

**Dublin City University - School of Computing**  
**Enterprise Computing Final Year Project (CA472)**  
**Initial Delivery Document**  
**2019/2020**



**Student name(s):** Maksims Kompanijecs, Matthew Farrelly  
**Student Number:** 15306971, 15366246  
**Project Title:** RentSpot - Property Renting Application  
**Date:** 27/01/20

# Table of Contents

<b>1 Business Model Summary</b>	<b>3</b>
1.1 Revised Business Idea Concept	3
1.2 Main Value Propositions	3
1.3 Target Users and Customers	4
1.4 Likely Market Size	4
1.5 Proposed Revenue Streams	4
<b>2. Summary Functional Specification &amp; Technical Description</b>	<b>5</b>
<b>2.1 Initial Functional Requirements</b>	<b>5</b>
2.1.1 Sign in/Register Function - Tenants/Landlords	6
2.1.2 User verification - Tenants/Landlords	6
2.1.3 Upload supporting documents function - Tenants	7
2.1.4 Homepage - Tenants/Landlords	7
2.1.5 Search results - Tenants	8
2.1.6 Property details - Tenants	8
2.1.6.1 Property reviews - Tenants	9
2.1.6.2 Apply for a property - Tenants	9
2.1.7 Notifications - Tenants/Landlords	9
2.1.8 Add a property - Landlord	10
2.1.9 Schedule a viewing - Landlord	10
<b>2.2 Initial Software Architecture</b>	<b>11</b>
2.2.1 Requirements from End User	11
2.2.2 Use Case Scenarios	11
2.2.3 Initial Software Architecture Diagram	12
<b>2.3 Technical Challenges</b>	<b>13</b>
2.3.1 Developing the User Interface	<b>13</b>
2.3.2 Document Verification	13
2.3.3 Encrypting Files	13
<b>2.4 Expected Prototype Delivery</b>	<b>13</b>
<b>3 Proposed Timeline</b>	<b>14</b>
<b>3.1 Proposed FYP Timeline</b>	<b>14</b>
3.1.1 Project Idea	14
3.1.2 Post Idea Proposal Changes	14
3.1.3 Initial Delivery Document	15
3.1.4 Market Analysis	15
3.1.5 Prototype Development	15
3.1.6 Final Deliverables	16
<b>4.References</b>	<b>16</b>

# **1 Business Model Summary**

## **1.1 Revised Business Idea Concept**

‘RentSpot’ is property rental application which will incorporate the latest technology to digitize the tedious application process that comes with applying for a property lease. Our main goal with this platform is to make property rental as easy and convenient as possible and provide a safe and secure environment for landlords and tenants to rent and let properties.

Since our initial idea proposal we have revised our business concept. After we did more research into the legalities that go along with leasing a property, we decided to go against the online payment system that we had in mind. Although we decided against this feature due to the liability that we would have to pay the rent, we have decided to use a deposit holding systems that has been implemented by the Residential Tenancies Board Ireland. We feel that this could eradicate any deposit disputes that could arise between the tenant and landlord at the end of the lease. In our initial idea proposal, we felt strong about implementing a feature that would allow co-signing properties lease with a guarantor. We determined that this would be a hard feature to execute and therefore removed completely from the business concept. We felt that having handyman and cleaning services would be unnecessary, as it does not help our users achieve their desired goal of renting or letting a property

## **1.2 Main Value Propositions**

In order to use any of the RentSpot services, the user will need to create an account with some of their personal information that will need to be verified against a government ID. We feel that this will promote transparency on our platform and give the users a safer environment to rent and let properties. Tenant users of the platform will have an option to upload any reference documentation that might assist them in applying for property - such as past landlord references, financial documentation or evidence of residency. This will benefit the users by having all of the documentation needed at their disposal and further enhance the transparency within the platform. Landlords will have an option to list a vacancy on RentSpot with the requirements that they desire e.g students only. Landlords will gather any lease requirements they may have for their property and update their listing in accordance to the requirements. This will allow landlord to only receive applications from tenants that meet the requirements and in turn saving them both time. The tenants can only apply for properties that they meet the requirements for, and if they don’t meet the requirements they will be asked to update their profile with the support documentation. The main idea behind this value proposition is to manage the amount of applicants that the property can receive and this way the landlord won’t be bombarded with large amounts of calls and emails. This will allow tenants that meet the requirements set by the landlord to apply for the properties viewing, which will in turn remove the pain of candidates not meeting the requirements after the viewings have taken place.

