QuickRental

Final Report

COMP 3603 Human Computer Interaction

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Quickly find the perfect place within your budget, without all the hustle and bustle.

Table of Contents

Executive Summary

Abstract

Within this final report, we discuss the process of designing a mobile application to aid UWI students, staff, employees find apartments nearby right from their phone. The idea came about by observing the stress that U.W.I students and staff go through every semester when looking for an apartment. This mobile application will also help landlords advertise their apartments and gain more revenue.

This report talks about the user research that was conducted via secondary research, surveys for students and interviews for landlords, how we obtained design requirements and tasks from the research and the designs we conducted for both lo and hi-fidelity systems, as well as how we came to our final design and the heuristic evaluation for those designs. Furthermore, this report looks at recommendations for future iterations and the challenges we faced.

Author Keywords

HCI, Human-Computer-Interaction, mobile applications, apartment rental, UWI apartments.

Introduction

Our mobile application, QuickRental was built to ease the finding of apartments near UWI for students, staff, employees and anyone that wants to rent an apartment near UWI. It also aids the landlords in advertising their apartment to a wider audience and hence, gaining them more revenue. Many students go through overbearing stress and waste time looking for apartments. Many apartments found online are also not as advertised and trust worthy. We, as UWI students, can attest to this. Thus, our application, QuickRental, takes away all of the burden and has the majority of apartments right on the app, fully trustworthy, for the user to just browse and find their ideal apartment.

The process of building the app was concerned more with the design than the functionality of the application.

We conducted user research via secondary research, to aid us with our primary research and see what is already out there, surveys to find out if an apartment rental app for U.W.I students would be beneficial, as well as to find out the major issues that students and staff faces, interviews for landlord to discover is our app would help them advertise more, and to find out if they would be on board with helping us. The user research led to some great design requirements and tasks which we implemented via a paper and initial Ionic Prototype for the Lo-Fidelity prototype, and a Hi-Fidelity prototype.

With the cooperation of landlords, this app is guaranteed to aid students and staff that are looking for apartment near U.W.I. They will be able to find their ideal apartment with just a few clicks and will have more time to cater to their business instead of wasting time looking for apartments they are not satisfied with.

Design Problem

Problem

At the University of the West Indies, finding the right apartment as a student is extremely difficult and time-consuming. Many students normally find apartments via word-of-mouth or facebook. However, they are usually not as pictured, walking distance is never obvious and contacting the landlords can be a chore; landlords may appear rude and abrupt since they do not have much time to dedicate to responding to calls and organising visits. This confirms that existing methods of advertisement are not effective. Therefore, students must take great care and effort to locate an apartment that fits within their budget and level of comfort.

Stakeholders

Our target audience for the apartment rental application would be anyone that rents an apartment at or nearby University of the West Indies (UWI); students, parents, staff and employees. Furthermore, the landlords will also be a target audience as they will be the ones advertising their apartments within the mobile application.

Solution

The project our team intends to embark on will serve as an all-in-one mobile app solution for students of the University of the West Indies (UWI) who are seeking rental accommodation near to campus called QuickRental. This project endeavors to enhance the lives of students at the UWI by making it easier to decide on which housing would be best for them to rent.

User Research and Findings

To obtain data and requirements from users, we choose four research methods; secondary research, surveys for U.W.I students, interviews for landlords and rapid ethnography.

Secondary Research

We conducted secondary research first as it would aid us with our primary research and help us discover what to ask our users. We looked at both international and local research and feedback from customers on the applications already out there.

Findings

For the international research, we found that many apartment rental mobile applications existed already e.g. PadMapper, which allows users to search apartments in a specific city or country. It uses Google Maps and allows users to register an apartment via their address. There's also Housing.com, 99acres, MagicBrick, Abodo, Apartments.com, Apartment Guide, Coldwell Banker and many more. These can be used to buy a new property, virtually explore the city or country for an apartment, provides 3D and 360^0 tours, videos and photos for most listing. (Dailey et al. 2018). However, they were not applicable to university students, many of them did not have the features that students want, such as walking distance to their university and there were not made for the researchers country, just as there aren't any for our country Trinidad and Tobago. (Consignado et al. 2017).

We also looked at local rental apps only to discover just how outdated and user-unfriendly they were, and just plain unsuitable for students. OASIS is a prime example of the pre-CSS internet and older than most students ("Online Accommodation Student Information System." 2018).

Thus, this research demonstrated that U.W.I students currently have no help to ease their stress while apartment finding and an apartment rental application for U.W.I. students is needed.

Surveys for the Students/Employees

To obtain data from students and staff near U.W.I, we conducted surveys via Google form as these users are of the younger generation and would express themselves more freely on an anonymous survey. This elased to unbiased answers. Furthermore, since open and close-ended questions are given, the surveys provide both quantitative and qualitative data.

Our survey consisted of two sections; Section One investigated the participants' preferences for an apartment, and Section Two looked at the participant's experience with other apartment rental apps, and features they would like to see.

Findings

Our findings concluded that the major factors involved in locating an apartment were price, furnished apartments, inclusion of utilities, air-conditioning and security; with price the first priority followed closely by security. The participants that used an apartment rental application prior complained that apartments are usually never as advertised, and contact information was outdated or incorrect. Word-of-mouth was discovered to be the main method of finding apartments at 83.3%. Participants also claimed that methods to find U.W.I apartments were also chiefly local newspapers and social media. However, they revealed that these methods are time-consuming, not accurately represented and, in the case of newspapers, there are no pictures or updates on rented status.

Furthermore, for the development of our app, we found that most respondents agreed that a review system (100%) and virtual tour of the apartments (91.7%) is necessitated, and 100% said they would use the app as well as recommend it. Other features wanted by the participants, that were not part of our initial requirements, were a rating system on landlords and roommates. Lastly, 97.9% stated they would rather browse for apartments on an app than use the current existing methods.

Interviews for the Landlords

To obtain data from the landlords, we conducted interviews as it is difficult to distribute surveys to them due to their busy schedule and difficulty to contact. The interviews helped us gain greater insight into the landlords' opinions on the current advertisement methods and the design of our rental app. Our interview consisted of 10 open-ended questions and were conducted on the phone and face-to-face. Only 4 participants were obtained. The many landlords that were contacted, were too busy to assist, or unpleasant.

Findings

We found that all participants used social media and word-of-mouth to advertise their properties, since it is easiest and lack the time to dedicate to advertisement. However, they did state that they would appreciate the convenience of a mobile app to list their rentals. For the 'Reviews' feature, 50% of the respondents were concerned with the impact of bad reviews from tenants who received valid criticism and complaints, such as for noise, unruly or unallowed visitors, as well of evictions from non-payment. However, our system ensures that there will be no malicious reviews or spam, since each review will be screened.

