WallFly

FINAL REPORT

DECO3801 - Design Computing Studio

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A Mashed Creation

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EXECUTIVE SUMMARY

WallFly is an online property management platform through which agents, tenants and owners can fulfill many of their rental obligations. WallFly aims to combine several key services into a single, transparent platform for all three parties to use. After substantial user research and investigation we found that agents, owners and tenants all felt as though there were issues with their communication with the other parties in their rental relationships. We identified several key problem areas and tailored services to deal with these specific issues.

The services offered by WallFly are as follows:

Payment Management

WallFly implements a payment management system through which agents can add and confirm payments that are required from a tenant. This creates a transparent mechanism through which outstanding, overdue and upcoming payments can be seen. An agent can also confirm them as they are paid. This is a crucial element to WallFly as one of the main gripes of real estate agents is that it is often difficult to keep track of rental payments.

Repair Requests

Many tenants stated that they found it difficult to request repairs and to ensure that an agent is taking action regarding the repair. Our repair requests mechanism allows the creation of a repair request with a photo upload. Additionally, the agent can provide updates on the progress of the repair and use the calendar to book them in. Again, this was a very important area according to our user research and as such this is an important element of WallFly.

Documentation

User research showed that parties did not feel they had access to the necessary documentation to their rental agreement. As such Team Mashed built this in as a core functionality of WallFly. There is an area for the uploading of rental and bond agreements and entry (or dilapidation) reports at the commencement of the tenancy. Additionally there are links to the RTA where there is a wealth of information such as breakdowns of standard form contracts. Our testing showed that tenants appreciated having a single platform through which this documentation can be found. As such this is a core feature of WallFly.

Calendar

The calendar feature of WallFly is crucial to the maintenance of good relationships between agents and tenants. The calendar allows for the scheduling of appointments in a transparent manner which can be engaged with by both parties. This system works excellently in conjunction with the repair request function, as once it has been requested and approved the subsequent visits by tradespeople can be booked through the calendar. Our research showed that many tenants felt that the scheduling of visits and inspections is never clear, thus we felt it was crucial that a calendar for scheduling purposes was implemented into WallFly.

Communication

The communication service acts as a back up to the other four key services offered by WallFly. If the other four services are used then most information should be available to all parties. However, in practicality there will be errors made and miscommunications. The communication system acts as a back-up to the other functions of WallFly. Additionally, there will no doubt be issues that directly require communication. This allows an agent to chase up a tenant for rent without having to play phone tag or send emails that never get replied to. If WallFly can be adopted into the kind of service that people check daily, this messaging services will be highly useful. Additionally, the use of a mail server could automatically mail these messages straight through to the email addresses of all involved parties.

The context for the creation of WallFly arises out of the realisation that currently all three parties (owners, agents and tenants) currently lose out with the systems that are in place. Our research supported this claim and showed very few tenants and owners were happy with their communication and relationship with their agent. Additionally, agents feel it is difficult to communicate with all of their tenants when they have to manage such a large number of properties.

Our client, Franz had proposed an online platform through which we could take all three parties and make the whole process much easier for them. He approached the University of Queensland for this idea for development and we have enjoyed working on it throughout the entire semester. We firmly believe that our iteration of WallFly provides a service that could be genuinely useful in the real world.

The rest of this document contains important information about our experience working on WallFly. Part two is a list of frequently asked questions (FAQs), which goes through the main questions we were asked during development and testing regarding use of WallFly. Part three is a deployment and installation manual for WallFly that will assist in installation and use of WallFly by parties who adopt it. Using this guide any sysadmin should be able to easily install and run WallFly. Part four will contain our functional testing results and user evaluation report. This summative documents will reflect how complete WallFly is and how successful it is in providing its purported functionality. Finally, we have provided a critical evaluation of WallFly as a product.

FREQUENTLY ASKED QUESTIONS

Frequently asked questions (FAQs), a summary of questions and answers that arose during development and testing. All are commonly asked questions that had tendencey to recure.The FAQ's are there to answer any naïve and/or backeground questions a user or administrator may have about the system. These FSQ's can also be found in the support page of the WallFly application.

How do I log in as a tenant?
To log in as a tenant you will need to get in contact with your agent.

How do I add an event to the calendar?
An event can be added by looking below the calendar. It is important to have a start and end date that is on the same day for a one day event or over a few days or weeks for a longer event. You may add a url to a resource if you need to explain more details of the event.

How do I communicate to the agent?
The site has a communication tab which is used to talk to the agent. each communication is limited to 255 characters and once submitted it will be added to the message log.

Why can't I confirm that payment or add my property?
As a tenant you can submit your payments but only the agent may confirm the payments. The agent will arrange your property to be assigned to you.

Why can't I change the repair to approved?
As an owner you won't be able to manage the repairs as this is the agents responsibility on the site.

How do I use the entry report form?
This form can be submitted multiple times to upload more videos or photos and this will update each time. It is important to know that the text description will be overwritten each time. This is a feature that needs some work.

How do I add a property?
Go to the Property tab and click "add Property" fill out the form and it will generate the property in a new tab.

How do I add an Event?
Go to the Calendar tab and scroll down to the Add Event section.Adding an event should have a title and a start date. If you want you can add an end date if it's longer than a day. You can also add a useful url link which will forward to the url page on click.

What happens when I submit a repair?
The tenant may submit a repair which will then be sent to the Agent's control interface. He will approve or deny the repair. After approval he will arrange a contractor to come fix the repair. Once the repair is fixed it will then be approved by the tenant.

INSTALLATION MANUAL

The following guide will explain how to obtain the source code and prerequisites for running the WallFly website. The guide will also explain how to configure the site and import the database using phpMyAdmin. Once complete you will have the latest fully functional version of WallFly running on your server or computer.

PHP and MySQL Setup

Method 1 - WAMP

1. Download and install WampServer
2. If you change the default installation path, replaces C:\wamp\www\ with the path you have chosen in all occurance in this document
3. Start the WAMP server by running C:\wampmanager.exe you should see a green symbol in the taskbar notification area
4. The server should be accessable on localhost/

Method 2 - Web Host

1. If you have a web host, please install and configure both PHP and MySQL

Obtain the Source Code

Method 1 - Git Access

1. Download and install Git
2. Open a cmd console or terminal and type
   cd C:\wamp\www\
   git clone https://github.com/Acebond/Mashed.git
3. Enter your Github username and password

Method 2 - Source Zip File

1. Extract the prodived zip file of the source code to C:\wamp\www\

Database Setup

1. Go to localhost/phpmyadmin/
2. Click the **Databases** tab and create a database named wallfly
3. Select the wallfly database and go to the **Import** tab
4. Select choose file and select the Mashed\database\wallfly.sql file from the git clone or zip source
5. Don't touch any settings and click the **Go** button
6. Click the **Privileges** tab
7. Select **Add User** option
8. Fill out the details as
   i. User name: admin
   ii. Host: Local
   iii. Password: password
   iv. Check "Grant all privileges on database wallfly"
   v. Check "Global privileges"
9. Click the **Go** button to add the user
10. Visit localhost/Mashed and pray everything worked

FUNCTIONAL TESTING

This Section describes the results of evaluation activities carried out during the development phase of the simulated web browser developed by the WWAAC project. The evaluations were conducted over a period of 3 months from August 2015 and consisted of four testing components. White box tesing, black box testing, observational research, client testing and heuristic evaluation.

WHITE BOX TESTING

White Box Testing is a software testing method in which the internal implementation of the item being tested is known to the tester. The tester chooses inputs to exercise paths through the code and determines the appropriate outputs. Programming know-how and the implementation knowledge is essential. White box testing is testing beyond the user interface and into the nitty-gritty of a system.

