

# Assignment #6: Combined Group Low Fidelity Prototypes and Internal Evaluations

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## **Section 1: Combined Group Low-Fidelity Prototype**

We arrived at this prototype after many, *many* discussions about each of our individual prototypes. From each of the pages in our individual prototypes there were a few features that overlapped and these were the features that were mainly carried over to the final prototype. There were also many features that we had to let go of due to them being, as we finally concluded, excess and irrelevant features.

The introduction page was not much discussed since we believe it being a simple page with a single button that takes the user to the search page is sufficient for its purposes.

For the search page, the only disagreement we had was about where to place the search button. Although the placement of such a button is trivial, our group had the most conflicts of interests here. Each of our memories and experiences told us that this button is most appropriately suited at different places: bottom right, bottom right-middle, bottom centre, or bottom left. In the end, we settled on bottom right, as this obtained the most votes.

For the results page we all agreed that having the map improved the accessibility of the app by providing a visual aid. We had several discussions regarding what information to include for each result as we had each designed this differently. To more efficiently facilitate these discussions, we decided to list the features we felt were the most important and sort them by their importance level (high to low). Our goal was to provide the user with enough information to quickly get them to the clinic/hospital of their choosing and then be done with our application. We successfully omitted several excess things this way, such as the number of patients currently in line at a clinic/hospital (as this is redundant when we also have the wait times of a clinic/hospital). Additionally during our discussions, we each brought up several personas we know and discussed what they would each like to see on our results page. We ended up with displaying the results with information about the total commute + wait times, commute times, wait times, ratings, and services they provide (walk in/emergency). Users are also able to sort the results based on this information.

For the directions page, we easily agreed we wanted the map and directions to be colour coded. We also agreed on including an estimated arrival time. For the departure time and commute method, we had a long and hearty discussion on whether or not we would permit the users to change these settings here or force them to go back to the results page. Eventually we decided we would allow this but show a pop-up notification that the rank of their clinic/hospital's waiting time may change by changing their departure time and/or commute method. None of us had previously implemented this pop-up, so this was an original idea we came up with to improve our design.

Among a plethora of techniques, the primary technique we used to resolve differences in opinion was group votes. If two or more of us disagreed on something, we would simply ask for everyone's opinion on the matter and follow what the majority believed. In order to come to an agreement in cases of tiebreakers, we relied on the power of convincing each other and compromising. Additionally we used listing the importance of features, getting into character of different personas, and defending our character's point of view.

## **Section 2: Cognitive Walkthrough**

### **Scenario:**

You are a 1st year student at UTSC, living on campus residence. You are fairly new to Toronto, so you don't know much about where everything is. One day you start feeling slightly ill and start feeling worse as the day goes on. By the time you decide to go to the doctors, the medical facilities on campus have already closed. You have a lot of assignments due soon, so you don't want to spend a lot of time waiting for treatment. Desperately, you go on google and find an app which gives you a list of waiting times of nearby clinics/hospitals and decide to try it out.

By using this system, please complete the following tasks:

### **Task 1:**

Navigate away from the homepage and find a list of medical centers near your current location that you can arrive to by travelling on a bus if you leave right now.

### **Task 1 notes for usability testing and for prototype's data details to support the above tasks:**

- User will need to click on **find clinics/hospitals near you** button on the homepage
- User will to click on the **use current location** checkmark box
- User will need to set the **departure time** to the current time
- User will need to click on the **bus** icon as their method of commute
- User will need to find results by clicking on the **find results** button

### **Task 2 (follows task 1):**

**\*user is on results page now\***

2.1: Your friend tells you that she will offer you a car ride to *611 Savoline Rd*. She estimates that you will arrive there by 4pm. Currently on the results page, please change your starting point location to *611 Savoline Rd*, and your departure time to 4pm.

2.2: You realize you would rather have a longer wait time at a clinic/hospital than a long commute. You decide to go to the medical centre ranked with the shortest wait time and find its directions. Please show how you would go about doing this.

### **Task 2 notes for usability testing and for prototype's data details to support the above tasks:**

- User will need to find the **departure time** button and change their departure time to 4pm
- User will need to go **back to home** and change their location to 611 Savoline Rd.
- User will need to **sort** the medical centres and click on **wait times** to sort the results by shortest wait times
- User will need to click on the **go here** button on the first result to get the directions of their map

### Task 3 (follows task 2):

#### **\*user is on directions page\***

3.1: Since you are not familiar with Toronto you want to take a closer look at the map to see your surroundings as well as where your medical centre is near. Please show how you would go about making the map take up the size of your screen.

3.2: You are now familiar with the map and despite being in Toronto for 1 month, you feel you know these streets like the back of your hand. You want this page to show just directions and no map. Please show how you would do this.

3.3: You are now lost. You want to see both the map and the directions again. Please show how you would go about doing this.

3.4: You are getting tired of being on a cramped bus. Since you are now closer to your destination you leave the bus and decide to walk the rest of the route for fresh air. Please show how you would find the route to your destination by now walking to it instead.

3.4.1: You receive a pop up notification saying that the medical centre you wish to go to now ranks #2 in shortest commute times. You want to go back to the results page so that you can instead walk to the #1 medical centre near you in terms of short commute times. Please show how you would do this.

### Task 3 notes for usability testing and for prototype's data details to support the above tasks:

- User will click on the **fullscreen** button on the map to receive a full map view of the map
- User will click on the **hide map** button on the map to receive full page view of the directions
- User will click on the **show map** button on the top of the screen to receive a page view consisting of a map and of the directions
- User will click on the **walk** icon at the top of the map to receive new directions that will be based on walk
- User will click on **go back to results** on the pop up notification to go back to the results page
- User will **sort** the results and click on **commute times**, and then click on **go here** on the first result

### Task 4 (follows task 3):

#### **\*user is now on results page\***

4.1: You notice that a lot of clinics near you have roughly the same commute times. You now want to only see medical centres that are rated higher than 4 hearts. Please show how you would go about doing this.

4.2: You realize that since the commute times are roughly the same, you now want to get directions to the medical centre that has the shortest wait times. Please show how you would go about doing this.

