

Project Deliverable D: Conceptual Design

GNG 1103 – Engineering Design

Team A14

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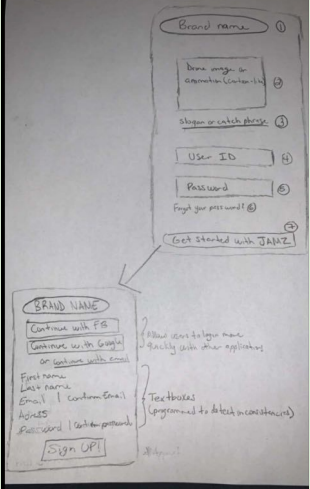
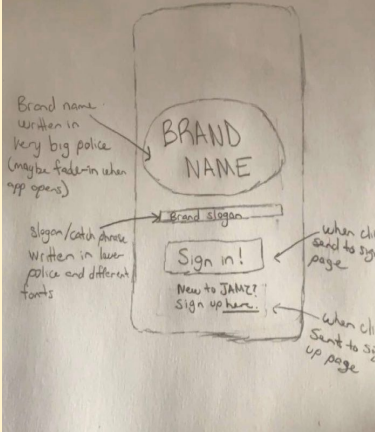
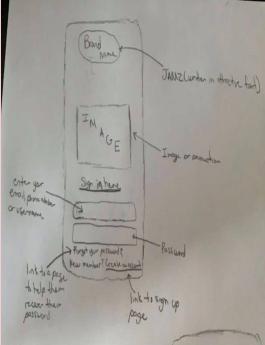
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Introduction

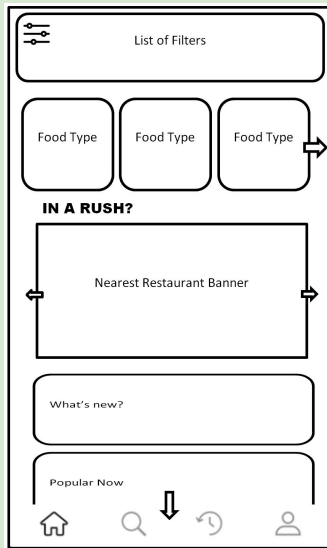
After an analysis of the client’s needs and performing technical and user benchmarking, the design and overall concept of the application became more apparent. This document presents several design concepts for each main feature of the application. These features are based on the expressed needs of the client and those observed in other popular food-delivery apps. Each team-member has created several concept sketches and their advantages and disadvantages were discussed as a team; these are the basis for outlining three global concepts and our direction for future development.

Concept Design

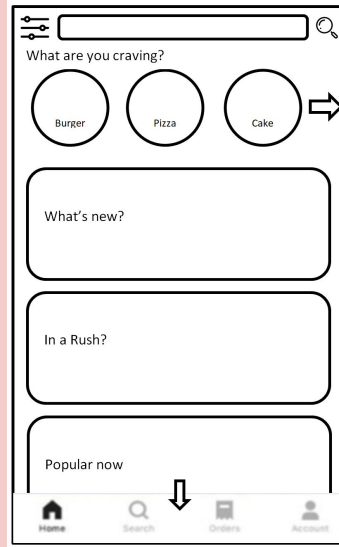
Table 1: Concept Design Table with Application Sub-systems

Application Page	Design Concept 1	Design Concept 2	Design Concept 3
Log-in	 <ul style="list-style-type: none"> ● 2 Page login set-up ● Main login page ● New User login page 	 <ul style="list-style-type: none"> ● 1 Page login set-up ● Has Company slogan 	 <ul style="list-style-type: none"> ● 1 Page login set-up ● Has image of Company’s drone

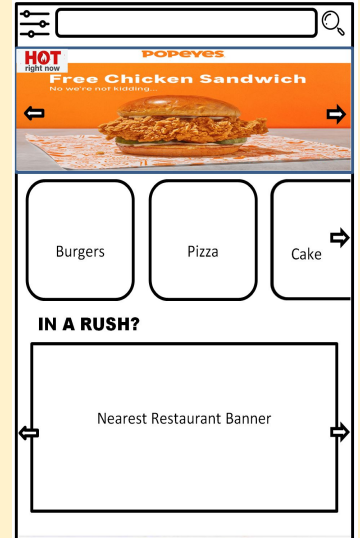
Main Landing Page with deals and featured restaurants