### 1.3 Target Users and Customers

Our application will be used by tenants and landlords. For tenants, we hope to make applying for property leases in much quicker and convenient way - giving the most of the necessary information to the possible landlord with a click of a button. From landlords point of view, we intend to make RentSpot the place for them to advertise their properties and find suitable tenants that meet their requirements with ease. Give visibility to landlord of whos is applying to their property

### 1.4 Likely Market Size

From carrying out secondary research, we calculated Total Available Market and Service Available Market within the Republic of Ireland. We also estimated and projected our projected Share of Market within our first year of business.

Our **Total Available Market (TAM)** includes all people who are seeking tenancy in a property and landlords who lease out their properties to different tenants across the Republic of Ireland. According to the latest,[1] 2018 Residential Tenancies Board report, there were over 336,000 registered tenancies with around 539,000 registered tenants and a total of 173,197 landlords in Ireland[1]

Our **Service Available Market(SAM)** includes any landlord or tenant within the Republic of Ireland that could potentially use our service that our application offers. The business model that we have in mind, would accommodate around 3% of total registered tenants and landlords. Three percent of total market equals to around 16000 tenants and 5000 landlords a year using our service.

**Share of Market (SOM)** is estimated to be around 10% of **SAM** in the first year of business. This will equal to around 1600 tenants and 500 landlords to do business on our platform in the first year of business.

To validate the market size we plan to conduct interviews with Residential Tenancies Board Ireland (RTB). This will allow us to obtain much more accurate information from a primary source on how many tenancies, tenants and landlords there are in Ireland.

We also hoping to speak to a wide variety of different landlords and tenants to gather their thoughts on the application that we are proposing. From doing this it will allow us to see whether our application would appeal to these stakeholders. It would help us to understand what features are the most beneficial, how much would they be expected for any services that we offer and maybe they could suggest some features that could possibly make it better.

## 1.5 Proposed Revenue Streams

Service	Cost	
	Tenants	Landlords
Sign up	FREE	FREE
Advertise a property	n/a	€40
Apply for a vacancy	€3 per application	n/a
Photos	n/a	€150
Viewings	n/a	€200

\*Photo and viewing prices include a member of the RentSpot team taking the properties photographs for the advertisement and hosting an open house viewing for the landlords.

Our main source of operating income will be getting the landlord onboard with advertising their properties through our platform. We have assigned 40 euro per property, which is 33% less than daft.ie enlisting fee. Advertising on RentSpot will include setting the property requirements, filtering the potential tenants to the requirements and publishing the advert.

In addition to this revenue we have included a feature in which tenant users will have to give a small fee of 3 per application to show the legitimacy of their application. Our idea is that when there are 10 applicants that meet all the criteria to get the lease of a house we will remove the advertisement until viewings has been scheduled with the applicants.

We have two other features that the landlord can avail upon listing their property RentSpot. At a rate of 150 per property we can come and take professional grade photographs of the property to be listed. This will enhance the chances of the property standing out in our property search to potential new tenants. At a rate of 200 per day we will schedule the property viewing for the landlord and pass on the information for a suitable tenant to be selected.