The tests **(appendix 1.1)** have been created with a PHP script that interacts with site functions to perform actions. The tests use predefined data against the sites functions and check return values to determine if everyone worked as intended. The tests have been developed so that refactoring code and implementing new features can be done with ease. The tests also help prevent bugs from entering into the system and help detect where and if anything breaks.

Unit testing has been done against the most critical parts of the system as these are considered core infrastructure. Making sure the above components are working and bug free helps prevent any mistakes in other sections of the site. The entire test class must also pass before any code can be pushed to the code repository as this prevents any known glitches showing up on others uses setups.

BLACK BOX TESTING

Black box testing is the Software testing method which is used to test the software without knowing the internal structure of code or program. The main purpose of the Black Box is to check whether the software is working as per expected in requirement document & whether it is meeting the user expectations or not.

We completed an extensive amount on black box research **(appendix 1.2)** that is mentioned in more detail in the user evaluation, Stage Three: MVP to Final. Please go to this section of the document for more evaluation on the results.

OBSERVATIONAL RESEARCH

Observational research is a type of behavioural research with the intention to observe users' interactions with a certain product. The benefits of observational research is to gain a greater understanding of the strengths and weaknesses of a tested product. Throughout the development of WallFly, a number of direct observational research sessions took place. There were two different types of observational sessions that took place in order to get the best possible findings. These sessions involved a number of users being seated in front of a computer one at a time. For more information and results of user tesing please refer to the user evaluation report in the next section of this document.

CLIENT TESTING

Unfortunately, due to our clients busy life, we could not get any results for the client testing. Having said this though, this didn't restrict us too much for we have completed a variety of other tests.

HEURISTIC EVALUATION

In a heuristic evaluation, usability experts review WallFly's interface and compare it against accepted usability principles. The analysis results in a list of potential usability issues. Although the heuristics relate to criteria that affect the site's usability, the issues identified in a heuristic evaluation are different than those found in a usability test. For a further evaluation please go to the user evaluation stage dour: final report in the next section of this document. Also, the results of the heuristic evaluation is in **appendix 1.3.**

USER EVALUATION REPORT

STAGE ONE: PROJECT SCOPING

In order to understand who the potential users were for our product, why they would use our application and what their needs and expectations are, a number of evaluations were conducted. From these findings we were able to formulate three main UX goals. These goals included keeping consistency and predictability in the choice of interface elements, having an easily accessible login system, as well as making the website mobile compatible. These goals can be seen in further detail throughout the **UX Profile Brief at section 2.0 (appendix 1.4. access to link)**.

In order to meet these goals a number of evaluations took place. These evaluations included researching and evaluating similar applications, as well as primary user research, including survey research, and interviews. The surveys and interviews were conducted in order to understand who our main target audience was, as well as what problems they had, and therefore what they wanted out of the application. Thirty-one individuals were surveyed, and three were interviewed. From these evaluations we gathered a substantial amount of knowledge as to what our target audience wanted, which is where we came up with our 5 step process, Monitor Payments, Property Information, Repairs, Contact services, and Calendar. These evaluations can be seen in further details in the **UX Profile Brief at sections 3.1 and 3.2. (appendix 1.4. access to link).**

STAGE TWO: MVP

Design Workshop

Introduction

This workshop aimed to discover the strengths and weaknesses of our product, including what users wanted in an application.

Method

We developed a low fidelity prototype using InVision, where photoshop screen mockups were created and made interactive to the extent that it allowed navigation. The workshop involved 9 people of various backgrounds (**appendix 2.1**). The protocol for the evaluation was:

1. Provide some background of the workshop to the participants
2. Provide initial background about the application
3. Individually, the prototype was displayed to each participant on a large screen, where they were asked to complete the following tasks
    a. You want to see what the website is about
    b. You're now satisfied with what you've read and now want to register as a tenant
    c. Now you want to Log in
    d. You're not sure when your next payment is, how do you find it out?
    e. You have a broken window, how would you go about telling your agent?
    f. You've completed all your tasks, now you want to Logout
4. Whilst this was being completed another member of our team took notes of any mistakes or errors.
5. After each individual completed the tasks they were asked to complete the survey provided in order to get as much feedback as possible.

Findings

We found that most of the users had the following problems with the functionality of the web application:

1. They had trouble viewing the 'Find Out More' button on the main page
2. Getting from the about page to the Signup page. There was only 'Login' on the nav bar which didn't include any link to the signup page.
3. Users sometimes pressed the 'Close' button instead of the 'Submit' on the Login page as they were both similar and in the same location

Full results of the Observational research can be seen in the **UX Profile Brief at section 3.4. (l**ink in **appendix 1.4.)**

The results from the survey indicated that the participants felt that the application would be more useful with the following features fixed:

1. Login and register links on the main page need to be made more visible, the button on the main page blended in with the background too much.
2. Some users would prefer if when they sign up it took them straight to the main logged in page, rather than having to login. One less click
3. The calendar was confusing and wasn't very appealing
4. Users would like a notification area for the dashboard/navigation tab where the real estate agent can let you know how the progress of a repair is going.

Full results of the survey are available in the **UX Profile Brief at section 3.1.4. (**ink in **appendix 1.4.)**

Recommendations

From this workshop we made the following changes to the product:

1. Changed the transparency of the background so that the buttons could be more visible
2. Added a link to the signup page on the login page
3. Changed the close button to appear in the right hand top corner, in order to cause less confusion.
4. Changed the appearance of the calendar to a more simple, elegant design.

We decided that we would not make the following changes for the following reasons:

1. The feature where users would receive notifications for how the progress of the request was going. It was decided that if we had enough time at the end of the development process we would add this feature, as there were more significant changes that had to be implemented before we could get onto such nitty gritties.

Cognitive Walkthrough

Introduction

This workshop aimed to evaluate the usability of the website you users with little or no training. This workshop consisted of a group of 2 evaluators, whereby they stepped through a number of specified steps in ord er to improve the usability of the website.

Method

The prototype used throughout this workshop was the same one from the Design Workshop, an interactive, InVision, PhotoShop mock-up web page. The workshop involved 2 evaluators whose backgrounds can be seen in **appendix 2.2.** The Protocol for the evaluation was:

1. Define a background to the Workshop
2. Define the users of the product and the context of use (refer to the **UX Profile Brief in sections 4.1 - 4.3** for further information, link in **appendix 1.4.**)

3. The prototype was presented in front of both evaluators on a large screen, where they were asked to conduct a walkthrough as a group.
4. They were asked to perform a set number of tasks from the perspective of a “typical” user. These tasks were:
    a. You want to see what the website is about
    b. You’re now satisfied with what you’ve read and now want to register as a tenant
    c. Now you want to Log in
    d. You’re not sure when your next payment is, how do you find it out?
5. For each task the evaluator was asked to see if they could create a credible story based on the following questions:
    a. Will the user try to achieve the right effect?
    b. Will the user notice that the correct action is available?
    c. Will the user associate the correct action with the effect that the user is trying to achieve?
    d. If the correct action is performed, will the user see that progress is being made toward the solution of the task?
6. The evaluator was asked to record and success or failure stories, as well as any design suggestions, throughout a form given to them earlier.
7. Findings were evaluated and potential solutions were identified.

Findings

As the prototype was only catered for a tenant it was decided to perform the cognitive walkthrough as if you were the tenant. Following are the main design suggestions found (the success/failure stories can be seen in **appendix 2.3.)**:

1. I would suggest having an FAQ section just in case you don’t answer all of the user’s questions
2. I would suggest putting a link to the signup page on the Login page, as people are more than likely to click login if the signup button is not visible.
3. I would suggest that the Login button on the main page be more visible. Maybe try making the background image more blackened in order to make the button pop out more.
4. As outstanding payments includes upcoming payments, this could cause much confusion. I would suggest changing the name in order to make it more clear for the user.

