**Business Requirements   
Document**

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## **Version History**

| Version # | Date | Reason for Change |
| --- | --- | --- |
| **Version 1** | 10/5/2022 | Original Document |
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## 

## **Overview**

The business requirements document will go over functional and non-functional requirements, and how the system will behave in case of failure. The business problem this product will solve and the goals we are trying to attain with the product as well as business rules and criteria of success that must be followed while keeping in mind the risks and constraints that this project may entail. All this information will be listed on the following pages.

**Business Problem**

Most property management software provides property owners, managers, and landlords the foundation to keep track of their finances and business needs. These applications are tailored toward a property's residential bookkeeping and tenant management. However, what these applications lack, and overlook is arguably the most important factor of property management, the physical property.

Property management software mainly focuses on the accounting aspect of a business rather than the property itself. Property managers and owners lack a foundation to effectively manage and improve their property appearance and value. Software for property management today focuses on residential businesses, bookkeeping, and connecting maintenance companies with property managers. For instance, the top property manager application, Buildium allows its users to keep track of rental payments, vacancies, and accounting (*Buildium*). However, you need to attract and retain tenants first and foremost. For instance, Hales Property Managements published an article titled “8 ways to make your rental property more appealing to prospective tenants” in 2021 with each listing pertaining to the property’s appearance and upkeep. On the other hand, Angie’s, an application that connects property managers to pros in their area, allows consumers to keep track of their open projects and compare quotes(*How does Angi Work*). However, Property Manager to Go will allow for the common property owner and property managers to keep track of their properties, maintenance services, and renovation projects, manage and assist in the scheduling of services, and provide quick estimates for property value.

## **Business Goal**

Our goal is to provide property management software that will efficiently and thoroughly assist its users, with the elevation of property value as its objective, an overlooked outlook within property management. The value of our product is in providing a foundation that prioritizes increasing property value by organizing all property services management into one platform.

The software will focus on digitizing and organizing services that property managers use frequently for property upkeep, in addition to organizing business transactions and needs. While providing insight on how the property value changes before and after all transactions and assisting in the scheduling, budgeting, and planning of value-increasing services. For instance, our software will help with the planning of future services by providing a change in property value for mere service inquiries and after-service completion. Our software will also accommodate each user by recommending service schedule dates and comparing estimates for budgeting. Lastly, our software will provide a feature to give services a rating based on performance, which will tell maintenance and property services companies what they can improve on and what they are doing well, improving their overall quality of work.

The appearance and value of a property are equally as important for reasons such as tenant attraction and retention, in addition to simply wanting a well-maintained home. What the industry lacks is a one-stop-shop application for property owner's to efficiently and thoroughly manage their property while overseeing their change in property value. Thus, Algorithmic Alchemist proposes Property Manager Go, a web application to meet these needs and provide a foundation for all property services management one room at a time.

## **Project Overview**

Algorithmic Alchemist aims to deliver an application that allows property managers to create profiles to manage their services, plan maintenance and renovation projects, evaluate their property, and schedule appointments with service providers. We also aim to provide a foundation for service providers to promote their companies or organizations and acquire more customers by including their profiles in a service search list and presenting their service rating. Companies will also receive assistance in managing their service request from property managers with the request manager. The application will allow all users access to their user profiles, a dashboard, a calendar, user management, and document storage.

## **Project Constraints**

* At the initial deployment, the app will only cover Contractors, Service Providers, and Properties in **California**.
* At the initial deployment, the app will only support **US-English**.
* At the initial stage, the product will only be accessible from the **web**.
* **Payment Processing** is not going to be supported.

## **Stakeholders Identification**

The stakeholders include those that will benefit from or will be affected by the application. Stakeholders include property owners, landlords, property managers, and maintenance companies and service providers.

Users:

* Property Managers are users that own or manage a property, such as a home or a commercial property such as an office building or retail store.
* Service providers are users that provide property services such as
  + Landscaping, street sweeping, window washing, janitorial, or plumbing.
  + Renovation for upgrades to a bedroom, bathroom, or kitchen like tiles or flooring, appliances, and fixtures.
  + And the remodeling of rooms.

## **Business Requirements**

Property Managers require a single platform to manage their properties. Algorithmic Alchemist brings forward an alternative application called Property Manager to Go or PMtoGo to satisfy and effectively accommodate property owners and managers while promoting service providers and their services.

Algorithmic Alchemist proposes the PMtoGo application to..