- Scrollable food type category on top
- In a rush option to show nearby restaurants and fast deliveries
- List of filters displayed
- Home menu bar

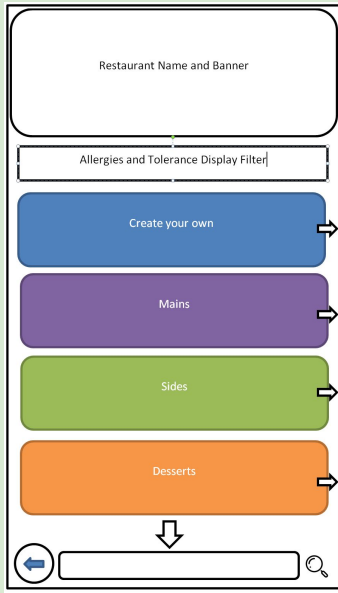


- Scrollable food type category on top
- In a rush option to show nearby restaurants and fast deliveries
- Search Bar on top with filter symbol
- Home menu bar

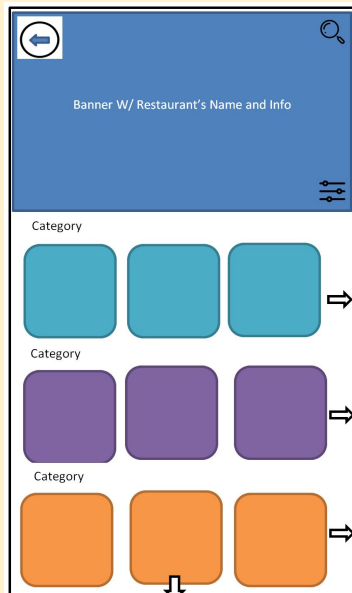


- Scrollable food type category on top
- Hidden Home Menu bar (disappears when scrolling)
- In a rush option to show nearby restaurants and fast deliveries
- Search bar on top with filter

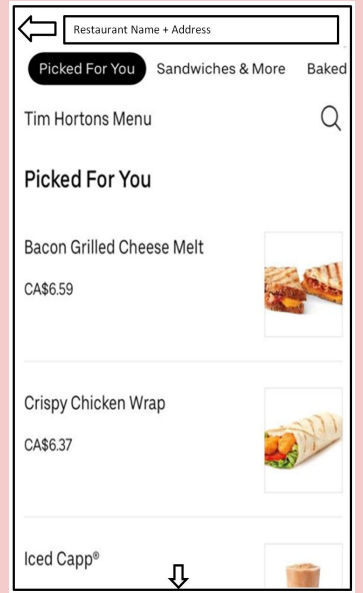
Restaurant selection Page



- Vertical Scroll
- Search and back button on bottom

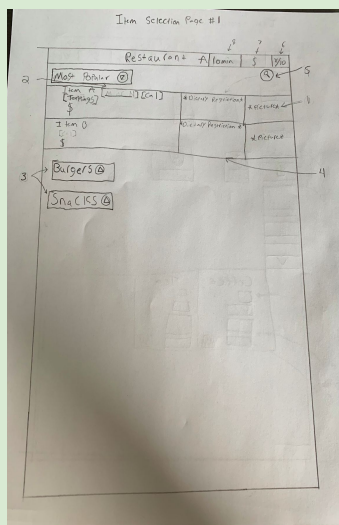


- Search and back button on top
- Filter restaurants option



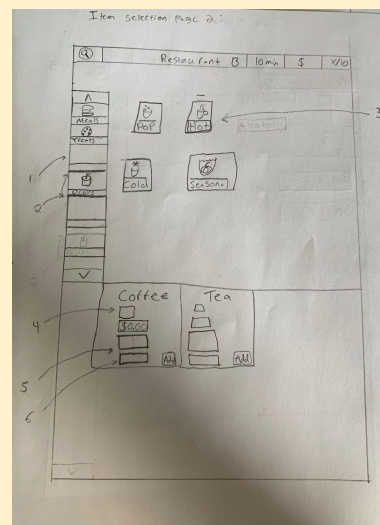
- Search and back button on top
- Horizontal scroll on top

