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# PROJECT PROPOSAL

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# **Business Context**

## **Room Availability**

The client has requested me to provide a method to provide customers with information about room availability for hire the client's facilities. The reason why this will benefit the client is because the solution will allow CityPoint Room Hire to provide potential customers digital means in regards to facilities being available to be hired. By providing the client with the solution, the potential customers will be well informed prior to contacting the client allowing for a greater conversion rate and an increase in revenue.

## **Booking Policies and Details**

The client has requested me to provide a method to provide customers with information about policies relating to bookings as well as the details for staff within the company. The reason why this will benefit the client is that the solution gives valuable information to the customer about the practices the client holds, with any policies that the customer will need to adhere to. By providing such information to the customer, the client gains legal coverage and provides the client with consent from the customer to adhere with such policies.

## **Room Booking**

The client has requested me to create a method to provide customers with the ability to book facilities with the client. The reason why this will benefit the client is that the solution aims to allow a central booking system for all verified customers so that the need for customers to come into the facility to reserve a room is mitigated. By providing the ability for customers to book rooms, view dates and times with status updates, the customer is better informed and reduces the dependence on staff.

## **Room Management**

The client has requested me to create a method to allow customers to manage bookings. The reason this is beneficial to the client is because customers can freely append their bookings without the reliance of a human operative to do it for them. By providing the ability for customers to manage their bookings, the client does not have to worry about redundancy when it comes to customer support, since the customer has the ability to do it themselves.

## **Account Registration**

The client has suggested to create a method that allows users to create an account with CityPoint Room Hire. The reason this will benefit the client is because allowing users to

create accounts provides users with a digitalised method of hiring goods and services. By providing such ability to the customer, the client is able to grow their audience to allow for greater opportunities for revenue streams.

## Accessibility

The client has suggested to add features to the solution to provide users with accessibility features and options to support a wide range of users. This will be beneficial for the client due to the fact that 1/8 people have some sort of limiting factor that prevents them from carrying out ordinary tasks. By providing such accessibility features, CityPoint Room Hire is able to reach a larger audience; Allowing CityPoint Room Hire to widen their income streams in search for financial stability.

## Restricted Access to Resources

The client has suggested to add a feature to restrict access to certain resources used by staff. This will be beneficial for the client as staff utilities, such as manual approval for room bookings and appending room bookings, should be under restriction so that regular customers cannot access unauthorised material. By providing a solution to this problem, CityPoint Room Hire reduces the risk of data leakage, breaches of personal data and helps to improve the reputation of the business for being trustworthy when it comes to user data.

## Project Aim

The overall aim for the project is to provide CityPoint Room Hire with a digital solution that can;

- Provide customers with information about room availability for their facilities
- Provide customers with information about policies regarding cooking and details of staff for the company.
- Allow customers to book rooms for specific dates and times pending confirmation
- Allow customers to view and manage their existing bookings
- Allow customer to register accounts to manage their bookings and data
- Provide access to accessibility features to support a wide range of users
- Provide access restricted material to their staff

# Functional Requirements

## Functional Requirements and User Acceptance Criteria

Customer – The customers name is Jimmy. Jimmy is a manager for an accounting company and is tasked with the finances of his customers. Jimmy has a slight inconvenience; he does not have a space where he can meet his clients formally.

Staff – The staff member's name is John. John has been working at CityPoint Room Hire for over 5 years now. He complains about the lack of digital presence when it comes to booking states that his table is full of reservations listed on paper.

Manager – The manager's name is Emma. Emma has run CityPoint Room Hire for 10 years and has too much responsibilities when it comes to her business. She requires a solution to reduce her workload.