* Increase revenue and outreach for service providers
* Improve customer service and quality of work for service providers
* Simplify property management and assist with planning and budgeting
* Increase property value

## **Business Rules**

1. Users must have a valid account to enter into the application
2. Accounts are valid if:
   * It has a valid email and password
   * The email has been verified
3. User uploaded files must not exceed a certain size
4. User uploaded pictures must not exceed a certain size
5. Users may delete files that they have uploaded
6. Users must have only have access to authorized features
7. Users may not access system admin tools

## **Functional & Non-Functional Requirements**

**Features for all Users:**

| Use Case ID: | 1 |
| --- | --- |
| Use Case Name: | User Management |
| Actors: | All Users |
| Description: | Users will have an account and profile management features that include: Account Creation, Deletion, and Recovery. |
| Preconditions: | The user has navigated to the PMtoGo website and selected to sign up or log in or forgot the password.  Users inputs the correct login information  The user has jumped to the homepage. |
| Standard Path  (Creation) | 1. User selects “Sign up” 2. Users are prompted to enter their email, full name, date of birth, address, username, and password. 3. User information is saved 4. User is navigated to login page 5. User logs in with username and password |
| Alternative Path 1  (Recovery) | 1. User selects “Forgot Password” 2. User enters username 3. User enters email 4. User enters new password 5. New user credentials are saved |
| Alternative Path 2  (Deletion) | 1. User inputs the correct login credentials 2. User navigates to their profile 3. User selects profile settings 4. User selects “Delete Account” |
| Postconditions: | User is granted access to software and jumps to the homepage. |
| Nonfunctional: | 1. Users must be notified if they entered the wrong password. 2. Users must always be presented with the “Forget password” during the whole log in process(before they log in). 3. Every unsuccessful attempt to log in will be recorded. 4. After 3 attempts to log in the account will be locked and only the option of “Forgot password” will be available. 5. The user should be required to have a lowercase, uppercase, sign, and number in their password. 6. Passwords must be from 8 - 16 characters long. 7. The password must be censored with a \* for every character. 8. The user can choose to show password when signing up or logging in or changing password. |

| Use Case ID: | 2 |
| --- | --- |
| Use Case Name: | User Profile |
| Actors: | All Users |
| Description: | Users will be able to see their account history of past services and projects and their ratings. |
| Preconditions: | The user has logged into the website and been taken to the homepage with access to their associated features. |
| Standard Path  (Property Manager) | 1. User has navigated to their profile 2. User has access to “View History” 3. User can see list of services done and the service provider that provided that service, and their rating |
| Alternative Path  (Service Provider) | 1. User has navigated to their profile 2. User has access to “View History” 3. User can see list of property managers and the service they provide, and their rating |
| Postconditions: | The user is able to see their ratings of services or service ratings and past projects and services they provided or were given. |
| Nonfunctional | 1. The users history will be presented in a neat organized list. 2. The list will start with the latest services going down to the oldest services. 3. The history shows the past 50 services. 4. The users will be presented with their past ratings |

| Use Case ID: | 3 |
| --- | --- |
| Use Case Name: | Calendar |
| Actors: | All Users |
| Description: | This feature allows users to schedule appointments and projects. |
| Preconditions: | The user has successfully logged into the website and is directed to the homepage where they can select the calendar feature. |
| Standard Path  (Property Manager) | 1. User navigates to the “Calendar” 2. Users can see upcoming appointments, services, and ongoing projects. 3. User selects available date and time 4. Date and time is saved and sent to appropriate parties |
| Alternative Path  (Service Provider) | 1. User navigates to the “Calendar” 2. Users can see upcoming appointments, services, and ongoing projects. 3. User selects “add”, “modify”, or “delete” 4. If “add” or modify”,User is prompted for new appointment details 5. User is prompted to enter year, month day and time 6. User is asked if they want to “add” or “modify” another appointment 7. If yes, repeat steps 3-5 8. If “delete”, User selects the desired appointment(s) 9. Appointments are updated and saved 10. If no, user is redirected to Homepage |
| Postconditions: | An appointment is scheduled, modified or deleted and the proper individuals are notified. |
| Nonfunctional | 1. User is shown an status update message for any changes to the appointment. 2. The calender displays the upcoming 30 days. 3. The calender has a tab on the side that lists all upcoming appointments. 4. The user will be prompted by a message if they entered an invalid date. |

| Use Case ID | 4 |
| --- | --- |
| Use Case Name: | Document Storage |
| Actors: | All Users |
| Description: | This feature allows users to share files and search up stored files using an optical text search algorithm. |
| Preconditions: | The user has successfully logged into the website and navigated to their user profile.The user navigates to files. |
| Standard Path  (Search Document) | 1. User searches for a doc with optical text search algorithm 2. User enters search text 3. Documents matching text search are grabbed for user |
| Alternative Path  (Upload Document) | 1. User selects “Upload” 2. User chooses a file to upload 3. User chooses who to share document with    1. Document will be uploaded to these users document storage also 4. User checks box for if the upload document needs to be signed 5. User document is uploaded |
| Alternative Path  (Sign Document) | 1. User sees documents that need to be signed appear at the top of list of files 2. User selects a file to sign 3. User digitally signs a file |
| Postconditions: | A document is uploaded and signed or retrieved from the database and shown to the user. |
| Nonfunctional | 1. The user is shown an status update message for uploaded or signed documents 2. The user can see which files are shared 3. The user can see which files are signed 4. The signature is shown with time and date stamps. 5. The user will be notified via email about changes in the document. |