Item Selections Page



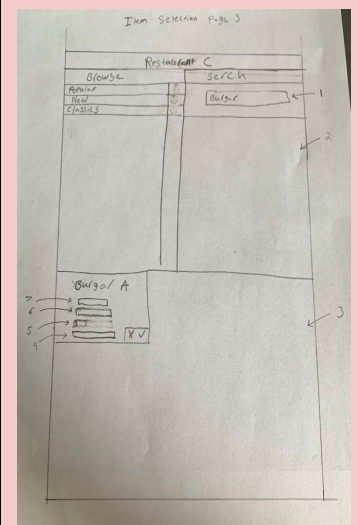
Item Selection Page: 1

1. Picture of what the product looks like
2. Expresses whether it is a meal or not
3. Categories can be determined by restaurants
4. Displays a symbol which when tapped will explain the dietary restriction
5. Search bar
6. Rating
7. Delivery cost
8. Approximate time of order arrival



Item Selection Page: 2

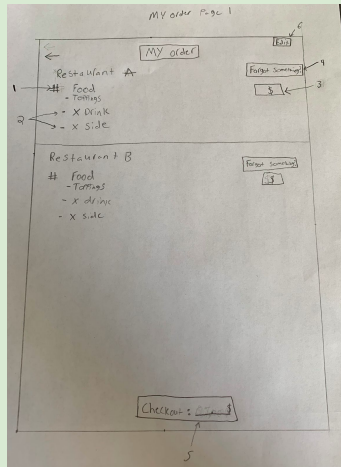
1. Scroll wheel for different food categories
2. "Selector tab" (Shows which category is being portrayed)
3. When clicked will queue the box below
4. Size: S, M, L
5. Displays a symbol which when tapped will explain the dietary restriction
6. Customization (add sugar, cream, milk etc)



Item Selection Page: 3

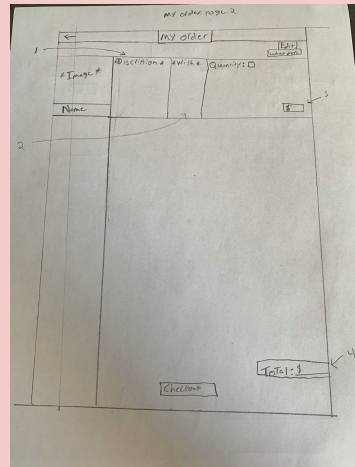
1. Search category menu item keyword
2. Where search findings are displayed
3. When a category is selected the configuration settings will be displayed there
4. Dietary restrictions
5. Cost
6. Toppings
7. Quantity

Shopping Cart Page



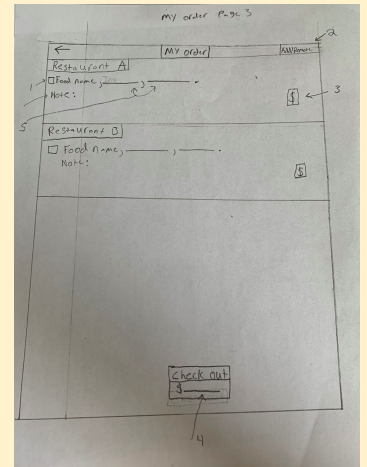
Order Page: 1

1. Quantity of select item
2. Size of select item
3. Cost of select item
4. If something is forgotten you can go back to that restaurants page
5. Price of all items
6. Can select what you want to remove