Design and Justification

Lo-Fi Prototype

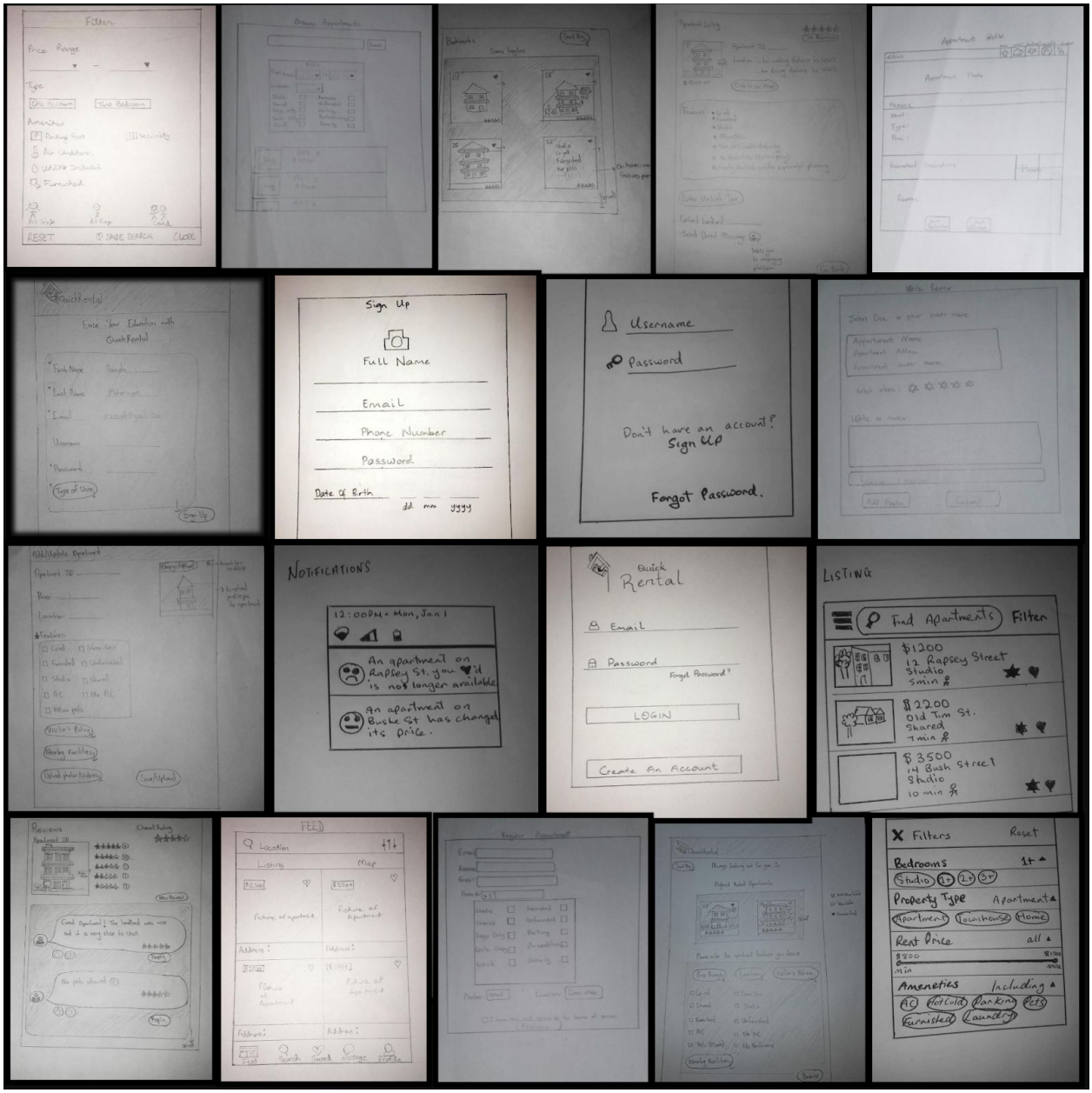

Figure 1: Low Fidelity Prototype Screens

From all the requirements gathered from the surveys, interviews and secondary research, we drew our paper prototypes based on what was found. After each of us drew what we felt was important and what we gathered from the user research conducted, we came together and put all our paper prototypes into an affinity diagram.

Four main tasks chosen were:

1. Browsing the Apartment Listings and Details
2. Filtering the Search Results
3. Reviewing Apartments
4. Apartment Listings

We chose these four as based on our surveys and according to the affinity diagram, the apartment listing page, the filters used to search for an apartment and the reviews left for apartments are the three most important tasks. The other drawings consisted of normal tasks; login, sign up, bookmarks screen, notifications, and an add/register apartment screen. We drew all designs to be user-friendly, minimal and placed the buttons conveniently.

After paper prototyping, we re-created the designs on Ionic Creator to see how it would look on mobile. While doing this, a few of our designs changed.

The apartment listing changed from a list view to a card view. We decided to implement this change due to the slide on Ionic Creator. The list view was to have the heart button to add apartments to the users' bookmarks screen, the reviews in stars, the main features and one picture. The card view would have this slider consisting of all the photos for the apartment, the main features, the availability, reviews in stars, and a heart button to bookmark the apartment. We felt that the card view was better as the user can see all information about an apartment right on one screen, instead of having to click just to see all photos.

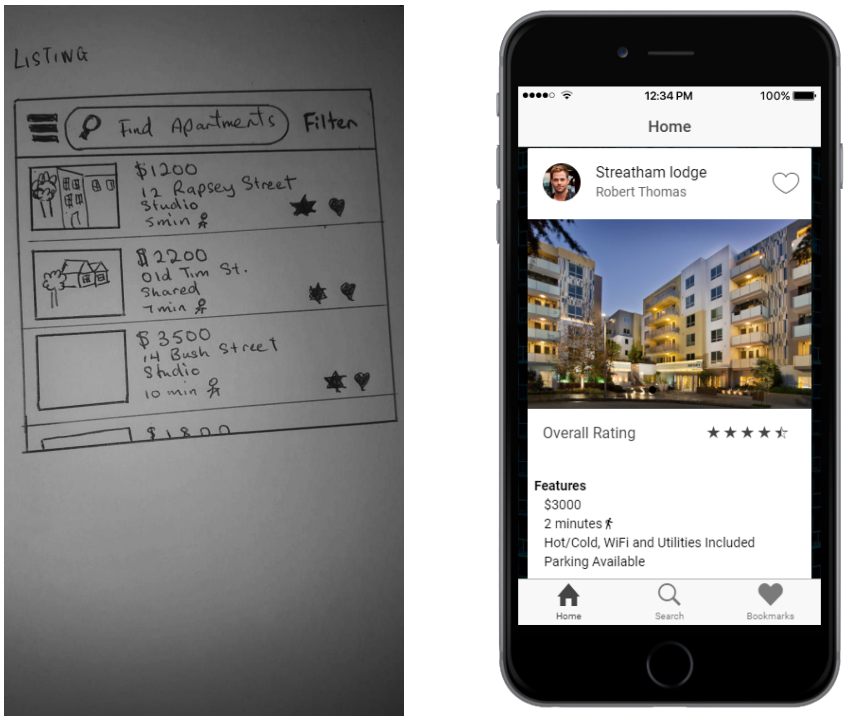

Figure 2: Paper prototype and the Ionic Creator prototype change for the apartment listing screen.

The apartment details screen was made more compact and minimal than what was on the paper prototype.

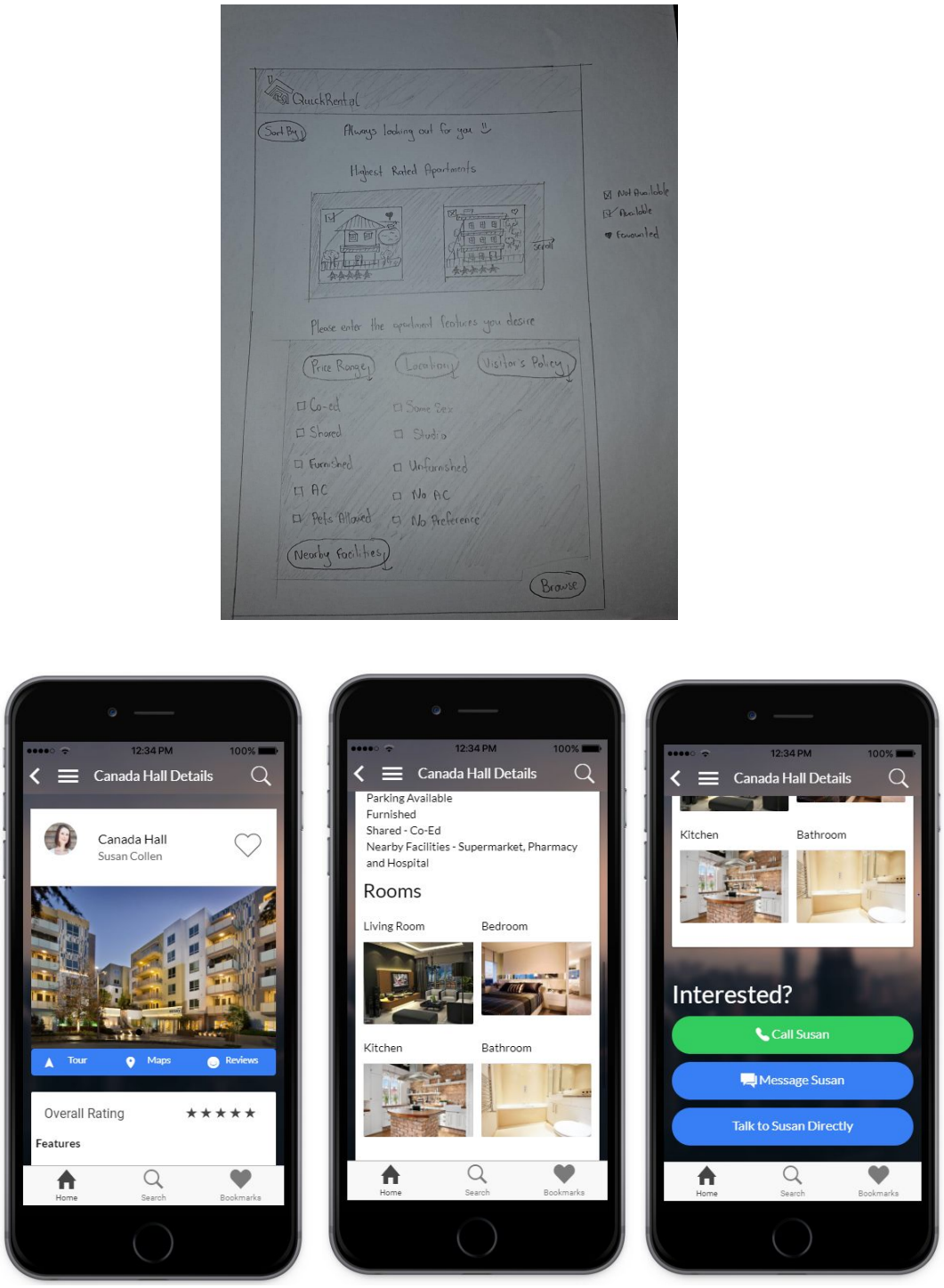

Figure 3: Paper prototype and the Ionic Creator prototype change for the apartment details screen.