<b><u>Functional Requirement</u></b>	<b><u>User Story</u></b>	<b><u>User Acceptance Criteria</u></b>	<b><u>Justification</u></b>
Register	<p>As Jimmy, I want to create an account with CityPoint Room Hire so that I can see what services they offer.</p> <p>As Emma, I want to create accounts for my staff so that I can provide them with the information they require.</p>	<ul style="list-style-type: none"><li>- Provide users with a registration screen.</li><li>- Provide functional UI/UX to fulfil user requirements.</li><li>- The system should ensure that the email given is correct, the password is secure through data flags and that previous login credentials such as usernames and emails have not been used before.</li><li>- Every request to register must be secured with TLS</li><li>- The system should encrypt</li></ul>	This feature will benefit the client as these functional requirements allows users to create accounts with CityPoint Room Hire which will allow users to purchase services. In turn, this allows for users and staff to view gated content.

		<p>user data with bcrypt or similar encryption software.</p> <ul style="list-style-type: none"> <li>- The system should impose a cooldown to requests happening more than 10 requests per minute and 50 requests per hour.</li> <li>- The system should handle incorrect data formats when registering and should ask users for correctly formatted data.</li> </ul>	
Login	<p>As Jimmy, I want to access my account so that I can view any of my room hires, as well as append any information.</p> <p>As John, I want to access my account so that I can view current reservations, append reservations and receive information about the customer for</p>	<ul style="list-style-type: none"> <li>- Provide users with a login screen.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the login information is valid through checks.</li> <li>- The system should handle incorrectly formatted data and ask the user</li> </ul>	<p>This feature benefits the client as this functional requirement allows users to access their services with CityPoint Room Hire to view, add or append their bookings with the client as well as allowing for selected user accounts to access restricted content that will aid people in the line of work.</p>

	<p>use with customer support.</p> <p>As Emma, I want to access my account for administrative purposes.</p>	<p>for correctly formatted data.</p> <ul style="list-style-type: none"> <li>- The system should impose a cooldown to requests happening more than 10 requests per minute and 50 requests per hour.</li> <li>- Every request to register must be secured with TLS</li> <li>- The system should encrypt user data sent with bcrypt or similar encryption software.</li> </ul>	
Upload Rooms	<p>As Emma, I want to upload all rooms I currently have so that customers can pick from the different options available.</p>	<ul style="list-style-type: none"> <li>- Provide users with a form-based page to upload room content.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the information inputted into the form is correct.</li> <li>- The information appended to the database is secure through data flags.</li> <li>- Every request to upload must be secured with TLS</li> </ul>	<p>The feature will benefit the client as this functional requirement allows authorised users to add new room choices for customers to choose from, so that they can hire up to date facilities.</p>

		<ul style="list-style-type: none"> <li>- The system should impose a cooldown to requests happening to more than 10 requests per second, and 500 requests per minute.</li> <li>- The system should handle incorrect data formats when uploading and should ask users for correctly formatted data.</li> </ul>	
Edit Rooms	<p>As Emma, I want to edit the information in rooms so that I can ensure all information within the rooms is up to date.</p> <p>As John, I want to manually edit the information in rooms so that I can assist customers who require support.</p>	<ul style="list-style-type: none"> <li>- Provide users with a form-based page to edit room content.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the information inputted into the form is correct.</li> <li>- The information appended to the database is secure through data flags.</li> <li>- Every request to upload must be secured with TLS</li> <li>- The system should impose a cooldown to requests happening to</li> </ul>	<p>This feature will benefit the client as this functional requirement allows authorised users to append content within rooms to ensure that information provided to the customer is always up to date.</p>

		<p>more than 10 requests per second, and 500 requests per minute.</p> <ul style="list-style-type: none"> <li>- The system should handle incorrect data formats when uploading and should ask users for correctly formatted data.</li> </ul>	
View Rooms	<p>As Jimmy, I want to browse available rooms and venues to compare what would be the most beneficial for me.</p> <p>As John, I want to view available rooms so that I can assist customers who many not know how the solution works.</p> <p>As Emma, I want to ensure that the rooms shown to the customer look appealing and that data is not malformed.</p>	<ul style="list-style-type: none"> <li>- Provide users with a form-based page to view room content.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the information inputted into the form is correct.</li> <li>- The information appended to the database is secure through data flags.</li> <li>- Every request to upload must be secured with TLS</li> <li>- The system should impose a cooldown to requests happening to more than 10 requests per second, and 500 requests per minute.</li> <li>- The system should handle incorrect data formats when uploading and</li> </ul>	<p>This feature will benefit the client as this functional requirement allows users to view the rooms and what they provide so that users are well informed when it comes to selecting which room is best for them.</p>