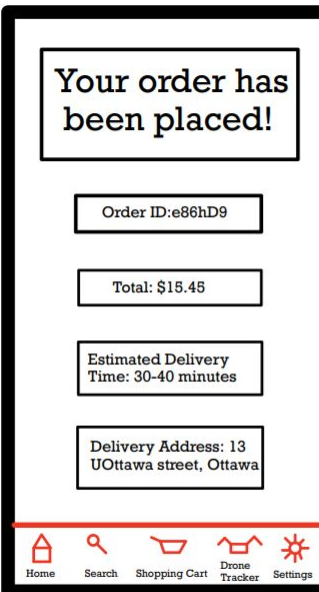

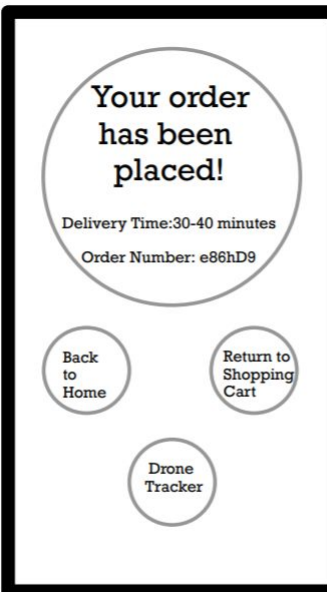
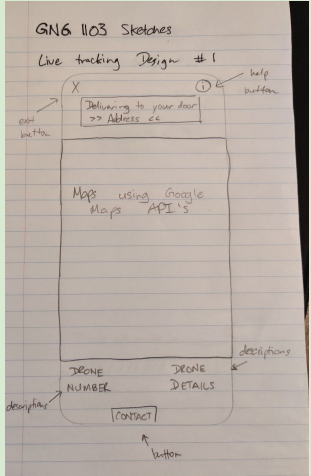
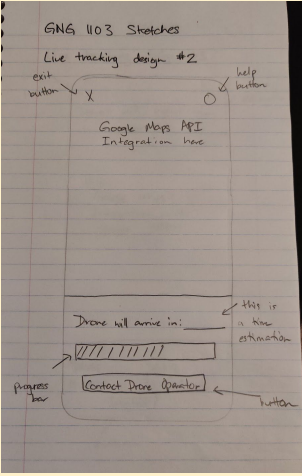
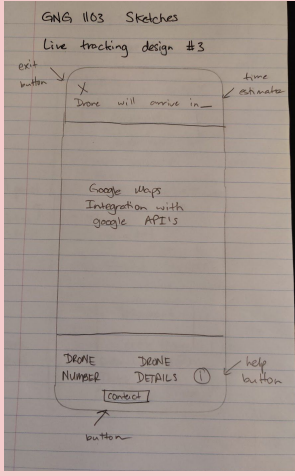
Order Page: 2

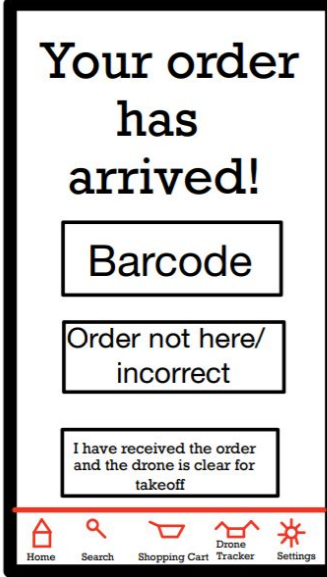


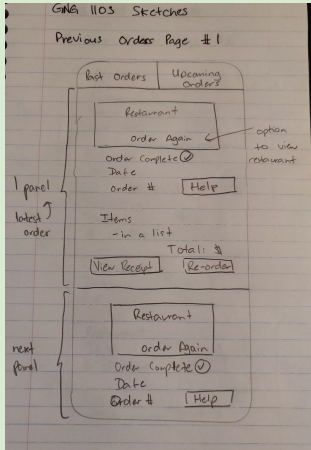
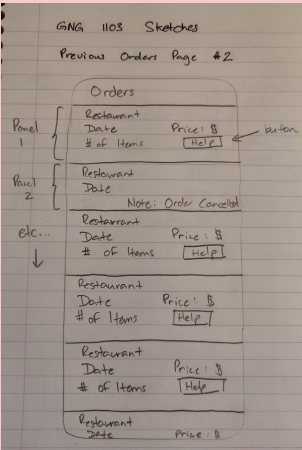
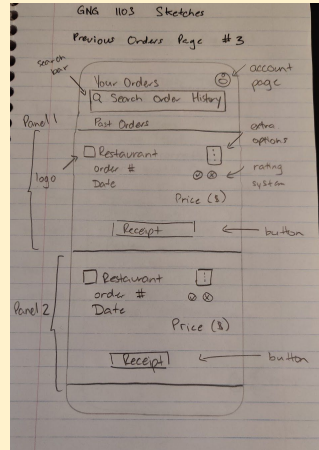
1. What toppings are on it
2. Is there a drink or side that was added
3. Individual cost
4. Cost of all items