Justification

Analogical consistency was prioritised in the design, by using the heart-shaped favourite button. It is a common standard that heart icons refer to favourites, and so it was used here, to keep the interface clutter-free yet highly useable.

Hi-fi Prototype

After, we completed the Hi-fi prototype on Ionic Creator where there were more changes.

For the menu, we chose to have tabs at the bottom for the home, search and bookmarks screen as those are the three pages being used mainly. However, for further iterations, we would implement a menu as further pages will be added, such as the person's profile page.

Instead of the initial background, which was darker, we implemented a lighter, blurred background, that made the information on the page more apparent.

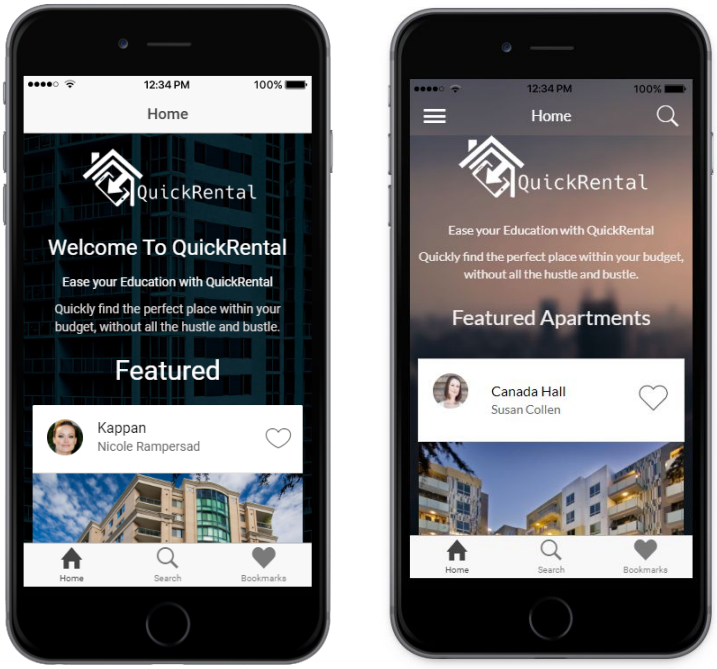

Figure 4: Design Evolution for the background image of the application.

During our prototyping, we did an initial **heuristic** evaluation where problems were found such as the heart button did not remain clicked, one of the 'more details' button was not working, the upload photo buttons were not working, the 'price range' and 'walking distance' options for the filter page did not show the number the user selected, the images on the details page did not zoom in when clicked and the phone number entry box allowed for the entry of letters. All of these problems were corrected as shown under 'Heuristic Evaluation and Findings'.

Furthermore, during the creation of the prototype, when going through the app with a friend, we realised that the user would not know that the photos in the card for the apartment listing was a slider, or that the images on the details page can be clicked on to enlarge. Therefore, we added a tutorial page for the application when a user now creates an account.

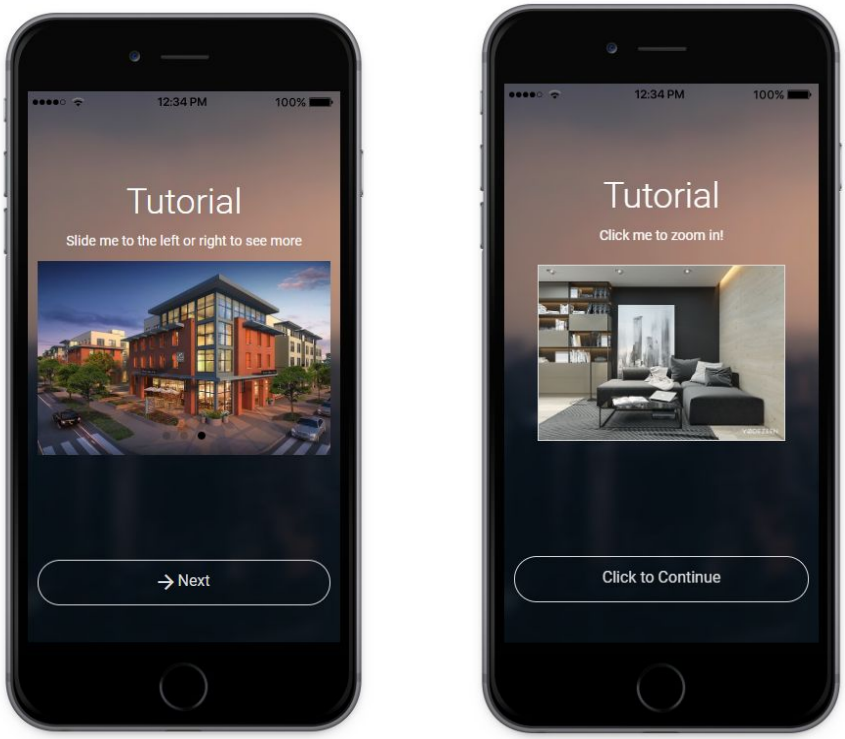

Figure 5: Adding a tutorial page to help users.

The Post Review screen stayed the same as the paper prototype as shown below. The buttons were left rectangular for simplicity and readability, and to promote a sense of professionalism that would hopefully extend to the reviews posted. There were minor changes, relating to the order of the forms; review headline was placed above the review body since it made the most conceptual and logical sense.

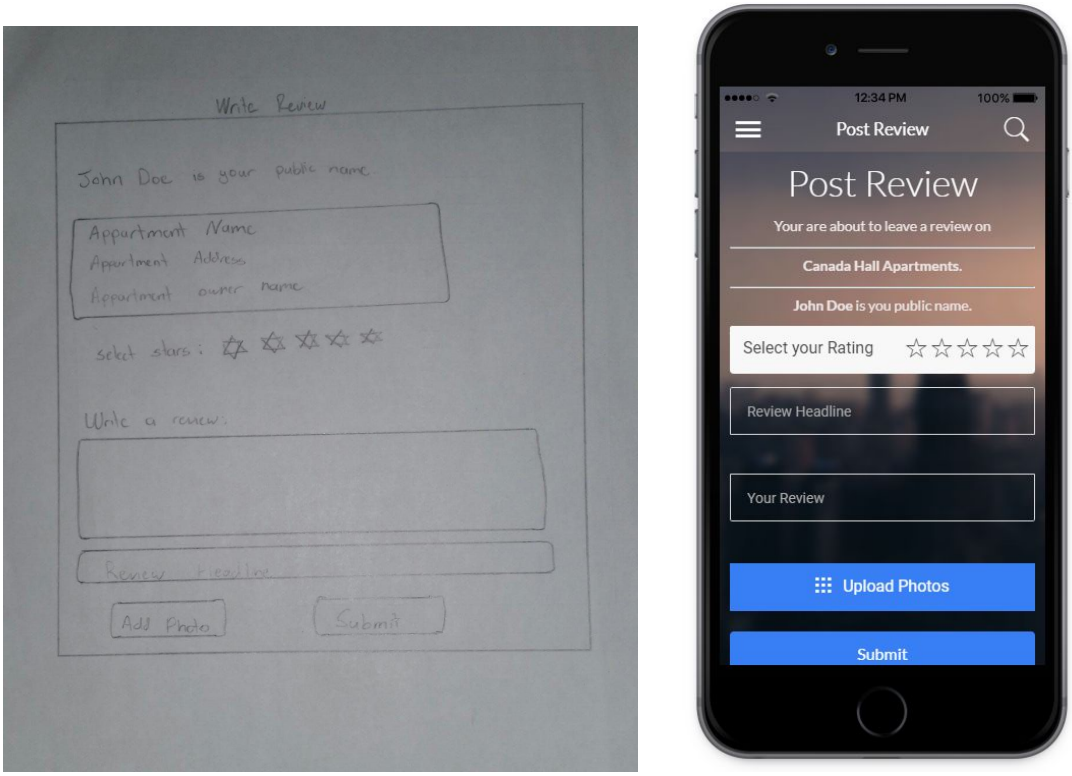

Figure 6: Design Evolution for the Post Review Screen.

The buttons were designed larger than average for various finger sizes and for visibility among all age groups. The buttons 'Available' and 'Unavailable' were added to the apartment listing pages so that the user would know instantly of an apartments availability. The color green was used for available to represent positivity, while red represents negativity. A 'Watch' button was also put on the apartment listing so that the user can choose to be notified when an apartment becomes available or reserved. This will help them avoid unnecessary clicking when simply wishing to be notified. The Watch button followed Analogical Consistency, since the eye icon is a commonly used representing for the task of 'Watching'.