## 2. Summary Functional Specification & Technical Description

### 2.1 Initial Functional Requirements

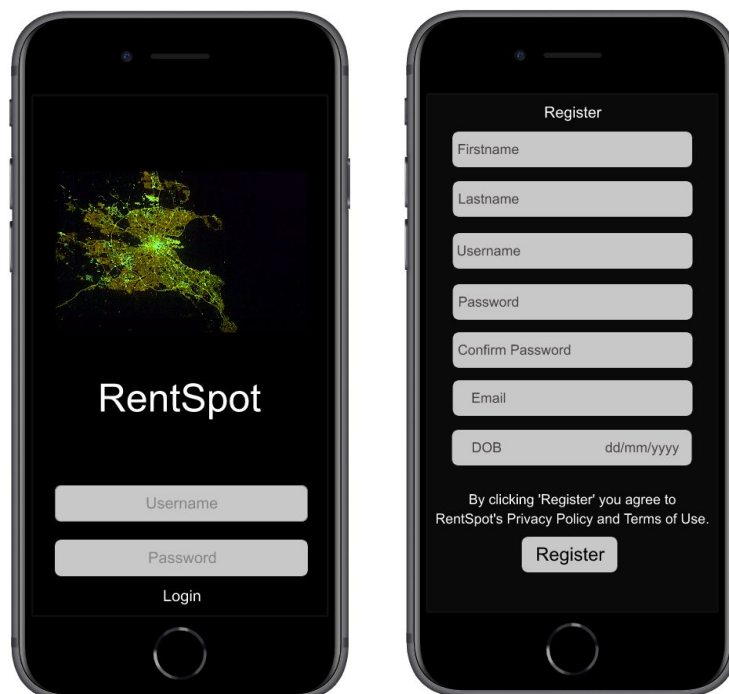
#### 2.1.1 Sign in/Register Function - Tenants/Landlords

In order to use RentSpot, our application will prompt to

1. Register a new account
2. Sign in into an existing account.

If a user will choose to register a new account, they will be presented with a screen that asks them to enter a number a personal details such as date of birth, name and a valid email. They will also need to select a username that's between 5 to 15 characters long and a password that contains between 5 - 20 characters. User will also need to select whether they are a landlord, tenant or both. In order to complete registration the user will have to click 'Register' button. By clicking 'Register', users agree to our Terms and Conditions that can be accessed by the link at the bottom of the screen.

If a user already has an account, they can log into RentSpot by entering their unique username and password that they used when they created the account.



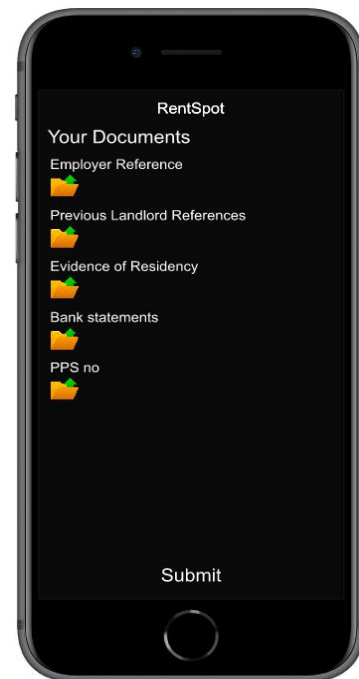
#### 2.1.2 User verification - Tenants/Landlords

Once a new user account is created, their account will be suspended until verifies their account. In order to verify an account, the user will need to click the verification link that has been sent to their email address. Once this is complete, the user will be prompted to verify their identity. This can be

achieved by sending a picture of a government issued ID and a taking a selfie on their smartphone. If the verification process is successful, the user can access the application and use it's full functionality.

### 2.1.3 Upload supporting documents function - Tenants

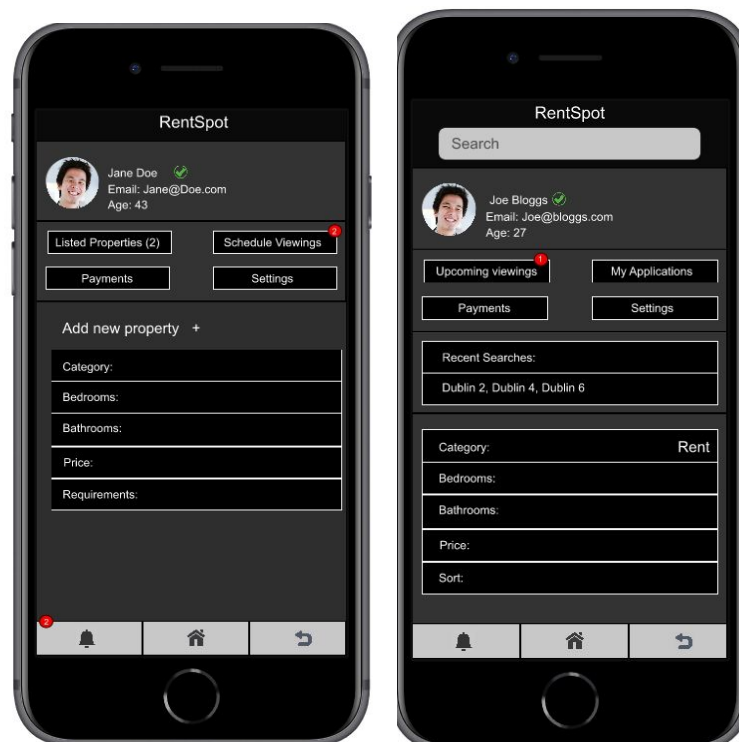
In order to meet the criteria that is set out by landlords. Tenants will need to upload any supporting documentation that will assist them in doing so. The documents that tenants can upload are as follows: - PPS number , reference from previous landlord ,reference from current employer , evidence of residency, recent bank statements and payslips.