		should ask users for correctly formatted data.	
View Policies and Staff Details.	<p>As Jimmy, I want to view the companies' policies and staff details so that I can be informed about the practices and legal requirements that the business holds.</p> <p>As Emma, I want to ensure that all data shown is up to date and accurate so that my company isn't at liability legally.</p>	<ul style="list-style-type: none"> <li>- Provide users with a page to view content.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the information inputted into the form is correct.</li> <li>- The information appended to the database is secure through data flags.</li> <li>- Every request to upload must be secured with TLS</li> <li>- The system should impose a cooldown to requests happening to more than 10 requests per second, and 500 requests per minute.</li> <li>- The system should handle incorrect data formats when uploading and should ask users for correctly formatted data.</li> </ul>	This feature will benefit the client as this functional requirement allows users to view legal policies for the users to adhere to. This ensures that the users agree to the policies enforced by the company.
Create Bookings	<p>As Jimmy, I want to create bookings with the company so that I can use their services.</p> <p>As John, I want to create bookings when interacting with customers that do not use</p>	<ul style="list-style-type: none"> <li>- Provide users with a form-based page to create bookings.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the information</li> </ul>	This feature will benefit the client as this functional requirement allows users and staff to create bookings so that the users can use the client's facilities.

	the digital solution.	<p>inputted into the form is correct.</p> <ul style="list-style-type: none"> <li>- The information appended to the database is secure through data flags.</li> <li>- Every request to upload must be secured with TLS</li> <li>- The system should impose a cooldown to requests happening to more than 10 requests per second, and 500 requests per minute.</li> <li>- The system should handle incorrect data formats when uploading and should ask users for correctly formatted data.</li> </ul>	
Edit Bookings	<p>As Jimmy, I want to edit bookings with the company so that I can amend my requested services with the company.</p> <p>As John, I want to edit bookings when interacting with customers that do not use the digital solution when requested.</p>	<ul style="list-style-type: none"> <li>- Provide users with a form-based page to edit bookings.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the information inputted into the form is correct.</li> <li>- The information appended to the database is secure through data flags.</li> <li>- Every request to upload must be secured with TLS</li> <li>- The system should impose a cooldown to requests happening to more than 10 requests per</li> </ul>	<p>This feature will benefit the client as this functional requirement allows users and staff to edit their pre-existing bookings so that the users can amend usage with the client's facilities.</p>

		<p>second, and 500 requests per minute.</p> <ul style="list-style-type: none"> <li>- The system should handle incorrect data formats when uploading and should ask users for correctly formatted data.</li> </ul>	
Set Payment Method	<p>As Jimmy, I want to add a payment method to my account so that any services I purchase are debited out of my account instantly. As Emma, I want to add my payment method so that I can receive the income from payments.</p>	<ul style="list-style-type: none"> <li>- Provide users with a form-based page to set a payment method.</li> <li>- Provide functional UI/UX to fulfil user requirements.</li> <li>- The system should ensure that the information inputted into the form is correct.</li> <li>- The information appended to the database is secure through data flags.</li> <li>- Every request to upload must be secured with TLS</li> <li>- The system should impose a cooldown to requests happening to more than 2requests per second, and 10 requests per minute.</li> <li>- The system must use a 3<sup>rd</sup> party payment system that allows the solution to;</li> </ul>	<p>This feature will benefit the client as this functional requirement allows the user to attach a payment method to their account, providing the user with the option to purchase on the solution rather than at the facility.</p>

		<p>a) Verify Payment Information and ensure that Payment Information is chargeable.</p> <p>b) Access Payment Information securely.</p>	
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## Non-Functional Requirements