#### **\*user is back to directions page\***

4.3: You are a student living in residence at UTSC. You do not wish to spend any more data on this web application. Please show how you would get the directions of this medical centre as a message to your phone, so that you can turn your data off.

**\*user is now on text directions page\***

**Task 4 notes for usability testing and for prototype's data details to support the above tasks:**

- User will click on **filter** and put the 4 on the first text field of ratings option and 5 on the second text field of the ratings option
- User will click on **sort** and click on **wait times** options, and click on **go here** on the first result on the list
- User will click on **text directions** on the bottom of the directions page
- User will enter in their phone number and again click on **text directions**

*Table 1: Section 2 User Testing Results from Cognitive Walkthrough.*

Issues, challenges, or omissions in the prototype that need to be fixed	Potential causes of the problem	Severity rating of problem	Possible remedies
On the main page (search page), it does not tell me that I will be presented with the least overall time (Task 1)	Lack of a label to let the user know what kind of result they will see when they enter their information.	2/5	Add a label that will tell the user that they will receive a list of clinics with the shortest times based on their address
On the directions page, the font of the text does not actually change when you enlarge the map/direction (Task 3)	There is no option to change the font size on the screen	1/5	Add a dropdown menu that allows the user to enlarge the font
While using the filter drop down menu, there are multiple options for filtering. However, I want to filter by one option. It is confusing with the format of the options and the many different options (Task 4)	The dropdown menu is cluttered with a lot of options and has inconsistent formatting and not order	1/5	Order the options linearly with the most important (wait+commute time) option being at the top and the least at the bottom (max km).
On the text direction page, I am asked to enter my phone number. However, it states a standard charge will apply. I am confused and am skeptical to enter my phone number. Will this be the app's standard charge or my phone number's texting rate standard charge? (Task 4)	The page mentions a standard charge but does not specify which standard.	3/5	Specify the standard that will be charged and explain the reasoning behind the charge using a label.

There is no option on the results page to change the starting point location. I have to remember that to do this I must go back to home. This is inconvenient. (Task 2)	There is no option to change starting point location on the results page.	3/5	Create an option on the results page to change the starting point location.
I have to put a max rating when I am filtering by ratings. This makes no sense because why would there be a max rating lower than 5? This is unnecessary for the user to type. (Task 4)	There is an extra text field on the ratings filter that asks the user for a max rating. This should not be there as it is unnecessary for the user to type in.	3/5	Remove this text field. Instead have a 'min ratings' text field option.

## Section 3: Heuristic Evaluation

Table 2: Section 3's Combined Heuristic Evaluations

Prototype page reference (page name or image detail)	Description of design issues	Heuristic violation	Severity rating	Number of times identified
Search Page	Use of "Find Results" rather than "Search" seems unnecessary	<i>#8: Aesthetic and minimalist design</i>  Buttons should not contain information that isn't needed	1/5	2
Search Page	"Back to home" button seems too small for the average user to be able to see/click it properly	<i>#3: User control and freedom</i>  How will the user have control if they can't even see how to go back on the page	2/5	2
Search Page	There is too much whitespace at the bottom of the page before the "find results" button	<i>#8: Aesthetic and minimalist design</i>  The overall aesthetic of the page is off due to the whitespace. Consider adding the logo to fill this space.	1/5	1
Result Page	"Walks-in" used in place of "Walk-in"	<i>#2: Match between system and the real world</i>  Users' language might confuse what "walks-in" means	1/5	1
Result Page	"Go here" sounds odd and unconventional. Consider replacing it with "Get Directions" or "Directions"	<i>#4: Consistency and standards</i>  Users should not have to wonder what certain words mean	1/5	1
Results page	The 'total commute + wait times', 'commute times', and 'wait times' for each hospital/clinic on the list is not lined up and positioned in a consistent way. Depending on each of these travel times, the times may take up more horizontal space than the other.	<i>#7: Flexibility and efficiency of use</i>  If the times were lined up and positioned consistently, then it will be more efficient for the user to clearly see, for example, the 'total commute + wait times', and right away see its calculated time/know where to look. It will be most efficient if these times were in rows, and the user begins to recognize row 1 as being 'total commute + wait times', then they will know right away to look to the right of row 1 for its corresponding time. This makes for a more efficient scrolling experience.	3/5	4



Fullscreen Maps Results Page	It is unclear what the '100km' radius is for. It is unclear whether the blue outlines are in a 100km radius or if the nearest clinic/hospital is in a 100km, etc.	<p><i>#1: Visibility of system status</i></p> <p>On this page it is not explicitly said what the 100km is a radius of. The user should be informed at all times on what the system is displaying. Instead of a '100km radius' box, it should be replaced with a 'Within a 100km radius' box, in the same colour as the blue outline. Having this box and having it in the same colour as the blue outlines will make it clear to the user that this box is describing the blue outlines to be of 100km radius.</p>	3/5	3
Fullscreen Maps Results Page	"Exit full screen" and "Hide Map" buttons are kind of small and a little hard to see	<p><i>#3: User control and freedom</i></p> <p>The user should be able to control the page without visibility issues</p>	3/5	2
Sort Results Dropdown Menu on Results Page	It looks as if the results can be sorted by multiple options, but in reality the user can only choose one result to sort by. Usually square boxes are used as checkboxes (multiple can be selected) and circle boxes are used for single options (only one can be selected) (checkbox vs radio button)	<p><i>#4: Consistency and standards</i></p> <p>Users should not have to wonder if they can select multiple sort options, the system itself should be simplified so the user is only allowed to select one option</p>	3/5	2
Filter Results Dropdown Menu on Results Page	To filter by ratings the user must enter a minimum rating and a maximum rating to filter the results by. It makes no sense to filter by a maximum in this case, as the maximum should by default be 5, which is what	<p><i>#8: Aesthetic and minimalist design</i></p> <p>The maximum rating should be 5 by default. Adding an option for the user to enter a max rating is redundant and unnecessary. There is no need for this option.</p>	3/5	3