### 2.1.4 Homepage - Tenants/Landlords

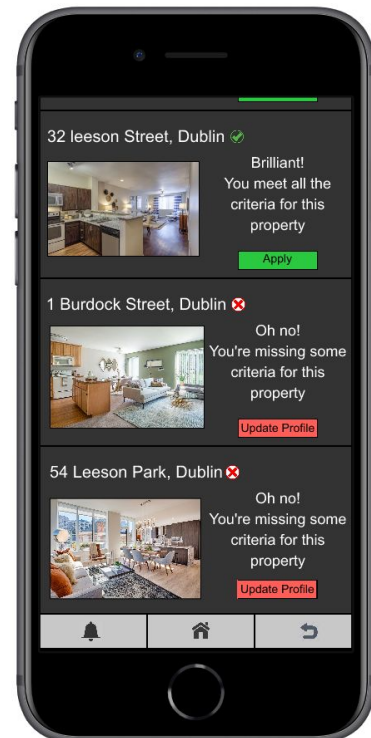
From the homepage, landlord users of the application can check the status of their listed properties and schedule viewings with the applicants. They can also manage their payments and change their settings, e.g change their password. You can also add new properties using the homepage.

Tenants users can manage their upcoming viewings and current applications using the homepage. They can also manage their payments and change personal details in the settings. Tenants can search for properties using the search interface on the homepage.



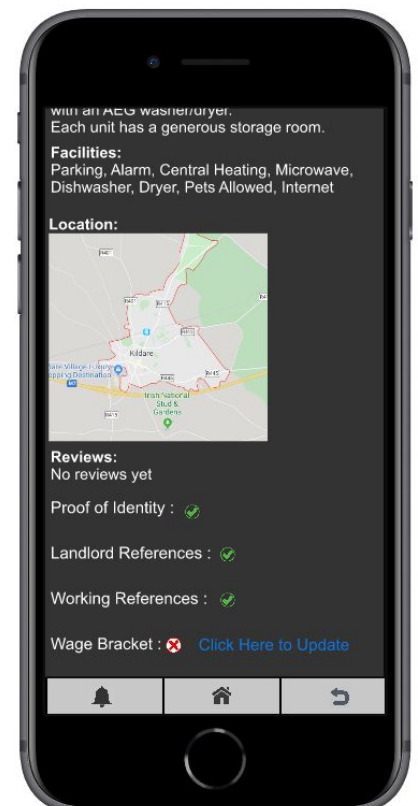
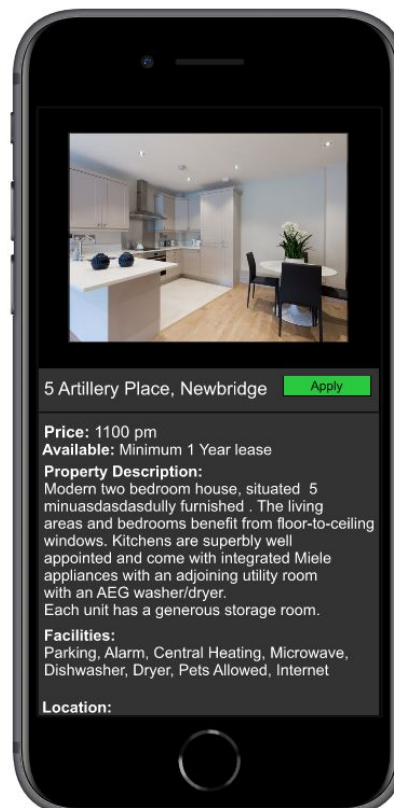
### 2.1.5 Search results - Tenants