Performance		
The solution should have a fast load time when the page is clicked.	<p>As Jimmy, I want the website to load quickly so I can access content without waiting.</p> <p>As Emma, I want the content on the website to load fast so that the stress point when it comes to a slow website is non-existent.</p>	Having a load time no more than 3 seconds for all content.
There should be no problems when it comes to latency	<p>As Jimmy, I want the pages to have no stuttering so that my booking isn't delayed.</p> <p>As John, I want the booking confirmation page to update every minute to ensure that bookings are verified as soon as possible.</p>	There should be no complaints over latency issues.
The different pages should load instantly	As Jimmy, I want the pages to load quickly so that I can access the website content without	Every page should have a load time no longer then 3 seconds.

	<p>the need to wait long periods of time.</p> <p>As John, I want the pages to load fast so that any administrative action required is available to be processed when it arrives.</p> <p>As Emma, I want the content on my website to load consistently fast so that my customers do not complain about long waiting times.</p>	
Creating a booking for a room should respond seamlessly.	As Jimmy, I want to create bookings for the meetings with my clients so that I can have a 1:1 session with my client.	It should not take longer than 5 seconds to book a room.
<b>Security</b>		
The solution should be protected and resistant to DDOS attacks.	As Emma, I want the solution to be unaffected by DDOS attacks by using industry standard technology so that my customers are unaffected.	Not having more than 3 complaints of a DDOS attack within a month. Must repel most, if not all food requests.
The solution must keep user data encrypted under any circumstance.	As Emma, I want the solution to keep user data encrypted and secure so that customer data cannot be accessed without an encryption key that is stored separately as this is industry standard.	There are no reports of breaches in customer data for a year at minimum.

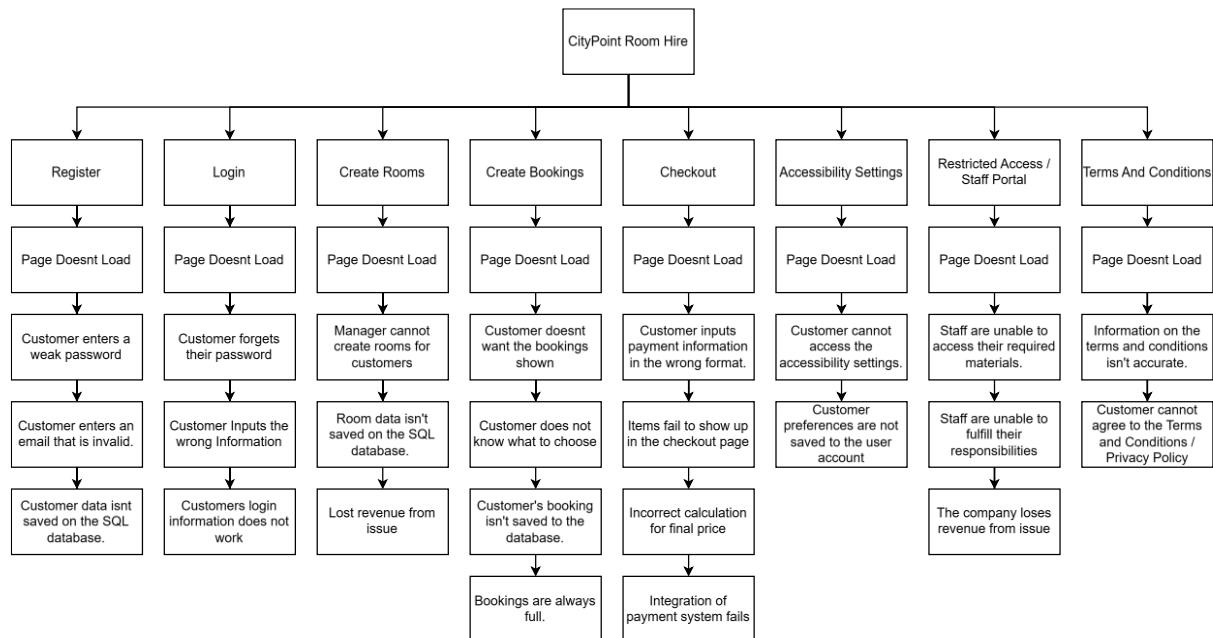
PII (Personal Identifiable Information) must be kept encrypted.	As Emma, I want the solution to encrypt PII so that customer data cannot be accessed without an encryption key that is separately stored	No reports of PII breaches for 3 months.
The solution must follow DPA and GDPR regulations and standards.	As Emma, I want the solution to comply with legal regulations so that there is a smaller risk of legal and financial complications when it comes to data.	Audits are taken every month to evaluate violations of GDPR and DPA guidelines.
<b>Scalability</b>		
The different features of the website must have a minimum redundancy.	As Emma, I want the solution to have as little redundancy as possible while ensuring that the website can properly function in case of a partial disablement so that my customer's experience on my website is not affected.	Different segments of the page must be detachable so that in the case of partial disablement, the website functions as normal.
The different features of the website should be easy to understand for all users of my target audience.	As Jimmy, I want the website to be understandable and easy to read so that I do not make mistakes when booking rooms.  As Emma, I want my target audience to understand what my website's content is providing so that I can ensure that my customers can hire my facilities.	There should be less than 2 complaints about the website being too complex to understand every week.