	makes the most sense for ratings in this context.			
Results Page	I noticed how the map on the screen seems to short on width, making the map sort of small. Expanding the Map just a bit on that particular screen should allow people to have a better view without the need to squint their eyes, when they are casually looking at the hospitals. I know there is a full screen version of the map, but I feel a bit more width on the default view should help people with eye problems see the map and search options easily.	<i>#7: Flexibility and efficiency of use</i>  This space could be used to make the map bigger and more easily visible to the user. This will make for a more efficient user experience where the users can see the map in a more easier and efficient way.	3/5	3
Results page	On the results page, the hospitals/clinics that are provided to the user are not numbered (by how they are sorted).	<i>#6: Recognition rather than recall</i>  This becomes an issue if the user is seeking to find a particular hospital/clinic that is way far down the list. They may not remember how far they have scrolled, and thus may think an item that is actually '#10' on the list to be '#30'.	3/5	2
Results page	It is unclear when a hospital offers both walk-in and emergency services. There should be a slash ('/') to separate the two types of services.	<i>#2: Match between system and the real world</i>  The way 'walk-in' and 'emergency' services are written (right on top of each other) does not match how this would be written in the real world, which is to have them separated by a slash ('/').	2/5	1
Sort Results Dropdown Menu on Results Page	We are not displaying 'km' information on any clinic/hospital, and yet we are using 'km travelled' as an option to sort the results.	<i>#8: Aesthetic and minimalist design</i>  Unless we add 'km' distance information on each clinic/hospital, having an option to sort results by 'km travelled' is unnecessary and should be removed.	3/5	2
Filter Results Dropdown Menu on Results Page	Again, we are not displaying 'km' information on any clinic/hospital. Yet we are using 'max km travelled' as an option to filter the results.	<i>#8: Aesthetic and minimalist design</i>  Unless we add 'km' distance information on each clinic/hospital, having an option to filter results by 'max km travelled' is unnecessary and should be removed.	3/5	2
Directions Page	It makes no sense for there to be	<i>#4: Consistency and standards</i>	4/5	3


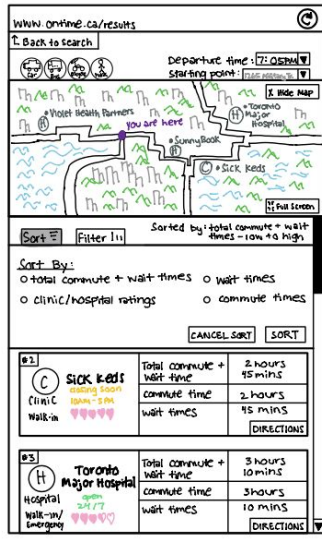
	a tail behind 'you are here' to indicate the area the user has thus far traveled. This can easily be confused as the route area that the user must still cover.	It is a standard for maps that provide directions to show the route of the area that is still left, and not the tail of the area that has been covered. The tail of the area covered must be replaced with the route to destination to be consistent with standards and so not to confuse the user.		
Directions Page	Although the 'you are here' label is above the dot that is representing the user on the map, this may still be unclear to the user especially if they are very close to their starting point.	<i>#4: Consistency and standards</i>  To omit ambiguousness and to remain consistent with the map, there should be a 'Starting point' and 'Destination' label with the 'you are here' label.	4/5	1
Directions Page: Map	Destination is not labelled on map, may cause confusion as the other clinics are labelled	<i>#6: Recognition rather than recall</i>  The user will have to remember which location they selected from the previous screen	4/5	1
Directions Page: written steps/directions	Destination isn't mentioned in the directions. The last line says "You have arrived at your destination" requiring the user to remember which location they choose.	<i>#6: Recognition rather than recall</i>  The user will have to remember which location they selected from the previous screen	4/5	1
Text Directions button	The functionality of the button may be confusing. The wording could be more informative and clear, such as "Get directions by text"	<i>#4: Consistency and standards</i>  The wording of the button may make the function of it unclear	1/5	1
Fullscreen Maps Results Page	The full screen button is on top left, while on most maps or video players it should be on bottom right	<i>#4: Consistency and standards</i>  Non-standard place for full screen button	2/5	1
Fullscreen Results Page	The commute time depends on the method of transit. That's why in my opinion, the user should be able to see and change what the current method of transit is that the commute time is based on. Currently that option is only available when the map is expanded, but I feel like it should be there all the time.	<i>#7: Flexibility and efficiency of use</i>  The methods of transit options should exist regardless of the map because the commute time is based on it.	3/5	1
Results page	On the results page, the label	<i>#4: Consistency and standards</i>	1/5	1

	says “sorted by total times - low to high”. This violates the “Consistency and standards” heuristic as “total time” is never defined. The 5 sorting fields are Total commute + wait time, commute time, wait time, ratings, and km travelled. Although total time is referring to the first field, the user may think of it as different than those and interpret it as the sum of all the fields.	Currently the user may be confused by what these different words mean, but our system should be designed so the user does not face this confusion.		
Results page	Each Individual clinic uses “Hearts” as a rating system.	<i>#2: Match between system and the real world</i>  This is something that users are not familiar with and can imply something other than the ratings. Ratings are normally expressed in stars.	1/5	1
Text directions page	The page notifies the user of a potential charge for sending a text. However, it does not specify what the standard amount is.	<i>#1: Visibility of system status</i>  Does not inform the user exactly how much they might get charged.	3/5	1
Directions page	The Map does not show the street names but the directions are presented using street names.	<i>#4: Consistency and standards</i>  Directions are not consistent with the map	4/5	1
Results Page AND Directions Page	Results page does not have an option to change the starting point location. Users will have to recall that it was the search page that allows the user to change location. This is inconvenient for the user and may be a stretch for some users to do.	<i>#6: Recognition rather than recall</i>  The user will have to remember that it is the search page that allows them to change their starting point address.	4/5	2
Sort Results dropdown menu	On the sort results dropdown menu, there is no option to exit the menu. It is possible the user may accidentally click on the sort button. However, there is no clearly marked “emergency exit” to leave the dropdown menu.	<i>#3: User control and freedom</i>  There is no option for the user to exit the sorts results dropdown menu thus lacking the ability to quickly leave the unwanted state.	2/5	1
Filter Results Dropdown Menu on Results Page	It seems like all the filter options are laid, which is nice since you could see everything, but it could	<i>#8: Aesthetic and minimalist design</i>  The lack of alignment makes the	3/5	2