Tenants can search for vacancies. Users can simply search by location, or go more in depth and filter by price range, number of bedrooms, type of property etc. Once users click 'Search', they can scroll through the list of available vacancies or they can use the interactive map to find available property listings. Users can also use more in depth filters to find a listing. For every tenant vacancies are separated into two categories, red and green. Green means that tenants meets the requirements and can go on to apply for the vacancy. Red means that the tenant doesn't meet the requirements, this might be because they are missing supporting documentation or they simply don't meet the criteria.



### 2.1.6 Property details - Tenants

Tenants can choose to click into a vacancy that appeals to them to find out more information about it. Clicking into a listing, will display all of the information about the listing e.g price, property overview/description, lease duration, property availability availability, facilities. From this function, tenants will be able to look at previous property reviews, apply for the property and schedule a viewing.





### 2.1.6.1 Property reviews - Tenants

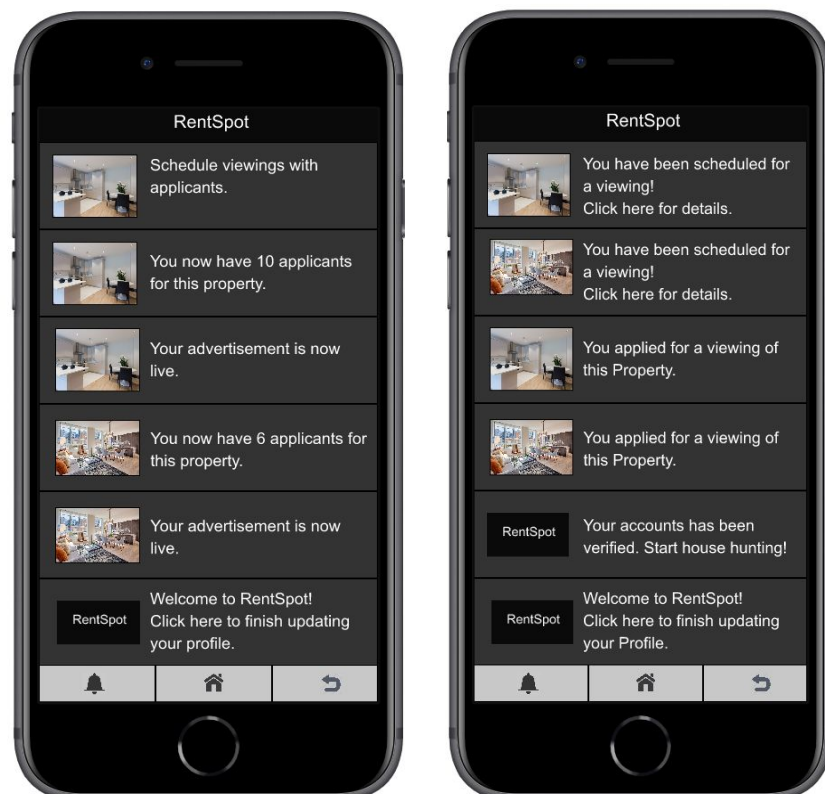
This sub-function allows tenants to look at the previous property reviews given by other tenant users. The Tenant user will also be able to give a review after they have leased the property for other users to consume.

### 2.1.6.2 Apply for a property - Tenants

This sub-function allows tenants to apply for a vacancy in a listed property. This will only be available by users that are registered and meet the requirements of the property. The user will have to pay a small fee upon property application.

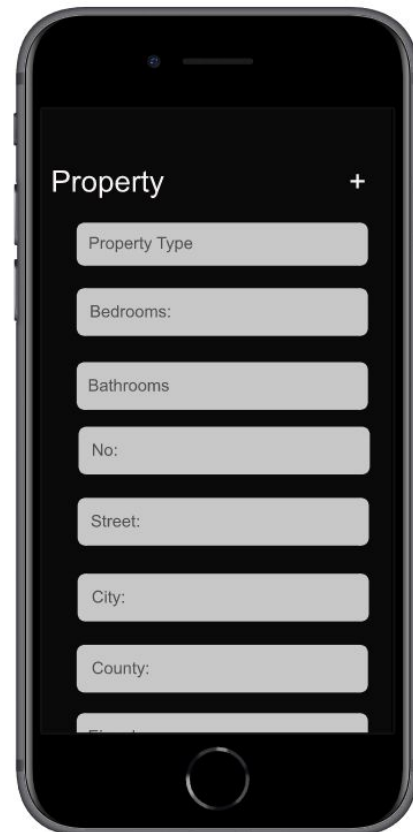
### 2.1.7 Notifications - Tenants/Landlords