The information on the different pages should be easy to read.	As Jimmy, I want the website to be understandable and easy to read so that I do not make mistakes when booking rooms.	Less than 2 complaints a week about the readability of the website.
The solution should be able to handle a growing number of created accounts.	As Emma, I want the website to allow a growing userbase to create accounts seamlessly without disruption so that my customers do not complain about downtime.	The process for account creation must stay consistent even with an influx of account creations.
<b>Capacity</b>		
The solution should be able to have multiple users at once.	As Emma, I want the solution to hold multiple users at a time so that the solution can allow more than 1 user session.	Be able to hold 100 concurrent users.
The solution servers should be stable.	As Emma, I want the servers to be up at all times so that customers can hire my facilities at any time.	No complaints about downtime for at least 6 months.
The solution must be able to allow multiple users to register at the same time.	As Emma, I want the solution to allow multiple users to register at one time so that I can increase my customer base without worrying about rate limiting customers when creating.	At least 5 users registering at the same time.
The solution must handle large amounts of transaction at the same time.	As Emma, I want the solution to allow multiple transactions at the same time to hire my facilities so that I	Be able to process 50 payments at the same time

	can increase my revenue income stream.	
<b>Reliability</b>		
The website must not crash.	<p>As Jimmy, I do not want the website to crash when I am making a booking to meet my client so that I do not lose my progress.</p> <p>As John, I don't want the website to crash when assisting customers so that they are not waiting longer than they should be.</p> <p>As Emma, I don't want the website to crash at all so that customers and staff do not have interruptions.</p>	No complaints of downtime for more than 30 minutes every year.
The solution must have regular backups.	As Emma, I want the solution to have regular backup's so that in case of data corruption, there is a rollback option.	Backup of code should be daily, and to be checked bi-daily.
The solution must have up to date information on the rooms page.	As Jimmy, I want to have up to date rooms so that I can make an informed decision accurately.	Information is checked and updated daily.
The solution must have up to date information on the privacy policy / terms of conditions page.	As Emma, I want the legal information on my website to be up to date so that my customers are not misinformed.	Information is checked and updated weekly.
<b>Usability</b>		
The solution should be easy to use for the target audience	As Emma, I want the solution to be accessible and easy to use for my customers so	Maximum of 30 reports of the website being "difficult to use" within a month.