Recommendations

From the walkthrough, we made the following changes to the webpage.

1. Added a signup link to the login page
2. Changed the transparency of the background image to a darker colour
3. An FAQ and user guide section to help users understand exactly how to use the web page

We decided that we would not make the following changes for the following reasons:

1. Changing the outstanding payments title to something that incorporated outstanding payments and upcoming payments. We decided to do so as that section heavily relies on outstanding payments rather than upcoming payments, and most of the upcoming payments was scheduled on the calendar, so didn’t really need to be implied there.

STAGE THREE: MVP TO FINAL

The six weeks between the minimal viable project to the final product demonstration provided enough time to create an application that is functionally and visibly viable. In the exhibition we present our application to peers, clients, assessors and members of the general public. This presentation allowed us to undergo an extensive amount of user evaluation. Evaluation that included a substantial amount of black box testing instances, focusing on the functionality as well as UX focused testing.

Functional Testing

Introduction

With a developed web application using html, css, PHP and mySQL, we were able to set up 3 different screens which were logged in as an agent, tenant and owner. This workshop involved 8 people of various backgrounds and expertises (**appendix 3.1.**). The method we used for the evaluation includes:

Method

Two things happened during this type of testing. Firstly, we had a list of functions from the functional coverage document in which we had already created for MVP. We recorded which functions worked and which ones had issues, adding any comments. Secondly, we watched for errors made by the user - did they do something differently, did they get stuck, did they make mistakes.

1. Pitch the product to the users including background and functions
2. Individually, allow the participant to walk through the website and ask them to complete the following tasks:
    a. Register as a tenant
    b. Login and Account Verification
    c. Property Addition: Add a property
    d. Payment Management: Find out when your next payment is
    e. Calendar: Add an inspection
    f. Repair Management: You have a broken window, send a repair request to your agent
    g. Communication Service: Send a message
    h. You've completed all your tasks, now you want to Logout
3. The note-takers take notes of the participant's behaviors, comments, errors and completion on each task (full version of these notes are available in **appendix 3.2.**).
4. The facilitator either asks the end-of session subjective questions, thanks the participant, gives the participant the agreed-on incentive(see **appendix 3.3.** for a full script of the interviews).

Findings

Following are some of the problems and highlights we encountered with the functionality of the web application. Please note: that due to the agent having complete access to all functionality of the web application, when recording which functions worked and which ones had issues, users that were logged on owner and tenant had limited functionality.

The following results were found when conducting observational research:

1. On the calendar, users go to double-click the event displayed, expecting there to be a pop-up with more information.
2. User went to add an outstanding payment, and they manually punched in the date, this lead to an error. Example: 21-03-2015 resulted in 00-00-0000.
3. Adding a property was an easy process for all users.
4. User put in an outstanding payment of '-10.00' and the system didn't send out an error.

The results from the interview indicated that the participants felt that the application would be more useful with the following features fixed:

1. Add or change their contact details.
2. User wanted to know what would happen if there were 3 tenants in the same property. Would they all have different accounts, or one shared account.
3. User wants a feature that allows the tenant to upload their bond, if the agent forgets.
4. Users recommended that agents have the functionality to upload photos, forms and additional comments when they do an inspection. Therefore the tenant and owner can see also see that an inspection has been completed, and maybe even show repairs that need to be done.
5. Time for the inspection, has a date, but a specific time could be helpful.

Recommendations

From this exhibition the following changes on the functionality will be made to the final product:

1. Fixing the problem of manually putting in a date so that the plethora of 0's are not outputted.
2. Agents will be able to delete a property.

We decided that we would not make the following changes for the following reasons:

1. Further depth of the calendar would be to incorporate a starttime and endtime. Then to display the time, the functionality of an informational popup box would be available when event is double clicked by users. We decided not to do this because we want to get our currently functionality perfected.
2. Agent should be able to have authority of updating, deleting or adding contact details. A feature such as this would require more user testing, for we would want to know if tenant and owners should be able to access a feature such as this.

UX Testing

Introduction

The second part of our testing involves the user experience elements. We conducted tests through the 3 type of interfaces, agent, owner and tenant. The participants of the UX tests range demographically and socially (**appendix 3.1.**). User experience (UX) focuses on having a deeper understanding of users, what they need, their abilities, and also their limitations. UX best practices promote improving the quality of the user's interaction with and perceptions of your product and any related services.

Method

Participate in a Retrospective Probing which requires waiting until the session is complete and then asking questions about the participant's thoughts and actions. As the participant makes comments or actions, the researcher takes notes and follows up with a semi-structured interview to provide information about the specific factors of UX that are important to the application.

1. A formal pitch and background of application
2. Individually, allow the participant to walk through the website and ask them to complete the following tasks:
    a. Register as a tenant
    b. Login and Account Verification
    c. Property Addition: Add a property
    d. Payment Management: Find out when your next payment is
    e. Calendar: Add an inspection
    f. Repair Management: You have a broken window, send a repair request to your agent
    g. Communication Service: Send a message
    h. You've completed all your tasks, now you want to Logout
3. The note-takers take notes of the participant's behaviors, comments, errors and completion (success or failure) on each task (full version of these notes are available in **appendix 3.4.**).
4. The facilitator either asks the end-of session subjective questions, thanks the participant, gives the participant the agreed-on incentive(see **appendix 3.5.** for a full script of the interviews).

Findings

Following are some of the problems and highlights we encountered with the user experience side of the web application, collected through qualitative research and interviews.

The following results were found when conducting observational research:

1. URL help, in add event, was not used by a single user.
2. Some users took a while to do the task of requesting a repair, due to missing the icon in the top left.

The results from the interview indicated that the participants felt that the application would be more useful with the following features fixed:

1. Properties: Listing the properties in tab display. As the exhibition the list of properties grew and it was found that the use of the tabs became over populated and messy.
2. Buttons were inconsistent. Green button seen in 'Entry Report'.
3. Links in Entry Report are underlined, not as a button as the rest of the website

Recommendations

From the exhibition the following changes on to the UX will be made to the final product:

1. Change some of the html pages to create a consistency across the entire application
2. Change some links into buttons
3. Remove the 'url help' textbox

We decided that we would not make the following changes for the following reasons:

1. We will not be changing the tabs that are used to display the different properties the agent has, due to the belief that our target audience is aimed at smaller rental industries who would not have as many properties.

BLACK BOX TESTING

Introduction

The purpose of this evaluation is check whether the software is working as per expected, and whether it meets the user's expectations. As the interface has three different accounts (tenant, agent and owner), this workshop was split over two days where it included three front end developers, in order to get the most feedback out of the evaluation.

Method

The workshop involved three front end developers where they were asked to evaluate the final product. The three evaluators had no prior knowledge to the internal structure of the code. The protocol for the evaluation was:

1. Provide some background to the workshop to the participants
2. Explain how to perform a Black Box testing session
3. Hand the group of evaluators a form to fill out, which can be seen in further details in **appendix 1.2.**

Findings

The black box testing form had rating column where the evaluators could specify whether the problem was Critical, Important or unimportant. From the evaluations we were able to gather quite a number of critical and important problems.
The critical problems are as follows:

1. Pressing the submit button when creating a new property takes you to a blank page with a weird image upload message.
2. When faced with the message from creating a property, if the user were to refresh, it will create the property again.

The main important problems were:

1. When trying to sign up from the testimonials page, you are referred to a blank page with "File Not Found"
2. When submitting a repair request when the form is empty is is added rather than displaying an error message, this includes payments, communications, and date entries.
3. Multiple tabs can be highlighted at once when clicking through the property tabs

Recommendations
As the black box testing was completed with very little time left before the final submission, we weren't able to fix any of these problems that were found. As these are quite critical problems and are in need of our full attention, it was decided that these problems would be of high priority, and would be fixed as soon as possible.