In notifications tab, tenants can see if they have been scheduled for any property viewing and view the properties they have applied for.



### 2.1.8 Add a property - Landlord

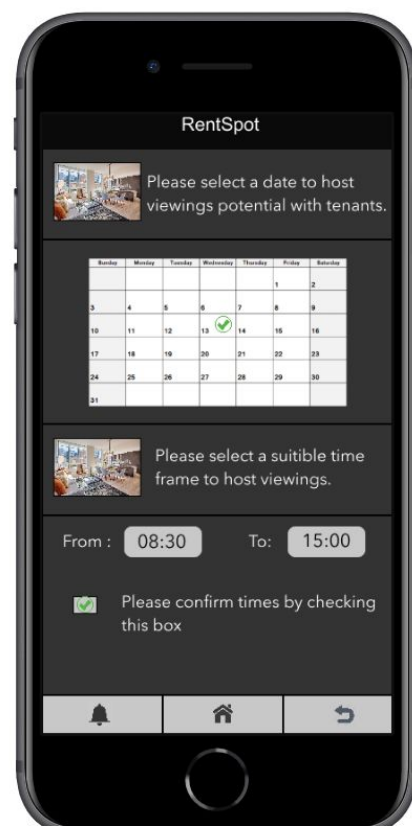
Landlords can list properties through the homepage. To get started, landlord needs to click 'Add Property' button. Landlord will then be prompted to enter general information about the property, such as address, type of property, number of people property is suited for and the price. Landlords will then be prompted to add in property overview/description, lease duration, property availability, facilities and photos. Landlords will also enter their own requirements for possible tenants.



The screenshot shows a mobile app interface for adding a property. The title is 'Property' with a plus sign icon. Below the title are several input fields: 'Property Type', 'Bedrooms:', 'Bathrooms', 'No:', 'Street:', 'City:', and 'County:'. Each field is represented by a light gray rectangular box.

### 2.1.9 Schedule a viewing - Landlord

This sub-function allows landlords to schedule a viewing with potential tenants once their listed adverts tenant application limit has been met. This will be set as 10 as standard. The landlord will select a date and time frame and the tenants will be notified in Notifications tab once the viewing has been scheduled.



The screenshot shows a mobile app interface for scheduling a viewing. The title is 'RentSpot'. Below the title is a message: 'Please select a date to host viewings potential with tenants.' followed by a calendar grid. The calendar grid shows dates from 3 to 31, with a green checkmark indicating a selected date (13). Below the calendar is another message: 'Please select a suitable time frame to host viewings.' followed by a time selection interface. The time selection interface shows 'From : 08:30' and 'To: 15:00'. Below the time selection is a green checkmark icon and the text: 'Please confirm times by checking this box'. At the bottom of the screen are three icons: a bell, a house, and a circular arrow.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

## 2.2 Initial Software Architecture

### 2.2.1 Requirements from End User

- A functional version of RentSpot that is fit for property rental search.
- Tenants will be provided with information about a property upon a search query
- Landlords will be provided with information about tenant upon property application
- Information displayed about users/properties will be assumed to be correct
- Users information will be stored on their individual profiles and will be accessible for future house applications or tailored searches.
- Users will not expect to meet any errors upon registration to RentSpot.
- Users will be able to apply for a property if they meet the requirements.
- Users are guaranteed a viewing if they meet the requirements.