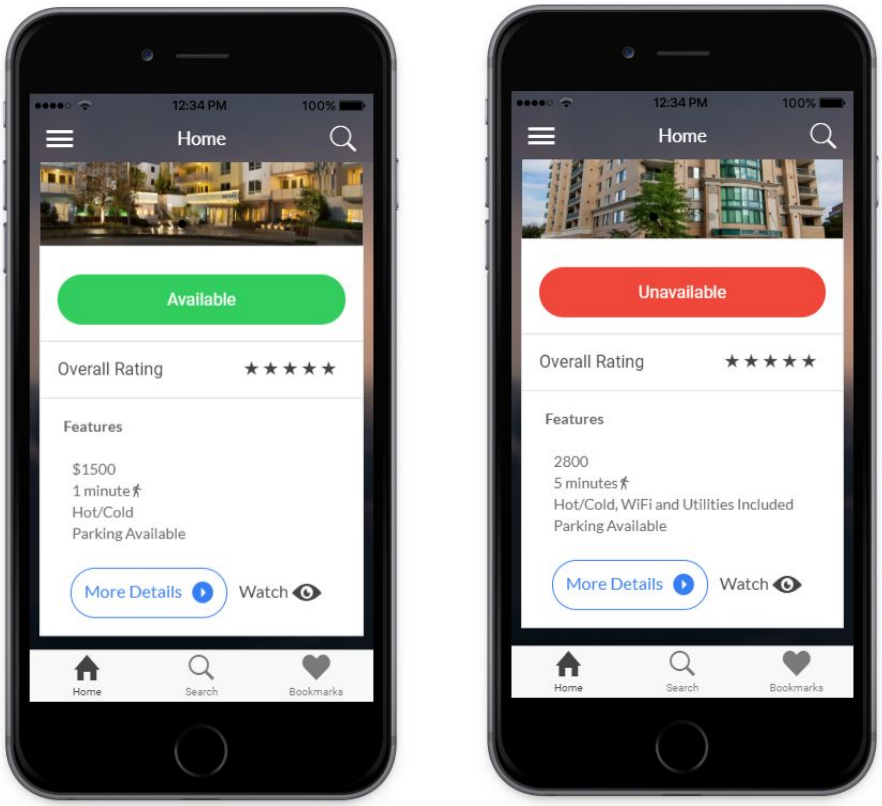

Figure 7: Design evolution, available and unavailable buttons added, that are color coded, watch button added.

We chose clean, sharp fonts and a high contrast color scheme, to reduce eye strain.

For the Virtual Tour, we chose a 3D Virtual Tour Tool that was embedded into the page . It was chosen for its highly engaging and fun level of interaction, in addition to it's informativeness. It is displayed as an interactive map with specific points that can be clicked, that will advance the user through the property. The user can "look around" and zoom in on all the details. The tool was found to be highly performant as well, since responsiveness was also prioritised.

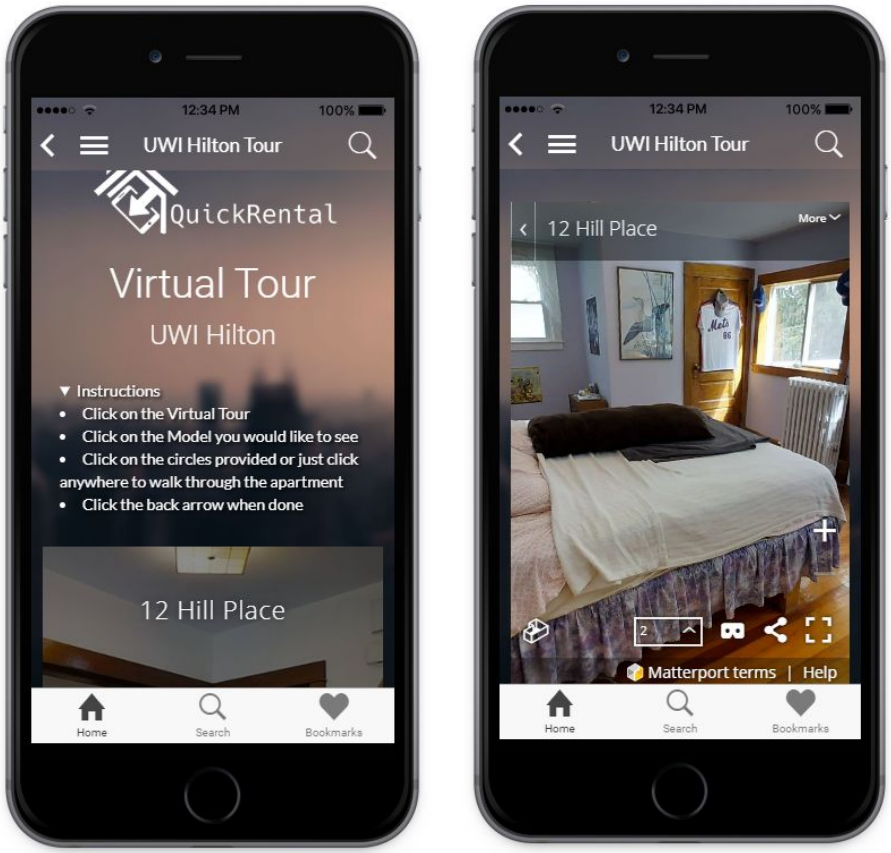

Figure 8: Virtual tour has instructions and allows the user full interactivity with the apartment..

We chose Google Maps as it is a tried and true well tested API. it is extremely easy to use, has a helpful colour scheme and information dense. We added the name of the apartment at the top of the page and the walking and driving distance at the bottom of the page so that the user will not have to click on the full screen of the maps to find out.

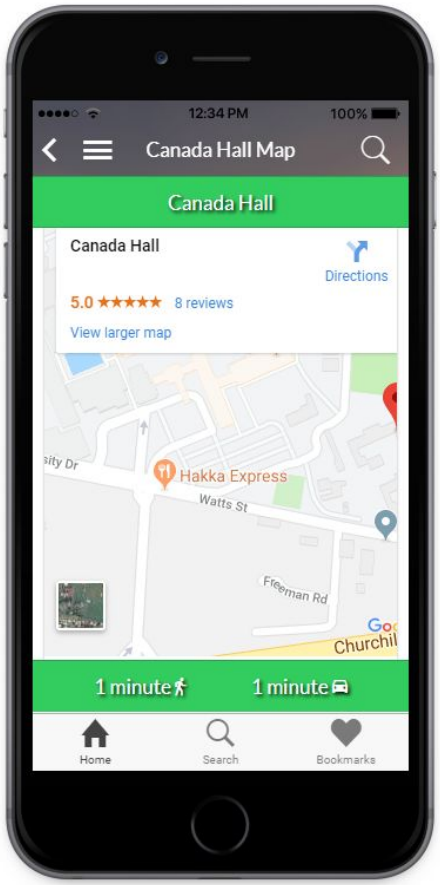

Figure 9: Maps has the name of the apartment, as well as the walking and driving distance to U.W.I.

The reviews page was designed to have all the information to the user, so we have a perfect summary of each review, with the user's comment and their rating clearly visible.