STAGE 4: FINAL PRODUCT
HEURISTIC EVALUATION

Introduction
The intentions for this evaluation was to take a systematic observation of the user interface in order to discover as many problems as possible that the user may face over time. Ideally, the peopl conducting the inspection are user experience professionals, as she or he have been trained in the field and therefore would find a higher percentage of problems than other people. As we didn't have access to user experience professionals we were forced to ask fellow Multimedia Design/IT students to perform the evaluations for us.

Method
Over the course of the semester, we developed a fully functioning website. In order to get the most out of the evaluations, two evaluators were asked to individually sit in front of a desktop computer with the website displayed, and perform tasks that users would usually want to do and record any problems they may face. More details about these evaluators can be seen in **appendix 4.1.** The protocol for the evaluation was:

1. Provide some background of the workshop to the participants
2. Provide initial background about the application
3. Define the 10 heuristic categories that the evaluations would be marked against:
    a. Visibility of feedback
    b. Complexity of the application
    c. Task navigation and user controls
    d. Consistency and standards
    e. Error prevention and correction
    f. Recognition rather than memory overload
    g. Efficient to use
    h. Simplicity and appeal
    i. Be tolerant and reduce cost of errors
    j. Help support
4. Hand each evaluator a marking criteria/form explaining how to fill it out (for further information refer to **appendix 1.3.**)
5. Critiques were evaluated and potential solutions were identified (refer to **appendix 1.3.**)

Critiques were evaluated and potential solutions were identified

Findings
From the heuristic evaluations we found a number of critical problems which would have a significant effect on the long term usability of the website. These problems are as follows:

1. Legal documentation is not clearly shown to be located in the property tab on the main screen
2. When submitting a form, removing a payment, adding a payment, basically whenever any change is requested, there is no confirmation that that change has been made.
3. The currently active navigation bar has no sign that it is so, maybe giving it a different colour, or indent it, etc.
4. The 'more details' in the repair request is vague, usually pressing a more details button would expand your form, instead it took you to another page.

5. The tabs used for each house is a useful feature at low numbers, however if an agent is managing anything more than 10 houses it will become a problem.
6. No progress icon shown for when a report or entry is submitted and takes longer than a few seconds to process
7. There is no function that allows you to undo certain features, like deleting houses and repairs, there is no way for the person to retrieve this information once deleted.
8. When filling out the repair request form, if you were to press the cancel button, there is no message shown that says you have unsaved changes, and asks whether you want to save them for later.
9. When you have submitted a form or entry it takes you to a blank page. I would suggest it takes you to your newly created submission.
10. When adding a payment, a user is able to just type in a whole heap of digits.
11. For any form or sector entry, if no information has been entered into them, the submit button is still clickable.
12. Dropdown menus are simply just a list of names, try including a frequently used section up the top of the list.
13. If incorrect information is entered for the date or payment when adding outstanding payments, there are no error messages that appear.

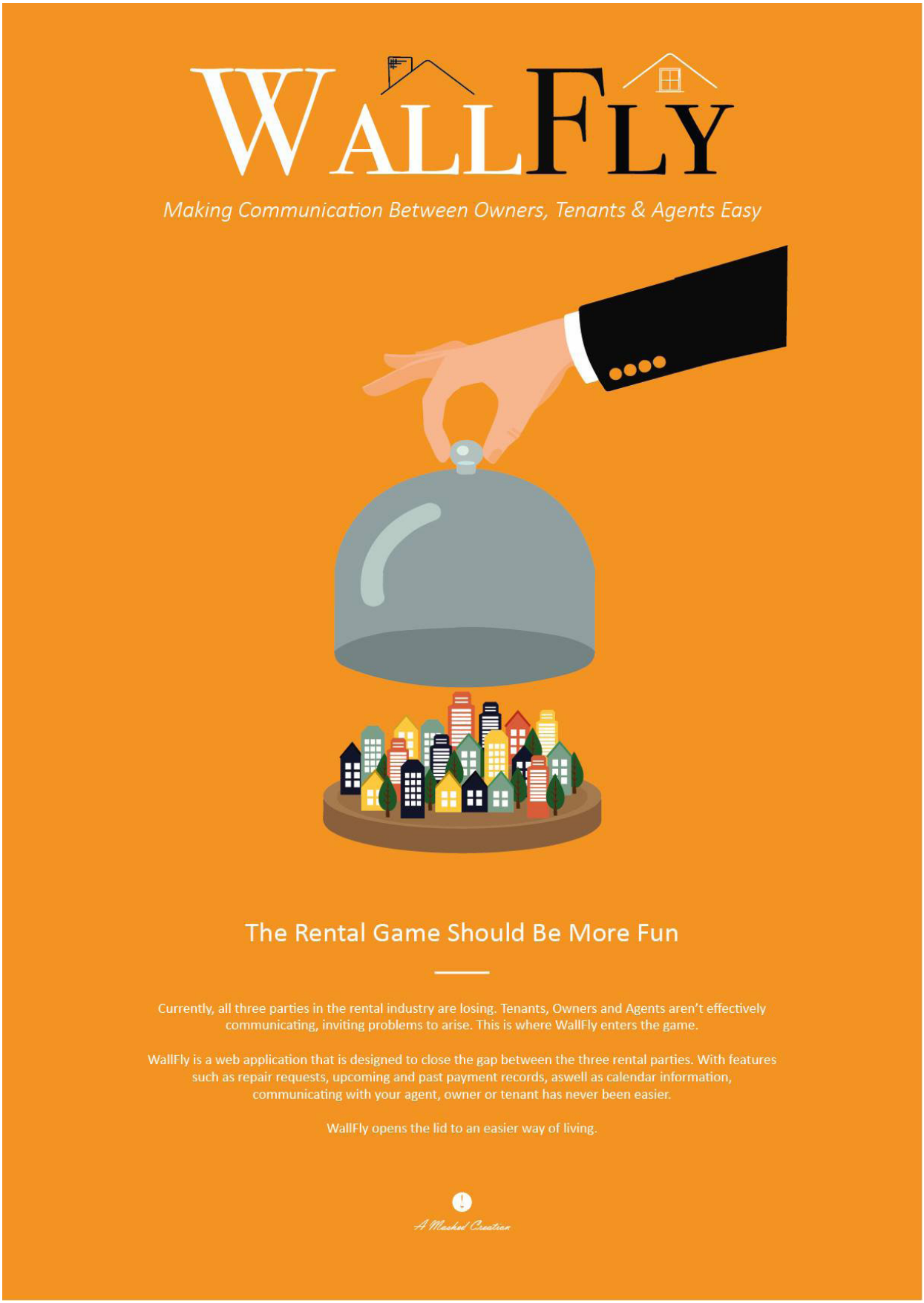
Recommendations

As the heuristic testing was completed far too close to our final submission, none of the findings could be fixed in time. It was decided that these findings would be future implementations, and of high priority. As these features do not critically affect the actual product, we found that it would be fine to leave them until we have time to fix these problems.