Order Page: 3

1. Quantity
2. Go back and get more/ take this off my order
3. Individual item cost
4. Total item cost
5. Sides and drink (with size)
6. Order customization (toppings/ added toppings)

<p>Order Confirmations Page</p>	 <ul style="list-style-type: none"> • Home menu bar 	 <ul style="list-style-type: none"> • Hidden Home menu features (3 red lines) 	 <ul style="list-style-type: none"> • No Home menu features
<p>Live GPS Tracking Page</p>	 <ul style="list-style-type: none"> • GPS map in middle of screen • Address display on top • Drone information on bottom • Contacts button on bottom • Info button on top right 	 <ul style="list-style-type: none"> • GPS map on top of screen • Drone delivery progress bar displayed on the bottom • Drone arrival estimate time • Info button on top right 	 <ul style="list-style-type: none"> • GPS map in middle of screen • Drone arrival estimate time displayed on top • Drone information on bottom • Info button on bottom right

<p>Order Delivered Page</p>	 <ul style="list-style-type: none"> • Home menu bar on bottom • Delivery information displayed on screen 	 <ul style="list-style-type: none"> • Retractable home menu symbol • Delivery information in email 	 <ul style="list-style-type: none"> • No home menu bar or retractable home menu symbol • Delivery information displayed on screen
<p>Order History page</p>	 <ul style="list-style-type: none"> • Large order display pages • Shortcut to reorder and view restaurant menu again • Home menu features displayed 	 <ul style="list-style-type: none"> • Medium order display pages • Click tabs for more details on order • Hidden home menu features 	 <ul style="list-style-type: none"> • Large order display pages • Show receipt • Account information button • Hidden home menu features

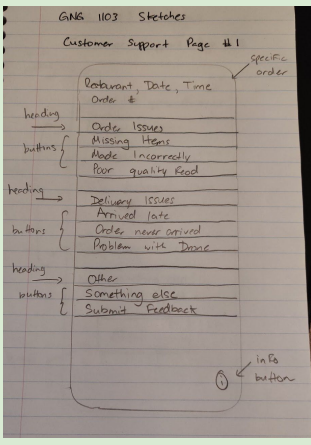
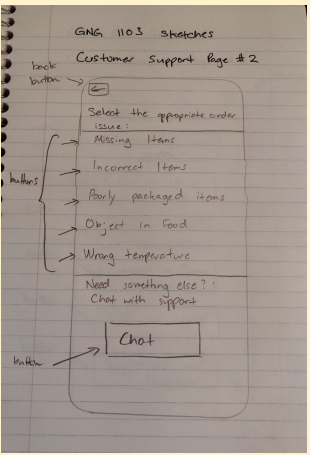
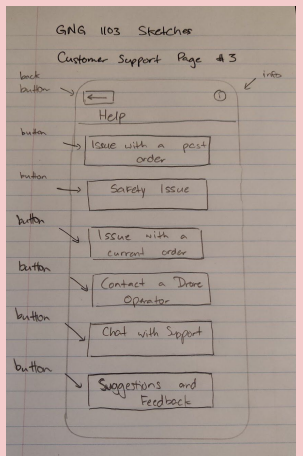
Customer Support			
	<ul style="list-style-type: none"> ● Categorized help option tabs with headings ● Info FAQs button on bottom right ● Has specific order displayed on top 	<ul style="list-style-type: none"> ● General help option tabs ● Chat with support team button ● Info FAQs button on top right 	<ul style="list-style-type: none"> ● General help option buttons to redirect to appropriate page ● Info FAQs button on top right

Table 1 above consists of all the 3 concept designs for each sub-system of the drone food delivery application. The chart is colour-coded with green, yellow, and red which represent the team’s level of favourites for each of the 3 concepts. Green represents the team’s most favourite, red represents the team’s least favourite, and yellow is in between. The team’s favourites are rated depending on their overall features and layout design, while also considering the client’s needs. This table is not to be confused with Table 4, which is the decision matrix.