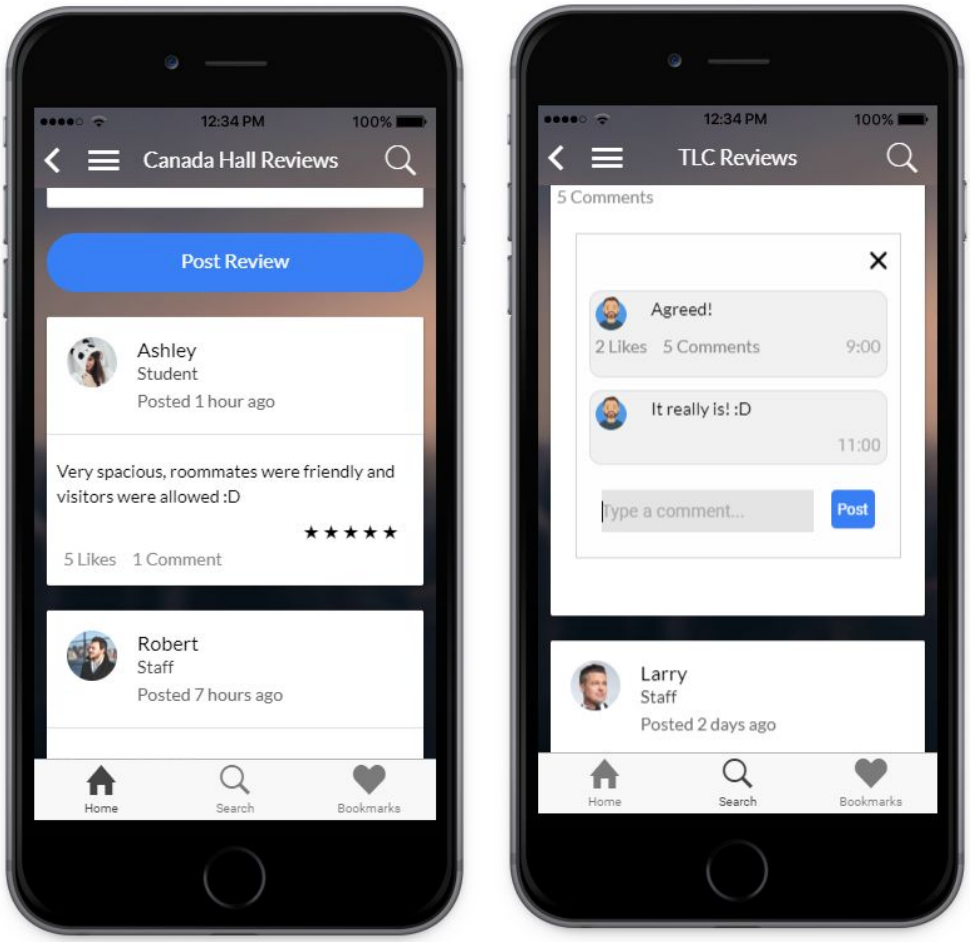

Figure 10: Reviews has all necessary features; the rating comment, time posted, avatar from each user as well as comments and likes for that review.

Additionally, we included a welcome screen that consisted of our logo, the ‘Create Account’ and ‘Login’ buttons to add convenience for new or returning users to the app. Should new users first visit the app, they will be able to quickly go to the Account Creation screen, while returning users, who have reinstalled the app or changed devices, they may instantly proceed to the Login screen.

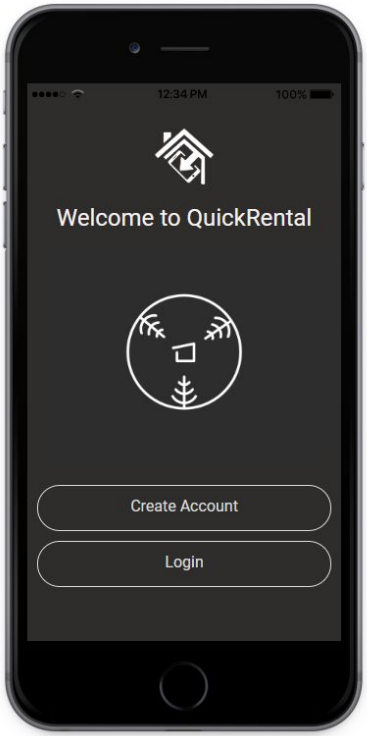

Figure 11: Welcome screen added for greater convenience to both new and returning users.

Furthermore, the Login and Sign Up screens changed drastically toward a more minimalistic and readable design, to echo common material interfaces seen in other apps. The diffused colour background was chosen to place more attention on the content and form fields, as well as increasing visibility, while also pleasing to look at.

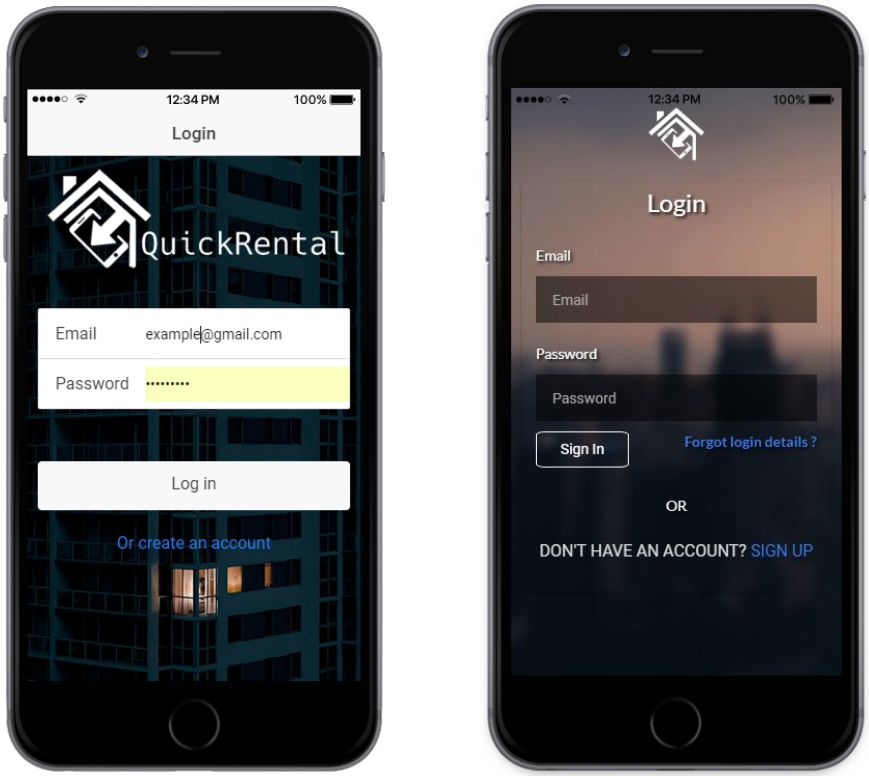

Figure 12: Design Evolution for the Login Screen.

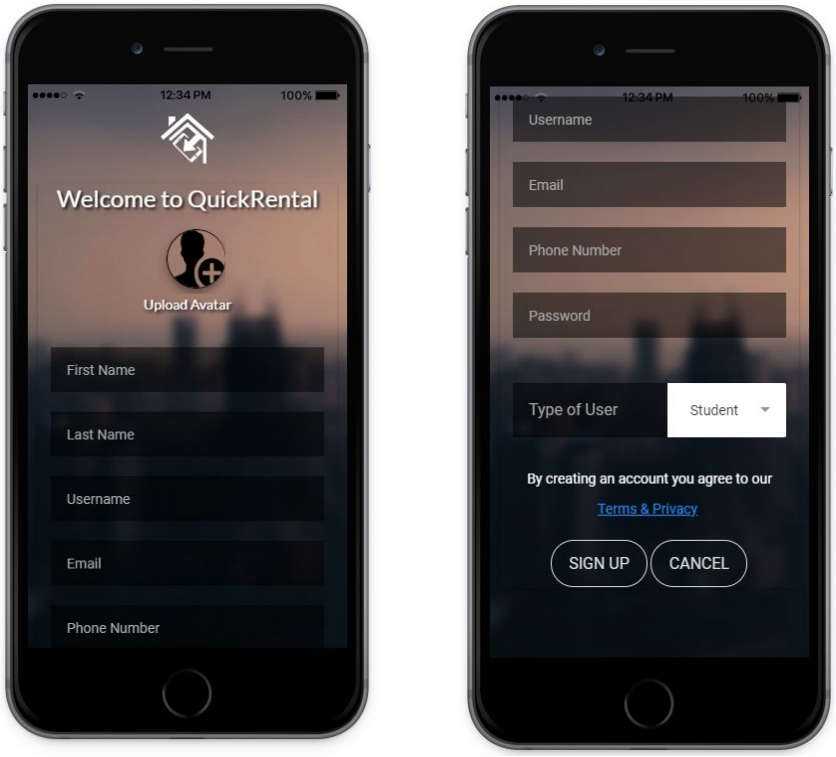

Figure 13: Added Sign-Up Screen.

Lastly, we changed the header of the app to be transparent as to flow with the background, and included search and option icons so that the user can search anytime and go to their settings anytime.

Figure 14: Search and options button added to header along with transparency for increased visibility and readability, as well as attractiveness.

Heuristic Evaluation and Findings

Our group conducted the heuristic evaluation separately where we were our own evaluators for the application. We pretended we were new to the app and went through it in the eyes of a new user. We then recorded what violations were found, the severity ratings for each, what part of the app the violations were found. After, we came together to discuss what we found and what we thought of the design thus far. Many violations were functional, as the free version of Ionic Creator did not allow us to use javascript or any code besides html to build the prototype.