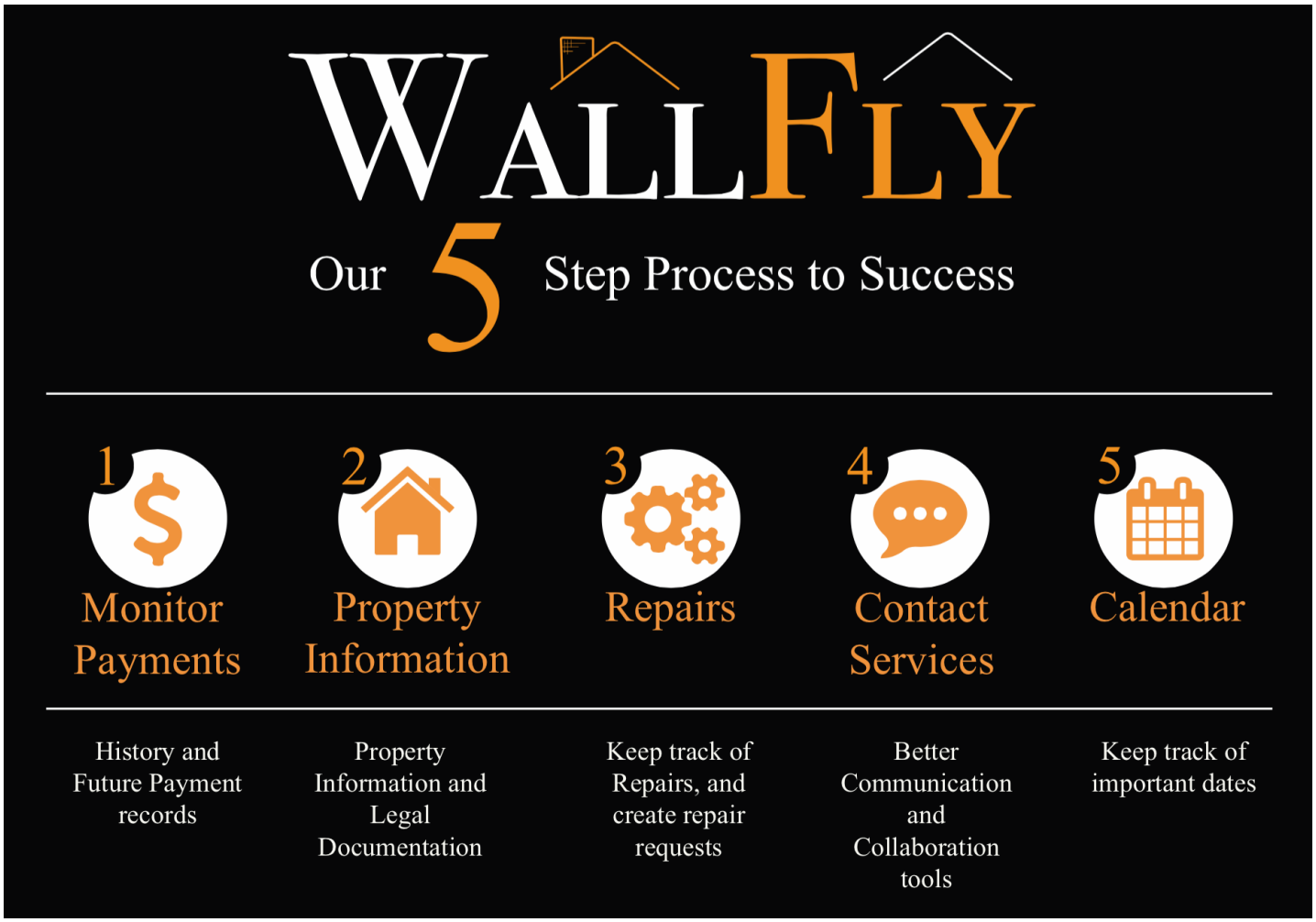
SUPPLEMENTARY MATERIAL

Supplementary material presented below is material that accompanies our product. These materials include marketing material, posters, and videos.

WallFly's official poster:



A brochure explaining the 5 main feature of WallFly's web application:



A link to the User Guide video, which is also found in the support page:
https://vimeo.com/143799437

A link to the Kick Starter video:
https://www.dropbox.com/s/9tx894a418y1tba/WallFly%20Kick%20Starter.mp4?dl=0

REFLECTIVE EVALUATION

Team Management

Team management focuses on planning and organizing a project and its resources. This includes identifying and managing the lifecycle to be used, applying it to the user-centered design process, formulating the project team, and efficiently guiding the team through all phases until project completion.

Right from the beginning of the semester, the team of six individuals acted in an efficient manner to organise the management side of things. Each team member was committed to a common goal of achieving high quality documentation and full functional web application by the end of the semester. And so, importantly the allocation of roles, titles and work of the team fell quickly into place after few negotiations. Just like any fully functioning team, each team member had to equally contribute to the workload, which was assigned to a particular person once their strengths were established. In our teams case, our team leader was a highly organised law student, whom was not only a skilled organiser, but he presented himself with a high degree of professionality when updating our client. As for the rest of our team members, a mixture of I.T and multimedia students, each with strong points either in PHP, Bootstrap, UX, MySQL, user testing and documentation contributed to a versatile team. Communication at the workshops and on Facebook proved to be proactive, with response times easily within a few hours. The group was highly supportive of each other where everyone was mutually interested in each other's work and tried to help where they could. This provided an environment of accountability and interdependence. Having a productively efficient team, creates motivation amongst the group as well as generating stimulation to work hard and produce a product that's purposeful and user friendly.

As the semester commenced, some aspects of our pre organised team management showed some faults. More so in terms of the allocations of jobs. Equal workload is made in dreams. The fact was some team members took on more of the workload and others were given minimal work. This was purely due to restricted skills and not due to poor team players. Yet the group performed well because of the collective feeling of belonging and each member listening to each other, respecting all contributions made.

Process Reflection

The team resembled many aspects of the agile manifesto. The group responded quickly to changes required by customers and a self-organizing team, were working software was the ultimate goal. Continuous customer and user evaluation were regularly performed, after which the user experience and interface research was formally and quickly handed to the front end developer.

The whole development of the site relied on the user research, the development only continued when more research came through on what the users wanted. The mock ups and documentation of designs that were developed to suit the user needs became crucial to the workflow of the team. Once the latest requirements and research was identified this was synthesized and passed down to the front end developer who would build the designs and set up the site ready for the back end developer to come in and build the features. The database designer, back end developer and front end developer had to work fairly close together and communicate well to create an understanding and make the development quicker and easier.

As this subject nears the end, and we are asked to critically evaluate the path we took to create the final product, a concern that comes to mind is the slight lack of communication between the user testers and developers. From the beginning of the semester, it was nailed into us from tutors and even knowledge from other courses, that user testing and research is vital to design and produce the best user experience. And so it has been mentioned that the front and back end developers had

a constant flow of correspondence, but as for the developers and UI/UX designers communication was irregular. Some of the user feedback was overlooked in order to get a fully functional website for the exhibition. This could have been avoided if the group members who conducted the user research conveyed these results with more emphasis with other team members, instead of for documentation. It has been discussed that even though our group had a great variety in expertises, it was furthermore a limitation as we could have benefited greatly from another strong developer, because at the end of the day, those team members had to fabricate a working application. Thats a huge job.

A small portion of Design Computing Studio 3, but of the utmost importance, was the process of keeping our client up to date with WallFly and our process. What was a disappointment for our team was the lack of involvement from our client. Another aspect of the course was to gain an greater understanding, and get a glimpse as to what it is like working with a client. Our expectations were that we would build an application that included our clients constructive criticism and original invisions. As the progress of WallFly reached further and further into the semester, it was concluded that our relationship with our client would be a one way exchange. Having said this, it is believed that we were at a disadvantage.

Design Assessment

Critically thinking, to fully understand what the user interface is about, we first used visuals to describe what we are trying to communicate, and to develop specifications that detail how a system should behave and look. At the beginning of the design assessment, an iterative approach to user interface design was taken in the form of rapid prototyping. Using software tools such as InVision, Illustrator and Balsamiq Mockups, the designers quickly mocked up the future state of a system. In do so, we generated feedback from a variety of people in the early stages of development. As the semester commenced, prototypes were revised based on feedback and further responses were collected into a Google form document. The designers' continual prototyping helped the team to experiment with multiple approaches and ideas, facilitating discussion through visuals instead of words. The team's let down in this design evaluation was as discussed earlier, which was slight lack of inability to express new discoveries to avoid missed requirements. Concluding that, a smoother and faster lead up to the final interface could have been possible if each group member was on the same page, reducing the need for changes during development.