### 2.2.2 Use Case Scenarios

Example: new tenant user registers and applies for a property

1. User will access RentSpot through their web browser.
2. User will begin the registration by clicking the 'Register' button.
3. User will fill out personal information such as email, password and username.
4. User will complete registration, by clicking 'Register' button. By clicking 'Register', user agrees to RentSpot's Privacy Policy and Terms of Use.
5. User will verify his email address by signing into their email and clicking verification link.
6. User is then asked to verify their identity, this can be achieved by uploading a photo of government ID and a self-taken picture.
7. Once identity is verified, user can upload supporting documentation.
8. User can browse through different property listings or use dynamic search to satisfy their needs.
9. User can view properties in more detail and apply, if they meet the requirements.
10. User will receive a notification, once a viewing has been scheduled.

Example: new landlord users registers and lists a property to let

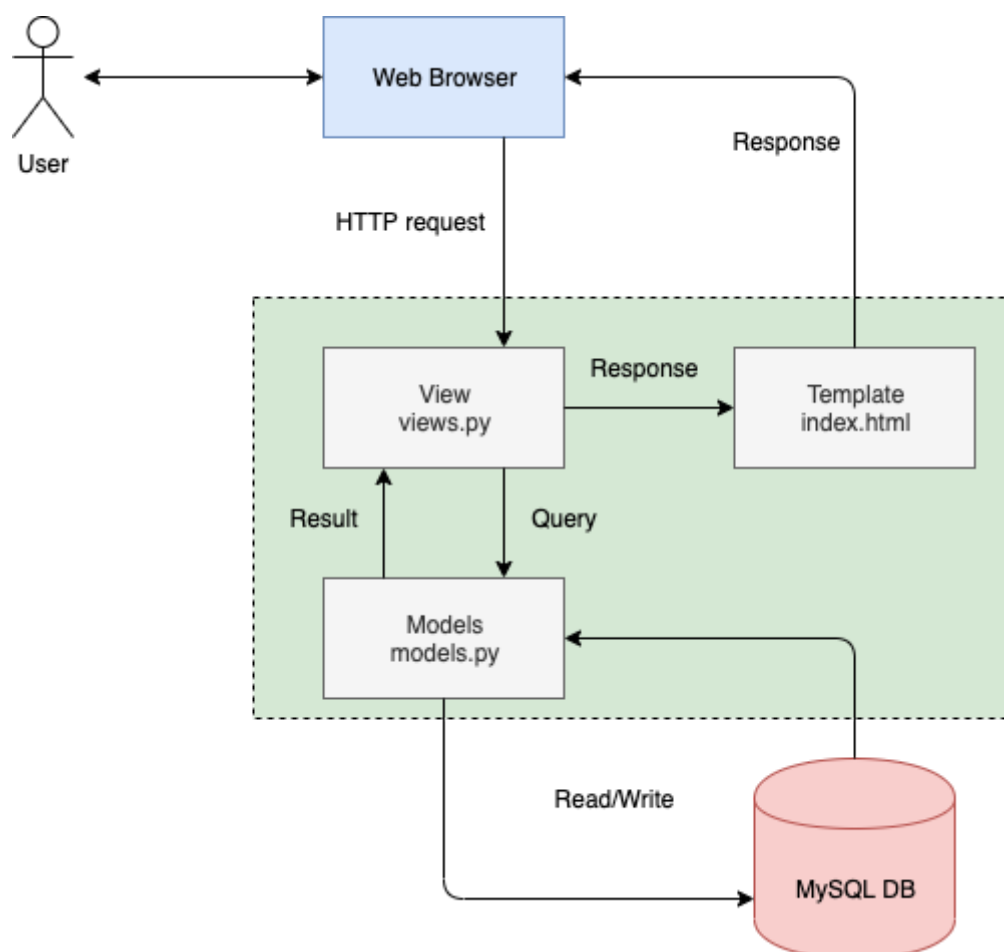
1. User will access RentSpot through their web browser.
2. User will begin the registration by clicking the 'Register' button.
3. User will fill out personal information such as email, password and username.
4. User will complete registration, by clicking 'Register' button. By clicking 'Register', user agrees to RentSpot's Privacy Policy and Terms of Use.
5. User will verify his email address by signing into their email and clicking verification link.
6. User is then asked to verify their identity, this can be achieved by uploading a photo of government ID and self-taken picture.
7. User will create an advertisement by uploading photographs and a description of the property and set lease requirements for potential tenants.
8. The user will schedule property viewings with potential tenants when there is a pool of applicants.