	also be overwhelming for a person to see all those controls at once. Adding a basic line of filters, but add a button called advanced options for custom filters could be beneficial	filter options seem more cluttered, thus lacking the preferred minimalist feel		
Fullscreen Maps Results Page	It seems the circle where the route to the medical center is at the top. People usually would look towards the center of the screen when looking at the map for directions. Focusing the route to the center of the screen would help fix this issue.	<i>#2: Match between system and the real world</i>  The system should be simple for the user to use based on the real world	3/5	1
Results Page	I noticed how the vehicle types at the top are buttons, but a non tech savvy person would not be able to identify and may stress out a bit, before figuring it out. Adding a label, could solve that issue.	<i>#6: Recognition rather than recall</i>  We don't want the user to have to wonder what certain actions do.	1/5	1
Text Directions Page	I noticed that the submit button name for after you type in your number is not clear since it says "text directions". It should maybe say something else that is a bit more clear such as "Send" or "Submit".	<i>#4: Consistency and standards</i>  Users may be confused by what is meant by "Text Directions"	3/5	1
Text Directions Sent Notification on Text Directions Page	The pop up notification tells the user to "go back to map" but there is a map on several pages of this app. It is not clear which map this button is referring to.	<i>#4: Consistency and Standards</i>  Users are left wondering what 'map' means in this context. There is no consistent reference point to 'map' in this application because there are maps on several pages. These pop-up notifications should instead say "go back to directions" and this fixes the issue of ambiguity.	3/5	1
Results Page and Directions Page	On the results pages, the 'you are here' label on the map is coloured in purple, and on the directions page, this same label is in green. This is an inconsistent design.	<i>#4: Consistency and Standards</i>  The user will experience an inconsistent design when navigating through the app. There is no rationale behind this inconsistency of colour choices. Both Results Page and Directions Page should have the same colour choices for the same label of the map.	2/5	1
Search Page	This search page asks the user for their location, departure time,	<i>#1: Visibility of System Status</i> The user should at all times be	2/5	1



	and method of commute but does not inform the user why they are asking for this information. It is also unclear what results this application will provide when the user clicks on the 'find results' button. The user should be informed at all times on what the application is doing.	informed on what the system is doing or intends on doing. On this page it is unclear on what is going on because of lack of feedback by the system. There should be a brief description on this page that informs the user on what exactly the page that 'finds results' will find. This will also explain the rationale behind asking the user for their location, departure time, and method of commute Information.		
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## Section 4: Internal Evaluations Results and Design Updates

Before: Sort Results Dropdown Menu on Results Page	Evaluation Results	After: Sort Results Dropdown Menu on Results Page	Design Updates
	<p>- #4: <i>Consistency and Standards</i>: square checkboxes used for the sort options are misleading. Typically square checkboxes are used when multiple items can be selected, but here only one option can be selected for sorting.</p> <p>- #4: <i>Consistency and Standards</i>: the fullscreen button is on the top left of the map, but, typically the fullscreen option for maps and video players are on the bottom right, thus a user would expect the same here.</p> <p>- #4: <i>Consistency and standards</i>: The purpose of the "Go here" button is unclear, as its name doesn't relay the purpose/function of the button.</p>		<ul style="list-style-type: none"> <li>- Updated square boxes in the sort dropdown menu to radio buttons as radio buttons conventionally represent being able to make only one choice.</li> <li>- Moved the full screen button to the bottom right to ensure it matches with conventional standards.</li> <li>- Replaced the text of the "Go here" button to "Directions" as it gives a clearer understanding of the functionality of the button and is more conventional.</li> <li>- Updated the result objects "walks-in" field to show "walk-in" instead. This ensures conventionality.</li> <li>- Organized the different displayed times using a table to make it easier for the user to efficiently</li> </ul>

	<p>- #2: <i>Match between system and the real world</i>: “walks-in” are used in place of “walk-in”.</p> <p>- #7: <i>Flexibility and efficiency of use</i>: the timing information is not aligned or positioned in any way. This makes it hard for the user to efficiently navigate through the results, as the timings can take up different amounts of horizontal space.</p> <p>- #6: <i>Recognition rather than recall</i>: There is no option to update starting point location on this page. Users are forced to recall that the search page has the option to change starting point.</p> <p>- #6: <i>Recognition rather than recall</i>: <i>The results are not numbered</i>. If the user is seeking to find a particular hospital/clinic that is way far down the list they may not remember how far they have scrolled, and thus may think an item that is actually ‘#10’ on the list to be ‘#30’, for example.</p> <p><i>#2: Match between system and the real world</i></p> <p>- The way ‘walk-in’ and ‘emergency’ services are written (right on top of each other) does not match how this would be written in the real world, which is to have them separated by a slash (/).</p> <p>- #7: <i>Flexibility and efficiency of use</i>: There is too much whitespace around the map. This space could be used to make the map bigger and more easily</p>		<p>navigate through the results.</p> <p>- Added a starting point dropdown menu to allow the user to update their location without going back to the search page, eliminating the need for them to recall which page they need to go to to update their starting point location.</p> <p>- Each result now has its rank number in a square on the top left to prevent users from having to memorize the number of a result they have scrolled down to reach.</p> <p>- Formatted the “walk-ins” and “emergency” text in the result boxes to ensure they are separated by a ‘/’. This now follows real-world convention.</p> <p>- Map view was updated to take up full horizontal space and also more vertical space so that the user can see the map more efficiently.</p> <p>- The option of being able to sort by “km travelled” is removed as this is redundant when we are providing commute times and an option to sort by commute times. Sorting by “km travelled” is also unnecessary as we do not provide km information on the results.</p> <p>- A “cancel sort” button was added to the sort dropdown menu as this gives users control and freedom over their experience.</p> <p>- The label now says</p>
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	<p>visible to the user. This will make for a more efficient user experience where the users can see the map in a more easier and efficient way.</p> <p>- #8: <i>Aesthetic and minimalist design</i>: Unless we add 'km' distance information on each clinic/hospital, having an option to sort results by 'km travelled' is unnecessary and should be removed.</p> <p>- #3: <i>User control and freedom</i>: There is no option for the user to exit the sort menu, thus lacking the "emergency exit" from this state.</p> <p>- #4: <i>Consistency and standards</i>: The label says "sorted by total times - low to high" but "total times" is never defined.</p>		<p>"Sorted by: total commute + wait times - low to high" instead of "Sorted by: total times - low to high" to ensure users will understand what is meant by "total times". This also provides consistency amongst the terminology as there previously were two ways to interpret the sum of the total commute and wait times ("total times", and "total commute + wait times").</p>
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Before: Directions Page	Evaluation Results	After: Directions Page	Design Updates
	<p>-#4: <i>Consistency and standards</i></p> <p>It is a standard for maps that provide directions to show the route of the area that is still left, and not the tail of the area that has been covered (as shown by green on the map). The tail of the area covered must be replaced with the route to destination to be consistent with standards and so not to confuse the user.</p> <p>#6: <i>Recognition rather than recall</i></p>		<p>- The map was updated to properly include the route to the destination and how much is left to get to the destination.</p> <p>- An option to update the "starting point" was added, so the user can now change that field from this page instead of having to go elsewhere or wondering where to go to make this change.</p> <p>- The labels inside the map were updated so there's a label for "Starting Point", "Destination", and where you are currently - "You</p>