With our conducted research, the design of the site was aimed at simplicity and professionalism. The orange, black and white colours all positively reflect the sites values and goals. The vibrant orange is certainly loud but it reflects happiness, youthfulness and stands out. The black adds elegance, strength and professionalism. The whitespace is associated with elegance and sophistication since it is a way to organize text, organize elements and guide users attention to certain elements.

The site is minimalistic with features that are essential for property management. Bootstrap was utilized as it is a powerful framework for WallFly, for the solid foundation of Bootstrap's framework helps minimize time consumption with its responsive grid and comprehensive list of components, as well as its ease of use. Bootstrap also helped maintain consistency which is a key trait in web applications when meeting the needs of users. Our design decisions were assisted with the conduction of user personas, A/B test results, investigative user studies & interviews to tease out which design option best satisfies user needs as well as gathering enough data to give us ample opportunity to draw statistically significant conclusions.

When the home page is refreshed, the icons use motion to capture users attention. This helps to direct the users to the five main features of WallFly, keeping the interface clear and simple, as it is common knowledge of a designer that stakes are high when a user first enters the site.Simplicitic details such as the curved edges in boxes, pictures, tabs and buttons were introduced into the design to match the soft, and easy feel of the application. Navigation was important and that's why

the back to top button and navbar were fixed to the screen.

In much of the design less was more, and content was minimal. Most of the site was feature rich, and in any case where content was required in a big way a link would take them to the residential tenancies authority webpage.

Critique of final Product

The final product was a huge success. The team really believes the product has a great feel to it and is nice and simple to drive. There were problems with the database and features weren't working up to scratch. It was fairly easy to know what would be nice to have and what features would be excellent however developing them is much easier said than done. Much of the development time was trying to organise the database and get the basics working.

The repairs, properties and payments were working well in the end but it wasn't robust and there were a few pages that had functionality, but based on the user it wasn't supposed to be allowed. For example, the agent was able to do things that the tenant was supposed to do. Having three categories of users accessing the same database was hard to wrap our heads around. One thing that was tough was to have the orange and white backgrounds. Trying to make it look nice would mean having 2 totally separate designs in the same CSS sheet which caused so many frustrating issues. Having a link go white on an orange background was great but it wasn't so great on the white section so this doubled up the front end work.

There are some flaws with the end product due to the scope and nature of the project as it is undertaken. The first major issue with WallFly in its current iteration is the lack of a mail server. The nature of a mail server is that it requires the purchase of a domain and significant configuration which was simply not within the scope of this course. The use of a mail server could have potentially been excellent in allowing us to send notifications for payments and repairs (among other things) straight to the parties email addresses as well as the WallFly platform.

In practicality, the main barrier that stands in the way of the success of WallFly is to actually have it implemented by agents. Our user research indicates that WallFly is a product that tenants and owners would be incredibly happy to implement. Agents often have their own software for property management. This software is notably not as feature rich or as comprehensive as WallFly, but it is notoriously difficult to get business people to change their methods, especially when taking the size of some agencies into consideration. What is realistically a good business decision may be dismissed simply because the change is too difficult. The success of WallFly lies within excellent marketing strategies. Getting WallFly out there will be the primary practical barrier to its success.

One of the primary criticisms offered to us regarding WallFly was that it lacked integration with social media. This is a somewhat difficult issue to handle for several reasons. Whilst social media integration for many services is great, it is hard to see a connection between the functionality of status posting and friendship data caching and the real estate industry. When we asked individuals who made this suggestion why they thought it was a good idea, they couldn't actually give a specific reason. It is the opinion of Team Mashed that social media integration would be of little benefit to WallFly users. It is especially problematic for agents, who realistically have little to no reason to get their personal facebook login involved with their work.

The practical restrictions on WallFly that we had to follow were in a way advantageous for the final product. The product which Team Mashed created ended up being a highly independent platform for rental property management. It had it's own integrated messaging and communication service as well as a comprehensive calendar service. The final product was much more comprehensive and by creating it without social media integration or a mail server it is a much better platform.

Future Development Plans

There are some future development ideas that have been offered to us as feedback which would be excellent to implement but are simply beyond the scope of what we have been able to achieve over the last 13 weeks. Additionally, agents were by far the most difficult group of individuals for us to get to test WallFly and as such the application is mostly driven by the user experience of tenants and owners. This is of significant importance as the biggest practical barrier to success for WallFly is getting agents to use WallFly (as eluded to earlier).

Many individuals suggested that the calendar could be more useful if it could be integrated with an iCloud or Google account. This is actually a great idea, and would realistically only require that the information can be formatted into a file such as an iCal and downloaded. This can then be integrated with the aforementioned accounts. This is a very realistic future development plan that adds a lot of utility to WallFly as it stands.

At the moment payment management is done via the manual entering of payments through the online platform. Integration with a payment service would be ideal, and creates room through which WallFly can take a small percentage of rental payments as a fee for use. There is also official verification that payments have been made if payments are integrated into the website. It might even be an option to make it possible to import a CSV (bank statement) file into WallFly to have it automatically present the payment information from a certain account.

The repair system that we have in place is fairly useful. A potentially great idea is to integrate tradespeople into WallFly. They could have their details in the system for agents and owners to contact and could consequently see jobs that came up and attend to them quickly. We would also love to see integration with BPay for the purposes of paying rates for the property.

There are also minor graphical improvements to be made to WallFly. Some of the layouts and graphics do not align properly across all different pages. There are minor adjustments that need to be made to some of the pages, but other than that the website looks and feels solid.

Although we have used bootstrap and the website is easily compatible with mobile and tablet devices, an iOS and Android application for WallFly might be useful for many users. Furthermore, this would enable the sending of push notifications when payments are due or events are about to happen which could increase the amount of time users spend interacting with WallFly.

APPENDIX

1.1. WHITE BOX TESTING RESULTS

Test	Status	Description	Commit	Build	Date
Database Connected	Passed	Test the database connectivity.	96	e2c8607	8/11/2015
Account Creation	Passed	Checks that accounts can be created.	96	e2c8608	8/12/2015
Duplication Account Creation	Passed	Checks the duplicate account results in an error.	96	e2c8609	8/13/2015
Login	Passed	Checks that valid logins are successful.	96	e2c8610	8/14/2015
Bad Login	Passed	Check bad logins are rejected.	96	e2c8611	8/15/2015
Create Property	Passed	Checks valid propertyes can be added.	96	e2c8612	8/16/2015
Create Bad Property	Passed	Check invalid propertyes are not accepted.	96	e2c8613	8/17/2015
Modify Property	Passed	Checks propertys can be modified.	96	e2c8614	8/18/2015
Bad Property Modification	Passed	Check that trying to modifty a property to contain invalid data is rejected.	96	e2c8615	8/19/2015

1.2. BLACK BOX TESTING RESULTS

Function	Description	Date Tested	Output (What went wrong)	Rating
adding Outstanding Payment	adding an amount that is negative or are letters	4/11/2015	Outstanding payment will be added to the list, though it will just be added as $0.00. It is felt that an error should appear instead of actually making it payment	
Remove and add buttons	for payments and forms a user will press either a remove button to remove an existing option, or an add button to create a new one	4/11/2015	When pressed, there is no confirmation that the request has been successfully made.	
Creating a new property	creating a new property, you should be able to enter the appropriate information, add an image then when submit is pressed it takes you to the property page where you can view your new property	4/11/2015	After submit is pressed it takes you to a blank page with the following writing on it: "The file 10991520_10152588721717257_6765793699834992498_o.jpg has been uploaded."	
Creating a new property	Two of the exact same properties should not be able to be added.	4/11/2015	When faced with the error above, if the user presses refresh it will create the property again, same name, same everything.	
Editing a property	Editing a property should include editing information aswell as having the option to delete it.	4/11/2015	A property doesn't have the option to be deleted.	
Back to top button	When pressed it should take you back to the top of the page	4/11/2015	The back to top button seems to be unclickable on random places throughout different pages.	
Contact details tabs	When different tabs are pressed they should highlight the pressed tab with orange and change details to that chosen tab	4/11/2015	Multiple tabs are highlighted at the same time when pressed. It is quite picky, as in sometimes it will work perfectly fine, whilst others it will highlight two or more, or it will even not allow you to press some properties.	
Calendar	You should be able to select a date, then view it in week and day	4/11/2015	The calendar wont allow you to press the date, when week and day are pressed it automatically takes to to todays week and day. That means that you have to skip through each day from todays date to be able to get to the one you want.	