A Summary Of Our Heuristic Analysis That Has Not Yet Been Addressed

Issue	Description	Heuristics Violated	Problem Location	Severity	Fixes
The back button does not appear when the user enters the virtual tour on their phone.	Thus, it becomes difficult to exit the tour and be able to scroll.	User Freedom and Control, Flexibility and Efficiency of Use, Consistency and Standards.	Virtual Tour Screen	4	This problem is due to the virtual tour iframe we embedded. In the development of the app, we will be using the same program to get the virtual tour, but without the limitations of Ionic Creator, a back button will be added easily.
Home tab does not work all the time.	When I visited some pages, and clicked the Home tab, it took me to the previous page rather than the actual Home page. This is an Ionic Creator Issue, and would necessitate switching to a different App Framework.	User Freedom and Control, Consistency and Standards	App-wide	4	Change from Ionic Creator to a different framework that has less limitation.
Bookmarks are not added.	When clicking the 'heart' button on apartments, they do not show up on the	Consistency and Standards	Bookmark screen	4	Implement backend that allows for apartments "Favorited" to be added to the Bookmarks page.

	bookmarks screen.				
No account authorization.	Account never created, yet you can login.	Error Prevention	Login Screen	4	Implement backend to properly authenticate users, and return appropriate error messages when invalid credentials are entered.
Cannot search apartments by street.	The search button does not allow you to enter a street to search.	User Control and Freedom	Search button and bar on Home Screen	3	Modify Search field to allow keyword search by criteria.
There is no progress bar before loading the app.	Before the app loads, there should be a loading progress bar to ensure the user knows that the app in loading. This would be helpful for users who have slow internet.	Consistency and Standards, Visibility of System Status	Welcome Screen	3	Include progress wheel to provide feedback to user that an action has been submitted to our server, and is awaiting processing.
No message showing the status of the app.	There was no message stating if my search was saved, reset, if I signed up or logged in.	Visibility of System Status	Search (Save and Reset Button) on Filter Screen and Sign Up and	3	Implement backend functionality, that will provide feedback to the user on input entry, if their authentication or search was successful or yielded results, respectively.

			Login Buttons		
No Search button at the top of the page.	There should be a search button at the top of the page as well, so that the user does not have to scroll all the way to the bottom of the screen to search (there is a search tab however)	Flexibility and Efficiency of Use	Home Screen	2	Include search button at top of page, that may scroll with the user to increase convenience.
Have a list as well as card view for the results and home page.	With card view, it would take a long time to browse through apartments. There should be an option to have a list view in case the user prefers to see less details but more apartments on the page.	Flexibility and Efficiency of Use	Results and Home Page	2	Include button to switch between view types to allow for faster, more streamlined browsing
The 'Upload Avatar' button should look clickable.	'Upload Avatar' button does not have the appearance of a button.	Consistency and Standards, Visibility of System Status	Sign Up Screen	2	Turn the 'Upload Avatar' button into an actual button. Right now a photo is being used to mask the html css from 'input = file'. When another framework is used that is not just for prototypes, the buttons will be easily made.

There should be suggestions for search based on what the user is typing		Recognition vs. Recall, Flexibility and Efficiency of Use	Search Bar	2	Leverage search engine indexing for apartment listings to implement this.
'Forgot login details? Get Help' button does not work.		Consistency and Standards, Visibility of System Status	Login Screen	1	Link 'Forgot Login Details' button to page that instructs user on how to reset password.

Heuristic Violations that have been addressed

Using Ionic Create, we were very limited with the heuristic violations we could address. Some of the violations we fixed are listed below.

1. **The price range and walking distance do not show any values when chosen.**

   Violated Heuristics: Flexibility and Efficiency of Use, Consistency and Standards

   Problem Location: Search (Price and Walking Distance Range) - Filter Screen

   Severity: 4

   We agreed that this is a huge problem as the user should know what value of price and walking distance they are choosing. To fix this, we made the slider for walking distance show the amount and we changed the price range from a slider to a selection box where the user can choose a price range from one selection box to the other as shown below.

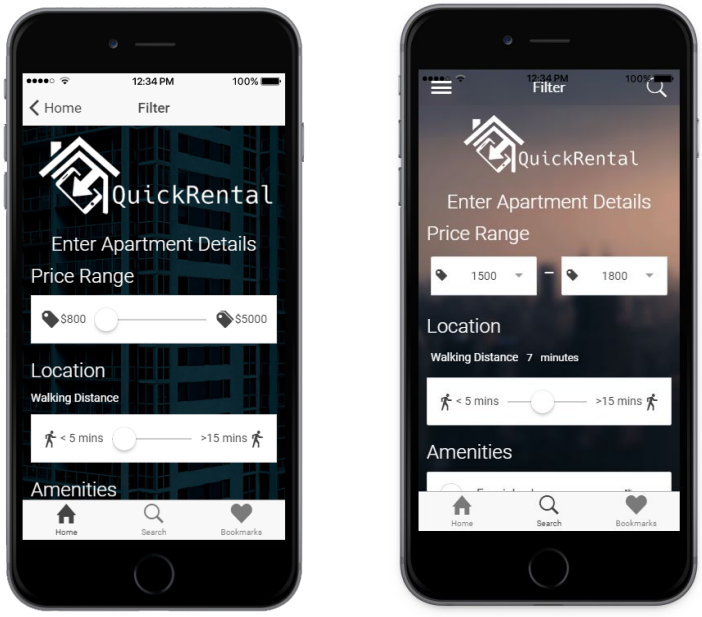

Figure 15: Showing the evolution of the filter page for the price and walking distance range.

2. **Images tapped was not opened on a full screen.**

Violated Heuristic: Consistency and Standards

Problem Location: Browse

Severity: 3

This problem was high as when looking through the photos for an apartment, they may look small based on what phone the user has. Therefore, to fix this, we made a modal screen for the images on the details page so that when clicked, they will appear fullscreen. We could not implement this on the slide however, as the slider was fixed and cannot change on ionic creator. The fix can be seen below:

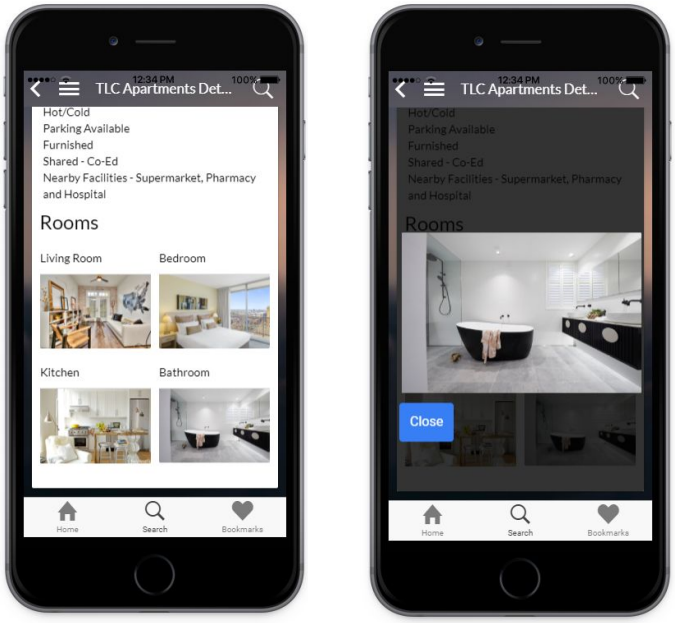

Figure 16: Showing the evolution of the details page for the pictures shown.

3. **On the Sign Up screen, the 'Upload Avatar' button was not responsive.**

Violated Heuristic: Consistency and Standards, Visibility of System Status

Problem Location: Create an Account Screen

Severity: 3

This problem was also high as the user would not be confused as to why there is an 'Upload Avatar' button there, that does not work. To fix this, we used file = 'input' within the html of the code in ionic creator to allow images to be uploaded. This is shown below.

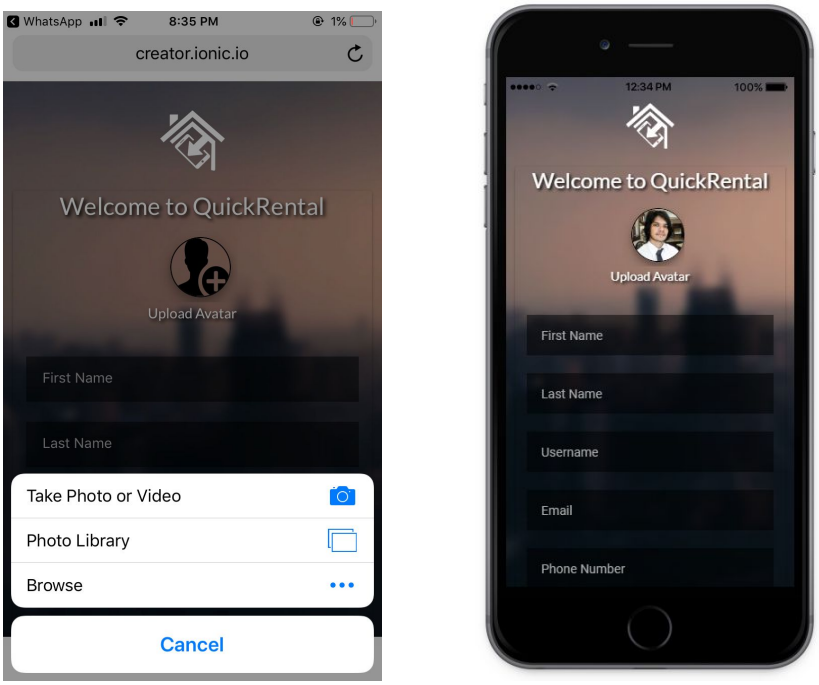

Figure 17: Showing that the 'Upload Avatar' button now takes images.