	<p>There is no option to update the starting point location on this page. Users are forced to recall that the search page has the option to change starting point.</p> <p><i>#4: Consistency and standards</i> To omit ambiguousness and to remain consistent with the map, there should be a 'Starting point' and 'Destination' label with the 'you are here' label.</p> <p><i>#6: Recognition rather than recall</i> The user will have to remember which location they selected from the previous screen as their destination since 'destination' is not labelled on the map, and it is also not mentioned anywhere in the written directions.</p> <p><i>#4: Consistency and standards</i> Non-standard place for full screen button. Conventionally they are on the bottom right.</p> <p><i>#4: Consistency and standards</i> The wording of the "Text Directions" button makes the function of the button unclear</p>		<p>are here".</p> <ul style="list-style-type: none"> <li>- The destination is now clearly labelled on the map and in the directions it is mentioned again at the end.</li> <li>- Full-screen button was moved to bottom right to follow conventional standards.</li> <li>- "Text Directions" button was modified so it now says "Get Directions By Text" as this better represents the functionality of this button.</li> </ul>
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## Appendices:

### Appendix - Osman

Table 3.1: Osman - Heuristics Evaluation Results

Prototype page reference (page name or image detail)	Description of design issues	Heuristic violation	Severity rating
Search Page	Use of “Find Results” rather than “Search” seems unnecessary	#8: Aesthetic and minimalist design Buttons should not contain information that isn’t needed	1/5
Search Page	“Back to home” button seems too small for the average user to be able to see/click it properly	#3: User control and freedom How will the user have control if they can’t even see how to go back on the page	2/5
Search Page	There is too much whitespace at the bottom of the page before the “find results” button	#8: Aesthetic and minimalist design The overall aesthetic of the page is off due to the whitespace. Consider adding the logo to fill this space.	1/5
Result Page	“Walks-in” used in place of “Walk-in”	#2: Match between system and the real world Users’ language might confuse what “walks-in” means	1/5
Result Page	Hard to see the different methods of transport, specifically bicycle and bus	#6: Recognition rather than recall Objects, actions, and buttons should be clearly visible.	2/5
Result Page	“Go here” sounds odd and unconventional. Consider replacing it with “Get Directions” or “Directions”	#4: Consistency and standards Users should not have to wonder what certain words mean	1/5

Result Page	The timings breakdown for each result is all over the place and not lined up	#1: Visibility of system status Users should not get confused due to the misalignment of timings	1/5
Fullscreen Maps Results Page	Not sure what the “100 km radius” represents. Seems unnecessary and it isn't clear why its there.	#1: Visibility of system status Users should know why a certain button or certain text exists	2/5
Fullscreen Maps Results Page	“Exit full screen” and “Hide Map” buttons are kind of small and a little hard to see	#3: User control and freedom The user should be able to control the page without visibility issues	2/5
Sort Results Dropdown Menu on Results Page	It looks as if the results can be sorted by multiple options, but in reality the user can only choose one result to sort by. Usually square boxes are used as checkboxes (multiple can be selected) and circle boxes are used for single options (only one can be selected) (checkbox vs radio button)	#4: Consistency and standards Users should not have to wonder if they can select multiple sort options, the system itself should be simplified so the user is only allowed to select one option	3/5
Filter Results Dropdown Menu on Results Page	The filter boxes are all over the place. It does not look clean since the boxes aren't lined up. I also do not see the purpose of having the ratings have a ‘from’ and ‘to’	#8: Aesthetic and minimalist design  #6: Recognition rather than recall There is no need for buttons and unnecessary extra information Options should be more visible and obvious to the user so we don't confuse the user	2/5
Directions Page	The map on the directions page is not consistent with the map on the results page. The one on the results page does not have white space surrounding it.	#4: Consistency and standards The prototypes should have consistency amongst themselves too	2/5
Results Page	There is no place on this page to update the starting point address. Users will have to go back to the previous page to change this.	#6: Recognition rather than recall Users are forced to recall that the search page has the option to change starting point.	3/5

## Appendix - Sheeza

Table 3.2: Sheeza - Heuristics Evaluation Results

Prototype page reference (page name or image detail)	Description of design issues	Heuristic violation	Severity rating
Results page	On the results page, the hospitals/clinics that are	#6: Recognition rather than recall - This becomes an issue if the user is	3/5