Sign up from testimonials page	Trying to sign up	5/11/2015	Refered to a blank page with "File Not Found"	Important
Sign in with wrong login	Signing in with invalid details	5/11/2015	No response on page until opening up the modal again	Unimportant
First login	All pages should be empty	5/11/2015	This works fine	Unimportant
Agent view	Entry report shouldnt be available to agent	5/11/2015	This works fine	Unimportant
submit empty repair form	Repair form is empty when submitted	5/11/2015	Repair is added, should be an error message	Important
submit empty property form	Submitting empty add property form	5/11/2015	an Empty property is added, should be an error message	Important
submit empty payment form	Submitting a payment that is empty	5/11/2015	payment is added empty. should be an error message	Important
submit empty communications	Submitting an empty communications message	5/11/2015	an empty message is added, should be an error message	Important
submit empty event	submiting an empty event	5/11/2015	reloads the page but doesnt add event, should be an error message	Important
submit an event with a date only	submit an event with a date only	5/11/2015	adds event without a title, should be an error message	Important
security	accessing previous pages after logging out	5/11/2015	full access to the website but without data	Important
tenant submit empty entry report	Tenant submitting empty report	5/11/2015	overwrites old data. A warning should be in place for overwriting the description and an empty picture is added which shouldn't occurr	Important
tenant submit filled out form	Tenant submitting full report	5/11/2015	This all works except for the bond agreement which doesnt add or change	Important

1.3. HEURISTIC TESTING RESULTS

Help Support	Description	Analysis	Score
			(5 = does not meet heuristic;1 = completely meets heuristic)
Visibility of Feedback	*Does the application keep users informed about what is going on through visible, clear, and concise feedback? The application should provide indicators to answer the question, "where am I?"*	When on the main page if someone were to look for legal documentation there is nowhere on the property button that mentions it. Its only once the button is pressed that you realise it includes it. To fix this I would suggest adding a description of legal documentation under the property button. The 'more details' in the repair request is quite vague, I thought it would show me a more advanced form instead of taking me to another page. Maybe try saying something like, "press here to find out more about repair requests". When any form is submitted, there is no progress icon displayed when it takes a while to be processed, I would suggest adding a progress icon that appears when it takes longer than two seconds to submit. The repair request doesn't come up with a confirmation message that your request has been logged. The remove button in outstanding payments, when pressed has no confirmation that it has been deleted. When wanting to add a payment in outstanding payments, there is no confirmation that the payment has been added. When amending and adding a property there are no confirmations that either function has taken place. In the dilapidation report, when the add button is pressed there is no confirmation that it has done so. In the Outstanding repairs, when the approved button is pressed there is no confirmation. There is no confirmation that an event is added to the calendar when the submit event button is presssed in add event.	4
Complexity of Applica	*Does the application match the user's real world and language, and reflect the user's primary goals and tasks? The application should speak the user's language, with familiar words and phrases, and organize information in a natural and logical order.*	All menus are named and ordered in a logical manner. The one name I woud suggest changing is the Property tab. Property doesn't fully explain what that tab does, yes it displays property information, but it also displays legal information and reports. I would suggest coming up with a name that perfectly named those three items.	2

Task navigation and user controls	*Does the application allow users to complete tasks and goals without hindrance? The application should allow users to undo actions.*	When making a repair request, if someone were to enter data into it but then press out of it before submitting it there is no message saying that you have unsaved changes and asking whether you want to save them for later or not.	3
Consistency and Standards	*Does the application follow Web-based or product-based standards and conventions consistently? Users should not have to wonder whether different words, situations, or actions mean the same thing.*	all buttons and colour schemes are consistent throughout the web pages, each button with the same word on it (ie add) have the exact same functionality. Therefore there are no suggestions I can make for this.	
Error prevention and correction	*Does the application prevent error situations from occurring in the first place, and provide users with meaningful error messages?*	When adding a payment, a user is able to just type in a whole heap of digits, I would suggest getting rid of the ability to type in your own date as this eleminates the chances for errors.	3
Recognition rather than memory overload	*Does the application make users remember information, causing memory overload, or does the application make options visible? ie. are currently inactive labels or controls grayed out, does it allow users to choose from a list of options rather than type an entry?*	When submitting a repair request, If no information has been entered the submit button still seems clickable. I would suggest greying out the submit button until all fields in the request form have been filled out. This goes for any other forms throughout the web application, ie adding events, adding outstanding payments etc.	4
Efficient to use	*Does the application allow both novice and expert users to get their work done quickly and efficiently? The application should allow users to tailor frequent actions. ie. Making frequently-used items the first choice in lists, Providing "Bookmarks" or "Favorites" listss for frequently used choices, Allows type-ahead, or even Auto-fill fields.*	All fields have autofill options, which is great as it helps users efficiently complete their tasks. The dropdown menus just contain a list of house names, I would suggest having a section at the top of the list with frequently used names, ie so if an agent regularly uses a certain house then it would be displayed at the top of the list for easy access.	2
Simplicity and appeal	*Does the application make tasks simple and appealing? The application should streamline information because every extra unit of information in a dialogue page competes with the relevant units of information and diminishes their relative visibility. ie. users are able to identify the function of an icon at first glance.*	The colour choice is simple and elegant, and doesn't take away from the actual website. Icons are appropriate for their use, by looking at solely the icon the user is able to guess exactly what the link would entail. There are no improvements to be made here.	
Be tolerant and reduce cost of errors	*Does the application allow users to recover and move forward in achieving their goals without unnecessary frustration? Error messages should be expressed in plain language, indicate the problem precisely, and, if possible, suggest a solution.*	If wrong information is entered for the date or payment when adding outstanding payments, there are no error messages that appear. I would suggest having a red box appear around the text input with the wrong details that includes a cause for what went wrong and a suggestion that would fix that problem.	4
Help Support	*Does the application provide clear instructions on how to perform steps when userss are struggling to complete their tasks? Simple and concise instructions, prompts, and cues should be embedded in the application.*	Throughout the web application there are instructions mentioning how to use a certain function, or what to write in certain fields. By including such elements it helps users to be more informed with how to use the product without having to research it. No suggestions are made here to fix.	

1.4. LINK TO THE DESIGN UI/UX PROFILE

The Dropbox link to the document is as follows:
https://www.dropbox.com/s/avfzz1vezqhxoi0/User%20Evaluation%20Document.pdf?dl=0

2.1. STAGE 2: MVP - DESIGN WORKSHOP PARTICIPANTS

10 users were involved in the observational evaluation. A summary of the participants who were involved in the evaluation is outlined in table below:

	Computer Skills	Job title	Age
1	High	IT Student	20-30
2	High	IT Student	20-30
3	High	Multimedia Design Student	20-30
4	High	Multimedia Design Student	20-30
5	High	IT Student	20-30
6	High	IT Student	20-30
7	Medium	Health Student	19
8	Low	Retired	59
9	Medium	Admin	30-40
10	Low	Retired	50-60

2.2. COGNITIVE WALKTHROUGH EVALUATORS

Two evaluators were involved in the cognitive walkthrough session. A summary of the participants is outlined in table below.