4. **Since the app will be used by older, possibly less smartphone-familiar, individuals, the app should provide tooltips or a '*Get Started*' to better guide new, inexperienced users in how to navigate the app.**

   Violated Heuristic: Documentation and Help

   Problem Location: App-Wide

   Severity: 3

   This problem was agreed on as a needed fix as when going through the app, we realised that we would not know that one can slide through the photos or click on an image to enlarge it. Hence, we included a tutorial page right after the user creates an account as shown below.

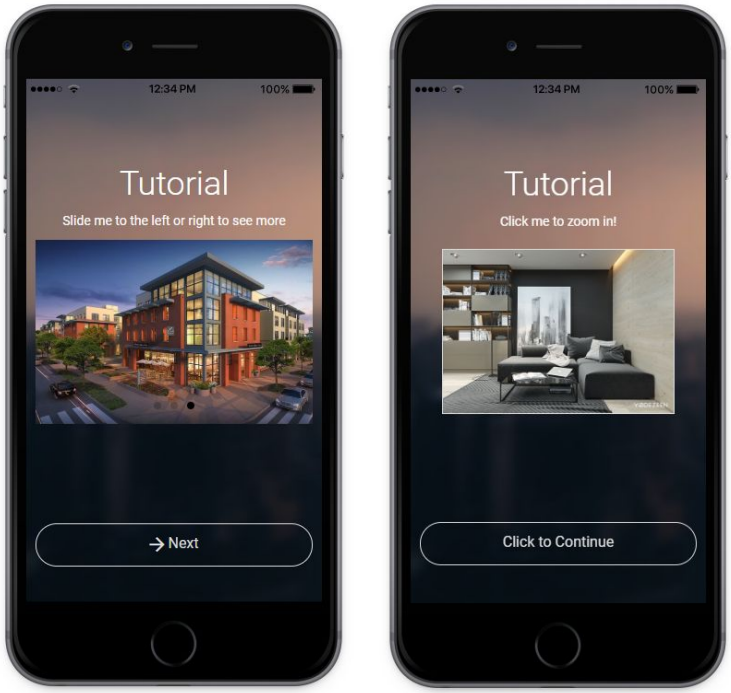

Figure 18: Showing that a tutorial has been implemented.

5. **The Phone number entry box allows the entry of letters.**

Violated Heuristic: Error Prevention

Problem Location: Sign Up Screen

Severity: 2

The phone number entry box should not allow anything but numbers. Before, we could not use the code in Ionic Creator as we were on version 3 which did not include the 'html' option. Thus, we moved to version 1 and got to use the 'html' which allowed us to have the phone number section only enter numbers as shown below.

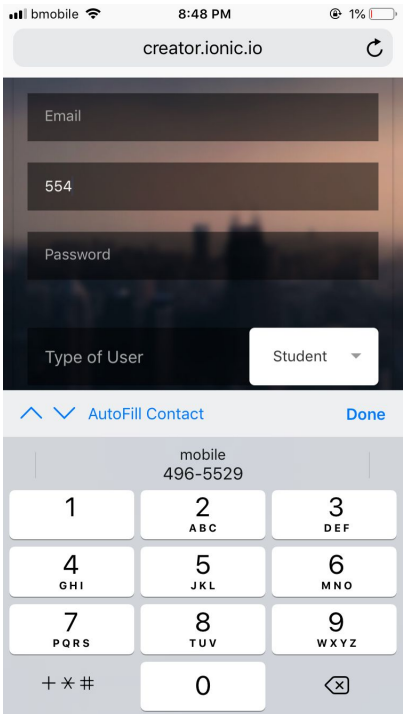

Figure 19: Showing that the Phone section only allows numbers.

6. **The heart symbol did not stay clicked and turned back to an outline when not clicked.**

   Violated Heuristic: *User Control and Freedom*

   Problem Location: Home, Results, Details and Review Screens

   Severity: 1

   This would confuse the user as they would not be aware of the status of the bookmarks. Thus, to fix it, we implemented css and html to make the button appear as it was being clicked. This fix would be much easier on a framework like React Native. Below shows the change.

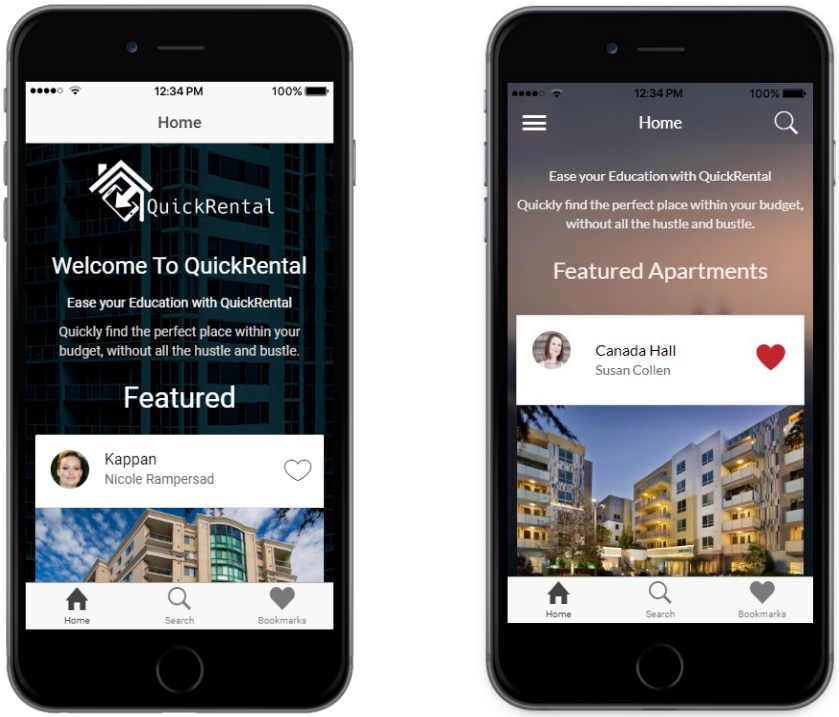

Figure 20: Showing the heart button retaining its status.

7. **Minor consistency problem in the design of buttons on the Post Review page. Previous buttons were round, while these exhibit a slight rounding and rectangular shape.**

   Violated Heuristic: Consistency and Standards

   Problem Location: Post Review Screen

   Severity: 1

   Consistency is important when building an application. Inconsistency can throw off a user. To fix this, we made all buttons rounded, except where it made sense to have it in a different style. Below shows the fix for the post reviews page retaining the consistency. We also included if the user who posted the review was a student or staff, which is obtained from a database containing the users' information, and the time the user posted the review.

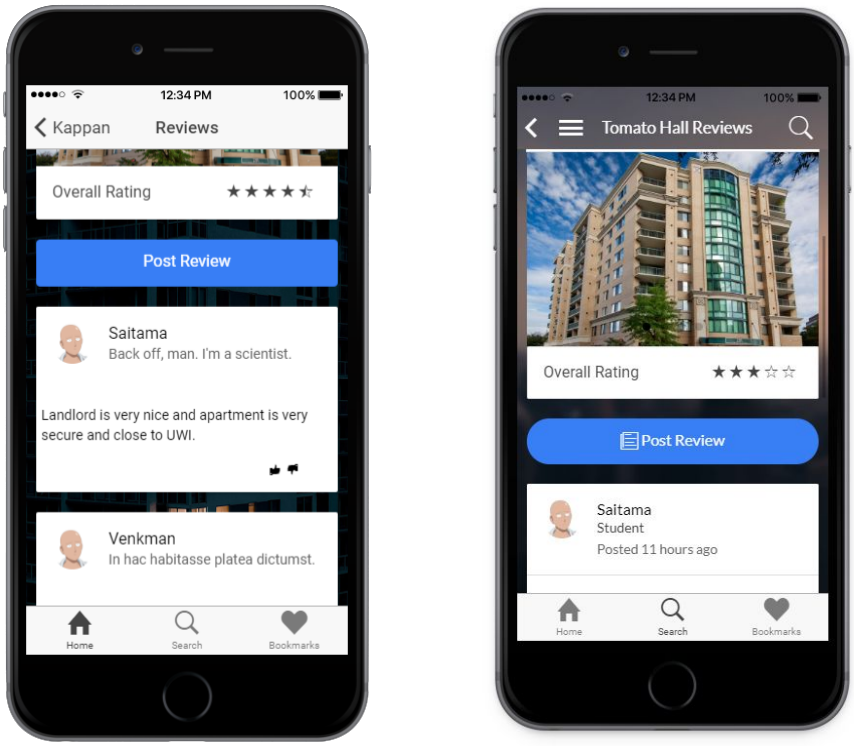

Figure 21: Showing the fix for the reviews page and thus, the consistency being retained.