	provided to the user are not numbered (by how they are sorted).	seeking to find a particular hospital/clinic that is way far down the list. They may not remember how far they have scrolled, and thus may think an item that is actually '#10' on the list to be '#30'.	
Results page	It is unclear when a hospital offers both walk-in and emergency services. There should be a slash ('/') to separate the two types of services.	#2: Match between system and the real world - The way 'walk-in' and 'emergency' services are written (right on top of each other) does not match how this would be written in the real world, which is to have them separated by a slash ('/').	2/5
Results page	The 'total commute + wait times', 'commute times', and 'wait times' for each hospital/clinic on the list is not lined up and positioned in a consistent way. Depending on each of these travel times, the times may take up more horizontal space than the other.	#7: Flexibility and efficiency of use - If the times were lined up and positioned consistently, then it will be more efficient for the user to clearly see, for example, the 'total commute + wait times', and right away see its calculated time/know where to look. It will be most efficient if these times were in rows, and the user begins to recognize row 1 as being 'total commute + wait times', then they will know right away to look to the right of row 1 for its corresponding time. This makes for a more efficient scrolling experience.	3/5
Results Page	There is too much whitespace on the top half of the screen where the map is.	#7: Flexibility and efficiency of use - This space could be used to make the map bigger and more easily visible to the user. This will make for a more efficient user experience where the users can see the map in a more easier and efficient way.	3/5
Results Page	Users are not able to update starting point on this page, forcing them to go back to the back page.	#6: Recognition rather than recall Users will have to recall that the search page provides them with the option to change starting point. There is no other way for user to change their starting point address.	3/5
Fullscreen Maps Results Page	It is unclear what the '100km' radius is for. It is unclear whether the blue outlines are in a 100km radius or if the nearest clinic/hospital is in a 100km, etc.	#1: Visibility of system status - On this page it is not explicitly said what the 100km is a radius of. The user should be informed at all times on what the system is displaying. Instead of a '100km radius' box, it should be replaced with a 'Within a 100km radius' box, in the same colour as the blue outline. Having this box and	3/5

		having it in the same colour as the blue outlines will make it clear to the user that this box is describing the blue outlines to be of 100km radius.	
Sort Results Dropdown Menu on Results Page	We are not displaying 'km' information on any clinic/hospital, and yet we are using 'km travelled' as an option to sort the results.	#8: Aesthetic and minimalist design - Unless we add 'km' distance information on each clinic/hospital, having an option to sort results by 'km travelled' is unnecessary and should be removed.	3/5
Filter Results Dropdown Menu on Results Page	Again, we are not displaying 'km' information on any clinic/hospital. Yet we are using 'max km travelled' as an option to filter the results.	#8: Aesthetic and minimalist design - Unless we add 'km' distance information on each clinic/hospital, having an option to filter results by 'max km travelled' is unnecessary and should be removed.	3/5
Filter Results Dropdown Menu on Results Page	To filter by ratings the user must enter a minimum rating and a maximum rating to filter the results by. It makes no sense to filter by a maximum in this case, as the maximum should by default be 5, which is what makes the most sense for ratings in this context.	#8: Aesthetic and minimalist design - The maximum rating should be 5 by default. Adding an option for the user to enter a max rating is redundant and unnecessary. There is no need for this option.	3/5
Directions Page	It makes no sense for there to be a tail behind 'you are here' to indicate the area the user has thus far traveled. This can easily be confused as the route area that the user must still cover.	#4: Consistency and standards - It is a standard for maps that provide directions to show the route of the area that is still left, and not the tail of the area that has been covered. The tail of the area covered must be replaced with the route to destination to be consistent with standards and so not to confuse the user.	4/5
Directions Page	Although the 'you are here' label is above the dot that is representing the user on the map, this may still be unclear to the user especially if they are very close to their starting point.	#4: Consistency and standards - To omit ambiguousness and to remain consistent with the map, there should be a 'Starting point' and 'Destination' label with the 'you are here' label.	4/5

## Appendix - Jenisha

Table 3.3: Jenisha - Heuristics Evaluation Results

Prototype page reference (page name or image detail)	Description of design issues	Heuristic violation	Severity rating (1-5)
Directions	Destination is not labelled on	#6: Recognition rather than recall:	4/5

Page: Map	map, may cause confusion as the other clinics are labelled	The user will have to remember which location they selected from the previous screen	
Directions Page: written steps/directions	Destination isn't mentioned in the directions. The last line says "You have arrived at your destination" requiring the user to remember which location they choose.	<i>#6: Recognition rather than recall:</i> The user will have to remember which location they selected from the previous screen	4/5
Text Directions button	The functionality of the button may be confusing. The wording could be more informative and clear, such as "Get directions by text"	<i>#4: Consistency and standards:</i> The wording of the button may make the function of it unclear	1/5
Results Page	This page gives users the option to change commute methods and departure times, but is missing an option to change their starting location.	<i>#6: Recognition rather than recall:</i> The user will have to remember which location they have entered as their starting point location. The user will have to remember that the search page gives them the option to change their starting point location.	3/5
Filter Results Dropdown Menu on Results Page	There is an unnecessary text field that asks the user to provide a minimum and maximum rating. The use of a maximum rating text field is unnecessary as it makes most sense for the maximum rating a user would want to filter out is 5.	<i>#7: Flexibility and efficiency of use:</i> The user will rationally put 5 as their maximum rating. This makes the use of a maximum rating text field inefficient to the user experience.	2/5
Results Page and Directions Page	The top half of the screen where the map is are inconsistent to each other. On the Results Page, there is whitespace all around the map, and on the Directions Page, there is no whitespace. This is an inconsistent design.	<i>#4: Consistency and Standards:</i> The user will experience an inconsistent design when navigating through the app. There is no rationale behind this inconsistency. Both Results Page and Directions Page should have the same top half layout of the map.	1/5
Text Directions Sent Notification on Text Directions Page	The pop up notification tells the user to "go back to map" but there is a map on several pages of this app. It is not clear which map this button is referring to.	<i>#4: Consistency and Standards:</i> Users are left wondering what 'map' means in this context. There is no consistent reference point to 'map' in this application because there are maps on several pages. This pop-up notifications should instead say "go back to directions" and this fixes the issue of ambiguity.	3/5

Results Page and Directions Page	On the results pages, the 'you are here' label on the map is coloured in purple, and on the directions page, this same label is in green. This is an inconsistent design.	<i>#4: Consistency and Standards:</i> The user will experience an inconsistent design when navigating through the app. There is no rationale behind this inconsistency of colour choices. Both Results Page and Directions Page should have the same colour choices for the same label of the map.	2/5
Search Page	This search page asks the user for their location, departure time, and method of commute but does not inform the user why they are asking for this information. It is also unclear what results this application will provide when the user clicks on the 'find results' button. The user should be informed at all times on what the application is doing.	<i>#1: Visibility of System Status:</i> The user should at all times be informed on what the system is doing or intends on doing. On this page it is unclear on what is going on because of lack of feedback by the system. There should be a brief description on this page that informs the user on what exactly the page that 'finds results' will find. This will also explain the rationale behind asking the user for their location, departure time, and method of commute information.	2/5