Participants of cognitive walkthrough for MVP

	Computer Skills	Job Title	Age
1	High	IT Student	20-30
2	High	Multimedia Design Student	20-30

2.3. SUCCESS/FAILURE STORIES

Task 1: You want to see what the website is about

Scott decides that he wants to check out what WallFly is about as he heard about it over a conversation and wants to know more about it. Scott presses the 'Find Out More' button which takes him to a page that presents him with the appropriate information to answer his questions.

Task 2: You're now satisfied with what you've read and now want to register as a tenant

Scott really likes the idea of WallFly and wants to register in order to get the benefits from it as soon as possible. After reading what the website is about he goes to press signup though can only see 'Login'. Scott presses login, though becomes really confused as there is no 'Signup' button in sight. Scott gets too overworked by the problem and decides to give up on signing up to WallFly.

Task 3: You want to Log in
Barry has signed up successfully and now wants to login so that he can start customizing his new account. Barry presses the 'Login' button and enters his credentials, where he is presented with a main interface.

Task 4: You're not sure when your ext payment is, how do you find it out?
Barry decides to go view when the next payments for his house are due, he presses the payment section. He becomes very confused as the only options are past payments or outstanding payments, there is no option for upcoming payments.

3.1. STAGE 3: MVP TO FINAL - PARTICIPANTS

13 users were involved in the observational evaluation and functional testing. A summary of the participants who were involved in the evaluation is outlined in Table below:

Participants of functional and observational research at the exhibition

	Computer Skills	Job Title	Age
1	High	Developer	20-30
2	Low	Journalist Student	20-25
3	Low	IT Student	20-30
4	Medium	IT Student	20-30
5	High	Multimedia Design Student	20-30
6	High	IT Student	20-30
7	Medium	Student	20-30
8	Low	Student	20-30
9	Medium	Admin	30-40
10	Low	Journalist	25-35
11	High	Head of Multimedia Design	30-40
12	High	IT Student	20-30
13	High	IT Student	20-30

3.2. OBSERVATIONAL NOTES FROM FUNCTIONAL TESTING

- Social Media app for the phone. Quick access.
- Verbally commented, “Probably need time of inspection”
- Power cutoff. External indicators if rental issues
- Popup page appears with details of an event that you click on in the calendar.
- On the calendar, users go to double-click the event displayed, expecting there to be a pop-up with more information.
- User went to add an outstanding payment, and they manually punched in the date, this lead to an error. Example: 21-03-2015 resulted in 00-00-0000.
- Adding a property was an easy process for all users.
- User put in an outstanding payment of ‘-10.00’ and the system didn’t send out an error.

3.3. INTERVIEWS FROM FUNCTIONAL TESTING

Questions: The questions were kept the same for all participants.

1. What do you think were the limitations of the WallFly application?
2. Would you use WallFly?
3. Any additional comments?

Responses: Use **appendix 3.1** for the demographics of the user

User 1

1. Great application. With the outstanding payments, if you were to further this application it would be great to see PayPal incorporated so that users can pay their outstanding payments there and then.
2. Personally, I am an owner and believe that I would use your application, but it wouldn’t be on a regular basis
3. The icons bouncing on the page is a nice touch

User 6

1. I really liked the application, though I feel that there could be a couple more improvements to certain features. For instance, the tab display for the properties could get really messy after about 10 have been added. I am a tenant and always have so much trouble with my agent, I can never get a response out of them, and they always seem to come up with extra payments I need to pay. By having such a program I feel it would definitely help me in these areas, so yes I would most definitely use your program.

As a tenant I would like to be able to see the details of the inspection, what they liked and didn’t like.

User 10

1. I feel that instead of directing the user to the top of the page when an adjustment is made, it should direct them to where that information is presented. For example if I made a new property, it should take me to that newly created property.
2. I’m sure I would use it in the beginning, but I personally have no issues in the rental industry and email is efficient for me if I ever have problems.
3. If your application was to be further developed, do you think that there could be a way to connect neighbour relationships? For example, imagine if a street of tenants and owners were all connected to WallFly application, maybe you could add a functionality that allowed the users to see their neighbours. Therefore if there are any problems, communication is easy.

User 11

1. There could be an improvement in terms of incorporating the RTA. From personal experience as a tenant, I paid my bond and received the receipt from my agent, but a month later I received

a call from the RTA demanding why I hadn't paid my bond. Also, display the links in the legal information in a frame on the webpage, in order to make sure you don't draw the user away to another web page.
2. Yes I would use WallFly
3. For additional functionality, you guys already have an entry report for agent, but what if an agent does an inspection? This is an additional functionality you can think about. The agent would be able to upload images, forms and add in comments for all three parties can view.

3.4. FULL VERSION OF NOTES FROM OBSERVATIONAL RESEARCH

- URL help, in add event, was not used by a single user.
- Some users took a while to do the task of requesting a repair, due to missing the icon in the top left.
- The icons helped aid with navigation
- People used a mixture of navbar header and icons to navigate through the site
- In the message log, users would type a message, then would instantly press enter to send message, but then realise that it doesn't work. They have to press with the mouse, 'submit'.
- When registering, users would skip adding in phone number.

3.5. INTERVIEWS FOR OBSERVATIONAL RESEARCH

Questions: The questions were kept the same for all participants.

1. If you could change something visually to the site, what would it be?
2. What was useful? And what wasn't useful? Meaning how quick did learn and use a product to achieve your goals. (navigation, buttons, links)
3. Because communication and easy access is key to WallFly. Did you find that information is organized, structured, and presented well?
4. Additional comments?

Responses: Please note that the reponses are limited to 4 users, due to notes being taken for all participants. Use **appendix 3.1** for the demographics of the user

User 3

1. I really like the simplicity of the website though I feel that listing the properties in a tab display is quite messy. When an agent begins to get a larger portfolio of properties, the tab display could become cluttered instead of simple.
2. The layout of the website was clear and concise, there was very little confusion as to what certain functions did. Just incase some function was confusing to understand there was a small paragraph explaining how to use it, which was definitely quite helpful.
3. I feel that the information was displayed in an orderly manner, though I think that the property tab could have been worded better. When on the main page I had no idea that the legal docu mentation was under the property tab, there is no indication of its location.
4. If the outstanding payments section includes upcoming payments, I feel that it should be worded correctly so that users know that it shows both payments.

User 7

1. I personally love the use of orange and icons. Looks really good.
2. What wasn't useful is that something that might create a miscommunication is that in properties page, the navigation header of 'Entry Report' is called 'Dilapidation Report', might want to keep a consistency there.
3. I think that the communication barrier between the 3 parties has definitely gotten smaller thanks to this site.
4. Buttons were inconsistent. Green button seen in 'Entry Report'.

User 13

1. Visually, I think the way you have sectioned each header on the page with colour (orange and white) works very well. I can see Bootstrap in use here, ha!
2. In terms of navigation, it was pleasantly simple. I think a useful aspect are the 5 main features in the home page is clear and there is also the navbar at the top.
3. Information was clear and concise. There wasn't an overload of information. In terms of structure, there is room for improvement.
4. Links in 'Entry Report' are underlined, I am assuming that they are meant to be presented as a button to match the rest of the website.

4.1. HEURISTIC EVALUATION PARTICIPANTS

Three participants were involved in the Heuristic evaluation. A summary of the participants can be seen in table below.

	Job Title	**Computer skills**
1	IT Student	High
2	Multimedia Design Student	High


WALLFLY