Table 2: Application sub-systems and team’s likes/dislikes

Subsystem	Likes (and other ideas)	Dislikes
Login	<ul style="list-style-type: none"> ● Create account feature ● Likes set-up of two page concept (design 3) ● Large logo in center at login ● Login leads to create account 	<ul style="list-style-type: none"> ● Slogan ● Cluttered with too many items ● Back button to go back to main login (missing)
Main Page	<ul style="list-style-type: none"> ● “In a Rush?” feature (Design 2) ● Upfront soft filters ● Definitely keep the search bar feature ● Advanced filter setting on top that displays current filters 	<ul style="list-style-type: none"> ● Search function only in home bar
Restaurant Selection	<ul style="list-style-type: none"> ● Allergy and Tolerance filter ● Categories are displayed and can be filtered 	<ul style="list-style-type: none"> ● Add three boxes on top w/ delivery fee/time, and restaurant rating
Item Selection	<ul style="list-style-type: none"> ● Pictures column ● Dietary Restriction column ● Layout of design 2 ● Search option would be useful 	<ul style="list-style-type: none"> ● Concerns of size in design 2 (vertical design on category selector) ● Take out: Delivery fee/time and restaurant rating
Shopping Cart	<ul style="list-style-type: none"> ● Dual restaurant display ● “Forgot something?” function ● Use check out function in concept 1 	<ul style="list-style-type: none"> ● Change “Edit” to “Select”
Order Confirmation	<ul style="list-style-type: none"> ● Display of all info ● Big checkmark ● Aesthetics of design 2 with information display of design 1 ● Confirmation email 	<ul style="list-style-type: none"> ● Design 3 formatting
GPS Tracker	<ul style="list-style-type: none"> ● Option to see drone number ● Estimated time of arrival progress bar, with steps 	<ul style="list-style-type: none"> ● Replace text/call driver option with help button to redirect to help contacts page
Order Delivered	<ul style="list-style-type: none"> ● Three bars added to design 2 ● Three main buttons of customer support, barcode, delivery taken 	<ul style="list-style-type: none"> ● Cluttered and too close to bottom bar in design 1

Order History	<ul style="list-style-type: none"> • The concept of “Order again”/“Reorder” shortcut • Search bar 	<ul style="list-style-type: none"> • Try to clarify the difference between “order again” and “reorder”
Customer Support	<ul style="list-style-type: none"> • Info button that includes FAQ • Categorizing of issues 	<ul style="list-style-type: none"> • Don’t want to put chat function too direct as customers would be more tempted to contact for support instead of working it out themselves with information

Table 2 provides a general feedback for every subsystem on the previous table (Table 1). This feedback is basically what aspects of the different design concepts we liked and disliked as a group. This table was very important as it gave us the ability to begin creating our design mockup to present in our second client meeting.

Table 3: Global concept chart with benefits and drawbacks

Global Concepts	Description	Benefits	Drawbacks
1	<ul style="list-style-type: none"> • Has home-bar on bottom screen all throughout with 4 main features (Home, Search, Orders, and Account) • Refresh by swiping down • Top left back buttons • Filter button on bottom right • Based on sketches in Design Concept 1 column for design (from Table 3: Concept Design) 	<ul style="list-style-type: none"> • Standard and easily accessible (home-bar and top left back button) • Easier to navigate since everything is displayed 	<ul style="list-style-type: none"> • Clutter, less screen-space and less visibility
2	<ul style="list-style-type: none"> • Home-bar as 3 line on top right corner • List of filters section • Search function displayed on top of the screen • Refresh by swiping down • Back button on top left 	<ul style="list-style-type: none"> • Saves space and prevents clutter (homebar, pop-out) • Standard layout, easy to navigate 	<ul style="list-style-type: none"> • Not accessible due to hidden functions • Harder to navigate as some features are hidden