## Appendix - Jawad

Table 3.4: Jawad - Heuristics Evaluation Results

Prototype page reference (page name or image detail)	Description of design issues	Heuristic violation	Severity rating
Fullscreen Maps Results Page	The full screen button is on top left, while on most maps or video players it should be on bottom right	<i>#4: Consistency and standards:</i> non-standard place for full screen button	2/5
Fullscreen Results Page	The commute time depends on the method of transit. That's why in my opinion, the user should be able to see and change what the current method of transit is that the commute time is based on. Currently that option is only available when the map is expanded, but I feel like it should be there all the time.	<i>#7: Flexibility and efficiency of use:</i> The methods of transit options should exist regardless of the map because the commute time is based on it.	3/5
Results Page	The results are not numbered. If I scroll through the results I want to know which numbered result I'm looking at.	<i>#1: Visibility of system status:</i> user should know which result they're at in the list	2/5

Fullscreen Maps Results Page	In the maps page, it shows an oval shape ellipse and it says “100 km radius”, but its non standard to use “radius” with non circular ellipses, because it is confusing whether we are talking about the vertical or horizontal radius.	#4: Consistency and standards: The oval shape and the radius	2/5
Search Page	Not every user will know what is meant by “results” in “Find Results”. Maybe just “Find” or “Search” would be better	#2: Match between system and the real world: the words we use should match the real world	1/5
Sort Results Dropdown Menu on Results Page	The sort box is odd as it has checkboxes. Can we select multiple checkboxes? These should not be checkboxes since user can only select one.	#4: Consistency and standards: conventionally, checkboxes are not used for single options.	3/5
Directions Page	Not clear what the green line from “You are here” represents. Is that the way to the clinic?	#1: Visibility of system status: user should know what each thing represents	3/5
Results Page	The option doesn’t exist here to change where the user starts traveling from. There are commute methods and departure times here that also exist on the search page. What is missing on this page is the option to change the starting traveling point.	#4: Consistency and standards: On top of the map, we are copying information from the search page onto here, but we are missing the departure time information.	3/5
Filter Results Dropdown Menu on Results Page	None of the filter options are aligned properly. I want to be able to see the filtering options in rows.	#8: Aesthetic and minimalist design: This is not an aesthetic design. The options being all over the place is not a clean, aesthetic design.	2/5

## Appendix - Sumuhash

Table 3.5: Sumuhash - Heuristics Evaluation Results

Prototype page reference (page name or image detail)	Description of design issues	Heuristic violation	Severity rating
Filter Results	It seems like all the filter	#8: Aesthetic and minimalist design -	3/5



Dropdown Menu on Results Page	options are laid, which is nice since you could see everything, but it could also be overwhelming for a person to see all those controls at once. Adding a basic line of filters, but add a button called advanced options for custom filters could be beneficial	Some of the drop down menus provided was not necessary for our application, which caused it to look crowded	
Fullscreen Maps Results Page	It seems the circle where the route to the medical center is at the top. People usually would look towards the center of the screen when looking at the map for directions. Focusing the route to the center of the screen would help fix this issue.	#2: Match between system and the real world - In the traditional way of seeing routes on google map, people tend to look at the center of the screen, instead of looking at the top for the geomap directions.	3/5
Results Page	I noticed how the vehicle types at the top are buttons, but a non tech savvy person would not be able to identify and may stress out a bit, before figuring it out. Adding a label, could solve that issue.	#6: <i>Recognition rather than recall</i> - Clear instructions can provide insight for everyone, that they are indeed buttons and not just a way to show current transportation option	1/5
Results Page	I noticed how the map on the screen seems to short on width, making the map sort of small. Expanding the Map just a bit on that particular screen should allow people to have a better view without the need to squint their eyes, when they are casually looking at the hospitals. I know there is a full screen version of the map, but I feel a bit more width on the default view should help people with eye problems see the map and search options easily.	#6: <i>Recognition rather than recall</i> <i>Usually, map screens when displayed embedded, they tend to take up the full width of the screen, if there are no side buttons.</i>	3/5
Fullscreen Maps Results Page	I noticed that there is a legend that stated 100km radius. The issue one person could say is there is no dot to identify where the center of the circle is. It may cause difficulties trying to figure out the origin point in respect with the legend, which may confuse people to figure out how far a certain place is within the circle. Adding a rectangle bar for the distance, like found on google maps and	#7: Flexibility and efficiency of use- <i>Usually on a map, the distance in km is represented as a tiny ruler, to show the relative equivalence in distance.</i>	4/5

	traditional maps, should work well to fix the distance legend issue.		
Text Directions Page	I noticed that the submit button name for after you type in your number is not clear since it says “text directions”. It should maybe say something else that is a bit more clear such as “Send” or “Submit”.	#4: Consistency and standards- Usually when submitting a particular form, it would use conventional text on the button, that would automatically give the impression of sending information away from the user. Using words like “send” should fix the issue.	3/5
Fullscreen Maps Results Page	Noticed that the “Exit full screen” button was small and a little hard to see and it may be tricky for people who are far-sighted.	#3: User control and freedom - The person using the app should be able to see the exit button clearly	4/5
Fullscreen Maps Results Page	Noticed that the “Hide Map” button was also hard to see and could cause issues for far-sighted individuals	#3: User control and freedom - The person using the app should be able to see the hide map button clearly	4/5
Results Page	Noticed that there is a lot of whitespace on this particular page, making it a bit empty and unprofessional.	#7: Flexibility and efficiency of use - We need to make sure that the style is modern but not empty, since there is a visual difference.	4/5

## Appendix - Riyasat

Table 3.6: Riyasat - Heuristics Evaluation Results

Prototype page reference (page name or image detail)	Description of design issues	Heuristic violation	Severity rating (1-5)
Results page	On the results page, the label says “sorted by total times - low to high”. This violates the “Consistency and standards” heuristic as “total time” is never defined. The 5 sorting fields are Total commute + wait time, commute time, wait time, ratings, and km travelled. Although total time is referring to the first field, the user may think of it as different than those and interpret it as the sum of all the fields.	#4: Consistency and standards	1/5