	that they are able to hire my facilities.	
The solution must be easy to navigate.	As Emma, I want the solution to be easy to navigate so that people who are not tech-savvy can understand the content on my website.	No complaints of the website being difficult to navigate.
The solution should have clear information depicting and representing the pages.	As Jimmy, I want the solution to be easy to depict and understand so that I do not make errors in my decision making.	Ensure that website has easy to see / read digital content.
<b>Accessibility</b>		
The solution must have clear headings, links and buttons that previously informs the user what the page consists of.	As Emma, I want to ensure that all of my users have access to my solution through accessibility features so that I do not lose potential customers.	Maximum of 5 complaints of users being confused about navigation throughout the website in the span of a month.
The solution should allow users to enable/disable accessibility features.	As Emma, I want to ensure that any person who requires accessibility features can enable them when needed so that I can help bring more influence to my facilities.	No complaints of users being unable to enable/disable accessibility features Maximum of 30 reports of the accessibility features being inoperable in the span of a month.

# Hierarchy Diagram



# Risk Management Plan

The Risk:	The Mitigation:
An attacker may use SQL injection to gain unauthorised access to the database. (R1)	Use data sanitization and encryption to reduce the chances of harmful data inputs and to ensure that the data is unreadable to an external source by using bcrypt or similar encryption software. In turn, this will ensure the security of the database and improves customer relations.
An attacker may try to use a Man-In-The-Middle (MITM) attack to phish for unencrypted credentials. (R2)	Use data salting to ensure every POST request to the server is unique, and any credentials sent from the customer to the server is never the same. In turn, the use of data salting will ensure that any data sent through an unencrypted network will be unreadable.
An attacker may try to brute force the system to gain access to unauthorised access to user data (R3)	Use limit-requests to limit the amount of login attempts a user can have to discourage and prevent brute forcing, as well as blocking known IP addresses used for brute forcing. In turn, this

	reduces the opportunity for attackers to brute force the system.
An attacker may DDoS the solution. (R4)	Use Cloudflare's DDoS protection service to prevent DDoS attacks to the solution, or something of similar nature. In turn, the possible attack can be deflected using Cloudflare's services and prevents interruptions for users.

Effect:	Low	Medium	High	Very High
Probability:				
High			R2	R4
Medium				R1
Low				R3

## UI Considerations

Some key aspects for the design of the websites are the colour scheme, font usage and sizing, layout and the assets within the website. First, I would like to go for an office themed colour scheme; A very cream colour (#f9fafb) for the background, with a plain white backing (#ffffff) for content, and an ashy grey (#f3f3f5) for contrast with buttons and selectors. Furthermore, I intend to use any blank spacing for products, information about CityPoint Room Hire, showcasing offers and promotional offers as well as room for additional features.

For my font styles, I have chosen to go with Poppins as it is an industry standard font used in websites ranging from Google and Microsoft, to a local dog grooming parlour. Overall, I will use professional copyright free assets from reputable sources as my client's target audience are majority within the business sector.

## Legal

When handling vast amounts of user accounts, customer data and booking information, the solution must adhere to regulatory guidelines to ensure that data is not mishandled. This is where the Data Protection Act of 2018 (DPA) for the United Kingdom, and the General Data Protection Regulation of 2018 (GDPR) for the European Union comes into place. The DPA and GDPR both govern how data is protected under fundamental rights and freedoms, and provides regulations on how data can be stored, processed, used and received. This is imperative to follow due to the fact that the solution will be handling sensitive data such as Billing Information, Names and

Addresses and bookings. The compliance with the DPA and the GDPR regulations will help ensure that data security is at an industry standard level.

With the vast number of users that are expected to use the solution, it is imperative that the website is made with accessibility standards in mind. The Web Content Accessibility Guidelines, or WCAG for short, provides expected features that should be implemented to ensure that the solution provides users with an equal opportunity to access material. This will ensure that all users are treated equally and provides an opportunity for the client to grow their customer base.

In addition, the website will feature a privacy policy, as well as a terms and conditions check to ensure that the user accessing the website understands how the solution will use their data and agrees to the data being used for those purposes. Furthermore, this allows the client to prohibit acts against their terms and conditions, allowing the client to bar users from using the service.