menu does not close automatically when filters are applied	Close the filter menu after pressing apply filters.	level 1	Fixed

DISCUSSION

For most usability metrics, the high-fidelity prototype achieved the expected results of 80 percent compared to the benchmark. With an overall usability score of 79.5%, the first ideation of the high-fidelity design is close to the final product. However, some outliers in our design needed to be addressed that scored significantly below the benchmark value, including task 6, filtering, and task 8, the meal tracker.

For Task 6, filtering, the task achievement was 0% because there was a bug in the prototype that led to only certain ingredients being filtered. Because of this, we conducted a thorough audit and inspection of the food menu's ingredients data to verify when ingredient filters are applied; in the final design, the app will apply filters consistently across every item on the menu.

Task 6 also scored the lowest out of all our measured tasks and below the benchmark at 3.40; the team hypothesized this was due to no feedback being given when the filters were applied successfully. Before implementing improvements, the users would click "apply" in the filter menu, and nothing would happen to show that the filters had been applied. The team addressed this problem by automatically closing the filter menu once it had been applied and displaying icons on the app page with the applied filters' names. Users can also click on these icons to remove the activated filters without reopening the filter selector menu.

The second task that required significant improvements was task 8, the meal selector. It was the task that took our testers the longest on average to complete, 54 seconds, and had the second lowest ASQ score of all tasks at 3.60. It makes sense that this task is the longest to complete because it involves the most steps. Such as navigating the different meals, adding the food items to the tracker, then finally navigating to the meal tracker menu and saving the meals to the history log for the day.

So our improvements focused on improving the effectiveness and satisfaction of the meal tracker itself. Adding labels to the table at the bottom of the page gives meaning to the percentages of daily intake and units for the macronutrient values. Also, we added form validation for when the user saves their meals for the given day. To save meal data, a user must select a date from the date picker, and the tracker cannot be empty. After the data is saved, users may click the history button and view their meal records based on the nutrients and calories consumed in the

previous months. The validation also prevents users from removing meals from their tracker unless they want to reset the given day and delete its data.

CONCLUSIONS

Through the HCI lifecycle, the team, could create an effective product prototype for the NU dining application that focused on the user's goals. This process must address transitioning from prototype planning and design to implementing existing software as a minimum viable product in a production setting. Tasks such as implementing a data model and selecting a mobile framework to develop the application are also intensive aspects of software design. The design team agrees that an improvement of the HCI lifecycle process would include engineers in the discussion of their product and prototype implementation so the engineering teams can begin planning and their design process of implementing what the UI/UX teams are working on. It also asks what is precisely "good enough" in the design. The team discussed that usability benchmarks should be decided early in the HCI lifecycle so the team can progress the prototype to the engineering team to design.

Limitations: Axure limitations meant our Meal Tracker page calculations were not optimal.

Things that didn't go as planned and could have been done differently were the search, filters, and nutrient information. A lot of hours of effort were spent on each of these items because we did not explore all of the features of Axure on our own but depended on only what was shared in class. So our initial designs were a lot of repetitive work. We initially implemented Search with all possible conditions, including what's required and excluding others from the case conditions. This was a lengthy, painful process with lots of filters which was later understood as unnecessary. The next thing was the Nutrient details. With the introduction of repeaters, we could no longer use manual popups for each food item, so this was redone to then create nutrient details for all 36 items into 36 pages and add these nutrient details into repeaters for the meal plan tracker population. After many hours, our product worked with all features for the medium-fidelity prototype. Although that was the only way we knew how to achieve it at the time, redirection to a different page for nutrient detail was not the optimal way to do this, one of our teammates was later able to figure out how to use this with repeaters better, and we got a good end product. In conclusion, understanding Axure's features earlier, probably the important features that could have saved us several hours of manual work, would have been very helpful.

APPENDIX

Prototypes

Low-Fidelity Prototype - WireFrame: https://balsamiq.cloud/so6incf/pm6hsdr/rE5EE

Medium fidelity prototype: https://2v8tgd.axshare.com

High Fidelity prototype: https://ewjkmb.axshare.com

Qualtrics survey

https://neu.co1.qualtrics.com/jfe/form/SV_eCJvnvmmyAkUJsW

Observation Log

#	Task	Start time	End time	Total time (seconds)	Task Status [Complete, Abandoned]	Observation
1	To access the international village dining hall, you must provide the cashier with your student bar code.					

	Please login to the app and display the bar code associated with your account.				
2	You are hungry and want to find what foods are available during breakfast, lunch, and dinner today. On the app, try to open the lunch menu for the international village				
3	You are craving smoked salmon today. Open the NEU Dining App to see if any station for the international village is serving salmon for lunch or dinner today.				
4	You are craving something sweet after class. You want to see what deserts are available. In the app, navigate to the "sweets at the table" station and view the deserts.				
5	You have decided to try to adopt healthier habits and eat more balanced foods. Apply the balanced filter to the international village lunch menu and view the items displayed.				
6	You are allergic to chocolate. You want to verify what foods you can eat that do not have chocolate. In the app, open the filter modal, add chocolate to the ingredient filter, and filter out all food chocolate				
7	You have been trying to lose weight recently, although you want to eat chocolate cake for dinner. Verify that the cake is under 200 calories per serving.				
8	You are tracking your macronutrient intake to train for an upcoming marathon; add some foods to your meal plan and verify you are consuming at least 20 grams of protein for today's meal plan.				
9	You enjoy listening to music; you would like to listen to their music while eating. In the app, navigate to the jukebox page, and add a song to the dining hall playlist.				