Results page	Each Individual clinic uses “Hearts” as a rating system. This is something that users are not familiar with and can imply something other than the ratings. This violates the “Match between system and the real world” heuristic.	#2: Match between system and the real world	1/5
Sort Results dropdown menu	On the sort results dropdown menu, there is no option to exit the menu. This violates the “User control and freedom” heuristic. It is possible the user may accidentally click on the sort button. However, there is no clearly marked “emergency exit” to leave the dropdown menu.	#3: User control and freedom	2/5
Sort Results dropdown menu	The max km filter option is irrelevant as it is not shown in the search results and the commute time takes in consideration for it. This violates the “Aesthetic and minimalist design” heuristic as the km filter is irrelevant.	#8: Aesthetic and minimalist design	1/5
Filter dropdown menu	Similar to the sort dropdown menu, the max km filter option is irrelevant as it is not shown in the search results and the commute time takes in consideration for it. This also violates the “Aesthetic and minimalist design” heuristic as the km filter is irrelevant.	#8: Aesthetic and minimalist design	2/5
Filter dropdown menu	The rating filter asks the user to enter a range from low to high. This is unusual as a user will typically look for ratings above a certain threshold and want the maximum rating. Therefore, the input for high rating is not optimal and should automatically be considered for the highest rating. This violates the “Match between system and the real world” heuristic as it is a concept users are unfamiliar with.	#2: Match between system and the real world	1/5
Directions page	Does not show the path from the user's entered location to their	#2: Match between system and the real world	5/5

	destination. It shows the path they traveled instead of the whole path. This is something unusual and users are not familiar with it thus violating the “Match between system and the real world” heuristic.		
Directions page	The Map does not show the street names but the directions are presented using street names. This violates the “Consistency and standards” heuristic as it is not consistent with the map.	#4: Consistency and standards	4/5
Text directions page	The page notifies the user of a potential charge for sending a text. However, it does not specify what the standard amount is. This violates the “Visibility of system status” heuristic by not informing the user exactly how much they might get charged.	#1: Visibility of system status	3/5

### **Appendix - Assignment Attribution**

Combined Group Low-Fidelity Prototype: Sheeza (drawing); everyone else involved in discussion


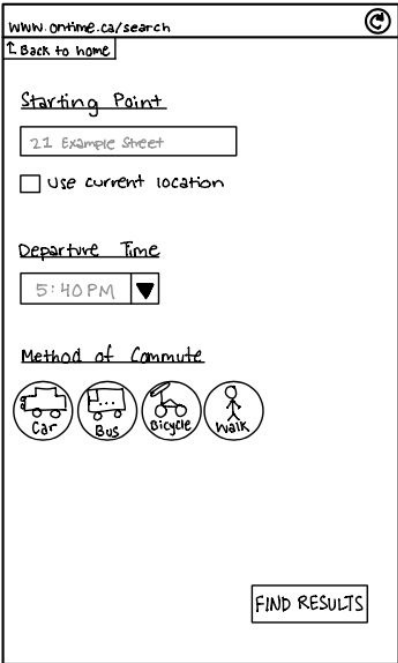

Combined Group Low-Fidelity Prototype One Page Discussion: Osman, Jenisha, Sheeza

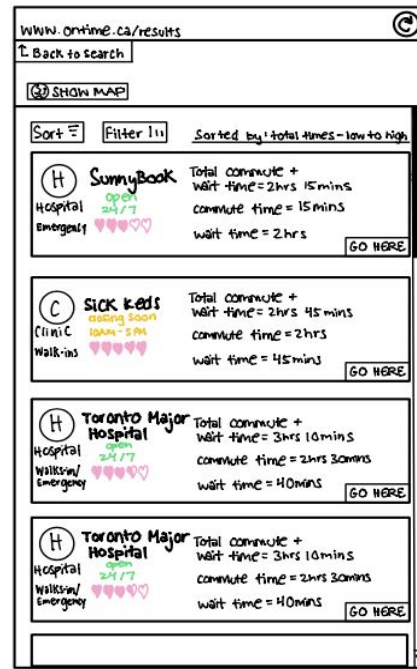
Cognitive Walkthrough: Riyasat, Jawad, Sumuhash

Heuristic Evaluation Combined Table: Everyone

Internal Evaluations Results: Everyone

## Appendix - Prototype Before Usability Testing and Heuristic Evaluations

Intro Page	Search Page	Results Page
		
Fullscreen Maps Results Page	Fullscreen Results Page	Sort Results Dropdown Menu on Results Page



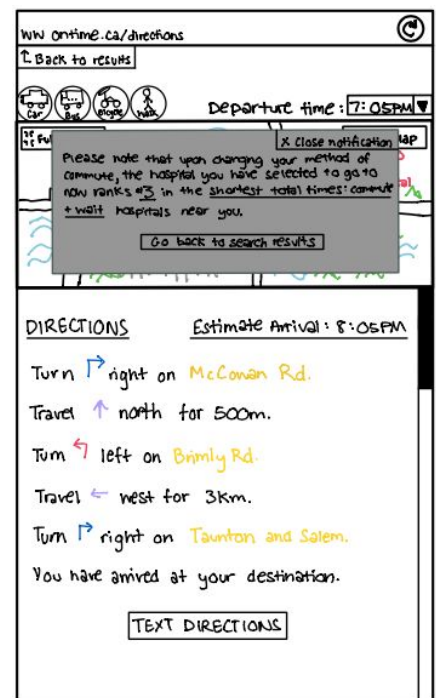
## Filter Results Dropdown Menu on Results Page



## Directions Page



## Change commute type Notification on Directions Page



## Text Directions Page

## Text Directions Sent Notification on Text

## Directions Page

www.ontime.ca/text

[Back to directions](#)

Text Directions

Enter a 10-digit valid Canadian phone number to receive a text of the directions to your destination.

\*Please note standard texting rates will apply.

+1 - - - - -

[TEXT DIRECTIONS](#)

www.ontime.ca/text

[Back to directions](#)

Text Directions

E

A text of directions to your destination has been sent to the phone number you have provided.

[GO BACK TO MAP](#)

+1 - - - - -

[TEXT DIRECTIONS](#)