8. **The ‘more details’ option did not work for one apartment.**

Violated Heuristic: Consistency and Standards

Problem Location: Search - Home and Results Screen

Severity: 1

This was due to an Ionic Creator problem where the link changed. Therefore, we changed it to the correct link and all ‘More Details’ buttons now work.

Recommendations for Next Iteration of Design

Welcome Screen

Discovered from Heuristic Analysis

- ❏ Before the app loads, there is no progress bar to show that the app is loading. This would be beneficial for users with slow WiFi. Thus, we would implement a progress wheel before the welcome screen appears to provide feedback to the user, than an action has been submitted to our server, and is awaiting processing.

Other Recommendations

- ❏ The welcome screen currently has an animation from online. We would make our own animation and include it.

Sign Up Screen

Discovered from Heuristic Analysis

- ❏ The 'Upload Avatar' button should take on the appearance of a button so users know to use it.

Other Recommendations

- ❏ The password is not confirmed twice. Thus, there would be a second 'enter password' option, so that the user can ensure the password they chose is correct.

Login Screen

Discovered from Heuristic Analysis

- ❏ The ‘Forgot Login Details? Need Help?’ button should link to a page where the use can enter their email to confirm their identity and reset their password.
- ❏ The app logins when any email and password is entered. We would implement authentication via backend.

Other Recommendations

- ❏ The persons email address and password is not saved. It would be saved to allow the password to automatically populate the fields on the login screen for ease of use.

Home and Results Screen

Discovered from Heuristic Analysis

- ❏ Right now, there is only a card view of the results and featured apartments on the Home and Results screen. If there are many apartments, the user would take very long to browse through. Therefore, there should be a button where the user can switch between card and list view. List view will have fewer details and will have a more minimalistic design, as well as fit more apartments on one page.

Other Recommendations

- ❏ Pagination or a ‘previous’ and ‘next’ button would be implemented and functional at the end of the home screen.
- ❏ Search Bar would be present and scroll with the user, for added convenience.
- ❏ A Share button would be present on the apartment cards, to allow users to share apartments they are interested in.

Search

Discovered from Heuristic Analysis

- ❏ There would be a location drop down menu to search for apartments that are located on particular streets/areas or nearest to faculties.
- ❏ As the user is typing, search suggestions would dynamically pop up below.
- ❏ The option to search via keywords would be added.

Status on the 'Save', 'Reset', 'Sign Up' and 'Login' buttons

Discovered from Heuristic Analysis

- ❏ Backend should be implemented that will provide feedback to the user on input entry, if their authentication or search was successful or yielded results, respectively.

Filter Screen

- ❏ The 'Reset', 'Save' and 'Browse' buttons would have full functionality. The 'Browse' button should have the proper backend implementation and will be connected to a database to actually filter the results. The 'Save' button would also retain the information entered.
- ❏ The Reset button would prompt the user to confirm if they would like to reset their search parameters.
- ❏ The user would be allowed to select their preferred walking distance in either metres or minutes.

Details Screen

- ❏ Make the images from the slider, enlarge.
- ❏ The images that has a modal, should be fullscreen and allow scrolling.

- ❏ A Share button would be implemented to allow users to share a link to the apartment via messaging platforms. The Share link would be accessible by users who do not have the app installed, and via their personal computers. Thus, the users would be directed to a web page consisting of the content.

Virtual Tour Screen

Discovered from Heuristic Analysis

- ❏ There is no back button once the virtual tour goes on fullscreen. Thus, an exit full screen or back button would be implemented.

Other Recommendations

- ❏ The virtual tours embedded does not have apartments from U.W.I. When landlords add their apartments, the tours will be updated to have accurate information.
- ❏ There will be instructions on the screen when the virtual tour is in full screen, and there will be an exit button.

Reviews Screen

- ❏ The comment, like, thumbs up and down buttons would have added functionality where a proper backend would be implemented.
- ❏ **Design of the comment section….**
- ❏ The amount of users that rated the apartment one, two, three, four and five stars would be shown respectively. Furthermore, the user would be able to click on each of the different ratings and see the users that rated it one, two, three, four and five stars respectively, and why.
- ❏ A Share button would be present on the review cards, to allow users to share specific reviews with interested parties.

Post Review Screen

- ❏ Only one image is shown in the preview. All images uploaded would be shown in a preview in a grid for efficiency.

Bookmarks Screen

Discovered from Heuristic Analysis

- ❏ When the heart button is clicked, the apartments do now show up on the person's bookmarks. Thus, we would add backend functionality so that the apartments where the heart is clicked, would populate the bookmark screen in a gridview.

Messenger Screen

- ❏ Right now, we are embedding Minnit chat into Ionic Creator. We would implement our own chat and the design would be more minimal and clear. It would be very apparent who sent what message by using avatars, what time the message was sent using timestamps, the header will have the user's avatar, followed by their name and settings. The footer will have the text area to enter text, as well as a send button and a file/image upload button.

Add/Delete/Edit Apartments Screen

- ❏ There is no add/delete/edit apartment screen. If the user that signs up is a landlord, that user would be taken to a 'Register Apartment' page, where they can enter all details, photos etc. about their apartment now or at a later time.

- ❏ The landlord would be able to go back to their apartments and edit or delete them. The proper backend and connection to a database will be implemented for this.

Details, Maps, Filter Screen

- ❏ Option for meters….

Overall

Discovered from Heuristic Analysis

- ❏ The 'Home' tab does not work all the time. This is an Ionic Creator problem. We would move over to React Native for implementation where the tabs would give no issue.

Other Recommendations

- ❏ Translate to another framework (React Native) to overcome the limitations of Ionic Creator, as it is only used as a prototyping tool.
- ❏ Proper functionality and backend (database) will be implemented for the entire app.
- ❏ A Global Menu would be implemented, that will show the avatar and profile name of the logged in user, as well as shortcuts to other app functions.
- ❏ User would receive more feedback on submitting changes; modal window stating that the user has been logged in, logged out, their search settings have been saved and on signing up.
- ❏ They user would be prompted to confirm if they would like to log out.
- ❏ For the header on each page, the icons for search and options is not functional. We would move to React Native, where functionality will be easily implemented. The search icon on the header will span out to allow the user to enter a street/apartment name to search. The options icon will have all options available to the user. The profile icon will have a drop down that will consist of 'my profile, settings…'.
- ❏ Walking distance would appear as both time (in minutes) and distance (in metres) on the various details pages and listings.

Reflection

Issues and Limitations

- Ionic Creator was a huge limitation in terms of backend and functionality. We had to do crazy workarounds using HTML and CSS exclusively, with very limited JavaScript that could have been called inside HTML tags. We wanted to implement a database and backend but the time frame to move over to React Native was too small. We started with Ionic Creator as this course focused on the design aspect alone. Therefore, it would have been most effective to start from the beginning using React Native. We started out with Ionic Creator under the assumption that the course only necessitated designs and no functionality.

- We started around the 6th week of the semester, thus, not enough time was given to complete the tasks we wanted to do. Upon seeing what Stanford students got to do, where they got to use React Native to build a Hi-fi prototype and do a pitch for investors, if more time had been given for this course, we would have loved to do those things as well.

- Furthermore, we all had many other courses, assignments and the project from Software Engineering 2 to do. Thus, we did not get to focus solely on the project for HCI.

Conclusion

At the commencement of this project, if we were told that we would learn and accomplish all that we have in the space of three months, we would be in disbelief. Our team set out to create the QUICKRENTAL application strictly governed by HCI design principles and we were successful in this venture. We learnt that HCI is extremely important when designing clear intuitive systems. HCI takes advantage of our everyday knowledge of the world to make software and devices more understandable and usable for everyone.

We were able to effectively apply these principles to our application, producing a professional yet easy to use application. Our application however, is not flawless and as such we have analyzed and located areas for improvement.

Acknowledgements

Due to issues, resulting in a late start to the course, the project was stressful to complete in time. However, it was extremely fun to do, and the creativity and design aspects made it worthwhile and a terrific learning experience. The concepts that were learnt for the duration of this course would definitely be applied to our future projects and jobs. We would like to thank and acknowledge Mrs. Cudjoe, who just helped out this course as a favour but ended up having to stay with us. She aided us in every way possible and was always around to answer questions and ease our stress. We would also like to thank the UWI students who participated in our surveys and helped us justify the solution we are building and helped us with the requirements and tasks. Thank you and have a wonderful vacation! :D