	<ul style="list-style-type: none"> ● Based on sketches in Design Concept 2 column for design (from Table 3: Concept Design) 		
3	<ul style="list-style-type: none"> ● Home-bar that disappears if you scroll, and then pops back up when touched screen ● Pop-out filters ● Swipe right to go back ● List of filters when clicking search bar ● Based on sketches in Design Concept 3 column for design (from Table 3: Concept Design) 	<ul style="list-style-type: none"> ● Better visibility and less clutter within the app ● More screen-space and saves clutter 	<ul style="list-style-type: none"> ● Not accessible due to hidden functions ● Harder to navigate as some features are hidden

Table 3 was used to assess three global concepts similarly to that of the previous table (Table 2). It outlines different benefits and drawbacks from each global concept that our group was considering using. Just like that of Table 2, this chart was imperative to find what global concept we will develop further in our mockup and potentially our prototype.

Table 4: Decision matrix for 3 fully functional solutions

#	Criteria	Weight (1-5)	Concepts		
			1	2	3
1	Shopping Cart	5	3	1	2
2	GPS	5	2	3	1
3	User Accessibility	4	3	2	1
4	Menu	4	3	2	1
5	Aesthetics	4	1	2	3
6	Order History	2	3	1	2
7	Order Confirmation	3	2	3	1
8	Cost	1	3	3	3
9	Easy to navigate	4	3	2	1
Total			80	66	44

Table 4 was used to analyse how each of our global concepts correspond to a certain criteria (which for the most part consists of our actual client needs). We did this by defining the weight of our client needs (on a scale of 1-5) which was interpreted by discussion in this deliverable as well as in our prior one (deliverable C). We then as a group discussed which concept ranked first second and third as far as how it corresponds to our criteria. First being #3, second being #2, and last being #1. Lastly, we found the sum of each product of the rank and weight to solve for a total value. These numbers represent which global concept corresponds to our client needs the most; thus showing which global concept we should proceed with.

Analysis and Justification for Decision

The team decided to go with global concept 1. In fact, this concept is obviously the best one in terms of total points in the selection matrix (Table 4). Although the aesthetics will not be on the same level as global concept 3 (due to more clutter on the screen as a trade-off for button function visibility), the other features such as the shopping cart, the user accessibility and the GPS navigation outweigh the benefits of having stellar aesthetics. Unlike the other 2 global concepts, global concept 1 is very accessible with less hidden button functions, making it easier for seniors and people with disabilities to navigate the application. Some of the preferred characteristics for the global concept 1 were especially the main page, login page, the GPS map tracker, and the shopping cart. The overall design, features, and aesthetics of the first concept's main menu showed potential for being easy to navigate, and extremely informative of the restaurants and food options available to the user. The login page for the chosen global concept included the 2-page login setup in which the new user login page was not an option in the other concepts. For the GPS tracking page, the one for the global concept 1 has a simple and clutter-free UI with necessary information displayed. Finally, the shopping cart for global concept 1 is simply better in terms of possessing more features and displaying those features in an easy-to-read and navigate manner .

Conclusion

Through benchmarking and concept design sketching, the team has been able to produce a plethora of new and exciting ideas. Among them, after the evaluation of each concept design, global concept 1 has shown to be the most promising design as it allows for easy navigation, a larger number of appealing app features based on the selection matrix, and many other functions. This concept's standard approach to the UI layout also makes it an appealing option as it allows for easier use for the less tech-savvy customers. Going forward, the team hopes to implement all of the features that piqued their interest into future prototypes but will undoubtedly omit several from the final design once they get a better sense of the functionality and organization of the application. The upcoming prototypes will be based on the chosen design, global concept 1, but the team may take ideas that were enjoyed from other global concepts.