### 2.3.3 Initial Software Architecture Diagram

Our initial software architecture will consist of three main components - client, server and database. We will most likely go ahead with MySQL database and this will serve the need of storing any information gathered and used through our application. Server side will consist of Django framework, which will follow Model Template View (MTV) architecture.

- Model will provide median between the web application interface and the database
- Template will define a number of tags, which will be used to make the layout of how the data should be displayed
- View will format the data retrieved through the Model and and communicate with the Database for which data to be transferred to the Template

Django templates will be formatted mainly using HTML, CSS and JavaScript.



[2]Initial Software Architecture diagram

## **2.3 Technical Challenges**

### **2.3.1 Developing the User Interface**

RentSpots UI needs to be designed so users can navigate through our application easily and benefit from our service. We want to consider the diversity of the target users that will be using this application and ensure that all features of RentSpot are easily accessible for users of all skill sets. We also need to make sure we use appropriate colour schemes and font making all navigational paths legible to the users of our application.

### **2.3.2 Document Verification**

RentSpot relies heavily on user verification, for this reason we need to consider the use of face recognition software that can aid us in the physical verification of a users profile. We would also like to harness the power of PDF text extraction to help automate the verification practices when users are uploading and updating their RentSpot profiles.

### **2.3.3 Encrypting Files**

As RentSpots users will be uploading files to build their profiles we are aware that we will be handling a lot of sensitive data from the user. We need to ensure that we are in compliance with GDPR best practices and use a form of encryption to protect sensitive data.

## **2.4 Expected Prototype Delivery**

For our prototype we intend to deliver all of the functionality that has been outlined above in the 2.1 Functional Requirements section. We plan to build our prototype using the Django web framework. In our RentSpot prototype we expect to deliver a user interface with 'Register Account', 'Sign In' and 'Sign Out' functionality along with a 'Homepage' for the user. We will have search capabilities for the tenant users allowing them to search for listed properties, this will also include a Property listing page to view all listed properties 'to let' on RentSpot. For the tenant users we will have profile editing features allowing them to set their own search parameters and allowing the upload of files to verify their profiles. For our prototype we plan to have the 'apply' feature implemented for the tenant users and in turn the notification feature for both landlord and tenant user to schedule an appointment when there is enough applicants. For the landlord users we will have the functionality of creating an advertisement for a property to let, this will include giving the property description, uploading photographs and listing the amenities of the property.

## 3 Proposed Timeline

### 3.1 Proposed FYP Timeline

We have separated our proposed Final Year Project timeline into 6 main deliverables. Every deliverable is then broken into tasks which have or will be performed to deliver the Final Delivery Document in time for Late April/Early May 2020. Nearly all of the tasks will be completed together, tasks that will be completed mainly individually will be:

**Maksims** - secondary market research, technology research , functional specification document

**Matthew** - wireframes and mockup development, prototype testing, target market interviews and questionnaires

#### 3.1.1 Project Idea

September				October				November			
W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
			Idea brainstorming								
							Initial work on idea				
								Finalising idea			
						Idea proposal documentation					
						Idea proposal presentation prep					
								Proposal idea presentation			

#### 3.1.2 Post Idea Proposal Changes

November				December				January			
W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
							Project idea changes considering feedback				
							Wireframe mockup				
							Meet with project supervisor				
							Individual research				
								Group discussion and work on the idea			

#### 3.1.3 Initial Delivery Document

December				January				February			
W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
			Start on Initial Delivery Document								
							Study + Exams				
								Initial Delivery Document Completion			
								Initial Delivery Document Submission			

### 3.1.4 Market Analysis

February				March				April			
W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
				Primary and Secondary Market Research							
Issue online questionnaires											
				Anylse questioniare responses							
				Conduct target market interviews							
				Prepare a market analysis finalised document							
				Wireframe Finalisation							

### 3.1.5 Prototype Development

[illegible]

### 3.1.6 Final Deliverables

[illegible]

## **4.References**

[1][https://onestopshop.rtb.ie/images/uploads/general/RTB\\_Annual\\_Report\\_2018\\_Final.pdf](https://onestopshop.rtb.ie/images/uploads/general/RTB_Annual_Report_2018_Final.pdf)

[2]<https://djangobook.com/mdj2-django-structure/>