| Use Case ID: | 5 |
| --- | --- |
| Use Case Name: | Dashboard |
| Actors: | All Users |
| Description: | This feature allows the user to view their nearest upcoming appointments, services and rating |
| Preconditions: | The user has navigated to the website and successfully logged into the system and directed to the homepage. |
| Standard Path | 1. The user can view their dashboard on the homepage 2. The dashboard shows user rating 3. The dashboard shows current property value estimation 4. The dashboard shows nearest upcoming appointments and services    1. Date and time of appointment    2. Status, cost, and details of service |
| Postconditions: | The user can see their upcoming appointments, rating and current property value for property managers. |
| Nonfunctional | 1. The dashboard is neat and organized and displays important information clearly and precisely. 2. Every user can see their dashboard on the homepage 3. Dashboard will be updated daily 4. The rating will be shown as a number #/5 |

**Manager Property Features:**

| Use Case ID: | 6 |
| --- | --- |
| Use Case Name | Property Evaluation |
| Actors: | User is Property Managers |
| Description: | This feature will allow users to get an estimated property value by prompting the user to answer questions regarding the condition, size, bath, and bedroom count of their home. |
| Preconditions: | The user has navigated to the website and successfully logged into the system and selected the Property Evaluation feature from the homepage. |
| Standard Path | 1. The user is asked a series of questions about the size and condition of their property 2. Users enter property dimensions. 3. Users enter the number of bedrooms. 4. Users enter descriptors for each room, i.e. Fireplace, Sauna Room, Skylight, etc. 5. Users enter the number of bathrooms. 6. Users enter descriptors for the property, i.e. Swimming Pool, Tomato Garden, etc. 7. Estimated property value is generated |
| Postconditions: | The estimated property value is displayed to the user along with the details of what the value was based on. |
| Nonfunctional | 1. Questions can be answered in the form of numbers or as a drop down menu with specific conditions. 2. The generated value will be shown in an output box clearly. 3. The questions are easy to read and understand if not then an explanation will be provided when appropriate. |

| Use Case ID: | 7 |
| --- | --- |
| Use Case Name: | Maintenance and Renovation |
| Actors: | User is Property Managers |
| Description: | This feature should gather maintenance, renovation, and remodeling project details from users and generate an estimated price  Users can get the property value change for the requested services and projects. |
| Preconditions: | The user has successfully logged into the website and selected the Maintenance and Renovation feature from the homepage. |
| Standard Path | 1. User chooses between Service or Project 2. The user enters their desired service/project in search bar 3. User enters budget amount 4. User receives, a list of qualifying service providers 5. User sees price chart    1. Average cost overtime of desired service    2. User can manually enter a price using “Add Price” 6. User can sort list from highest to lowest cost or vice versa 7. User can adjust the price chart time range 8. User chooses a provider 9. Estimated cost of service/project is generated 10. User can select property evaluation, or skip. |
| Postconditions: | The user has received an estimated cost, price chart, and property value for their project or service. |
| Nonfunctional | 1. Price charts data is discarded after a year. 2. Price chart data is gathered every week. |

| Use Case ID: | 8 |
| --- | --- |
| Use Case Name: | Service Management |
| Description: | This feature will allow the user to manage all their services with service providers such as requesting, canceling, or changing the frequency of service. In addition to rating services, and seeing all of their services. |
| Preconditions: | The user has successfully logged in to the website, was directed to the homepage, and selected the Service Management feature from the homepage. |
| Standard Path  (Service Request) | 1. User selects Add Service 2. The user enters their desired service in search bar 3. User sees a list of qualifying services 4. User request service from provider 5. User enters desired service details    1. Service days, frequency and scope of work 6. User request is saved and sent |
| Alternative Path  (Frequency Change/ Cancellation) | 1. User selects Service Frequency Change 2. User sees list of their services 3. User selects desired service to change 4. User inputs new service days and time 5. If canceling request user enters, 0 services days 6. User is asked to confirm change 7. User request is automatically fulfilled or sent to provider 8. User is asked if they want to change another service 9. If yes, repeat steps 1-6 10. If no, user returns to homepage |
| Alternative Path  (Ratings) | 1. User selects Rate Service 2. User sees list of their services 3. User selects desired service to rate 4. User is shown a likert scale 5. User inputs rating 6. Rating is saved |
| Postconditions: | The service request or change is sent to the service provider and the service rating is uploaded. |
| Nonfunctional | 1. The user is shown a status update message for the service request, change or rating. 2. The search bar is not slow and should complete the search in under 5 seconds. 3. User will be presented with a likert scale in order to rate a service. |

| Use Case ID: | 9 |
| --- | --- |
| Use Case Name: | Neighborhood Crime Alerts |
| Actors: | User is Property Managers |
| Description: | This feature will allow users to report and view crimes committed such as graffiti or breaking and entering in their neighborhood. Users will also be able to receive emailed notifications of these reported crimes. |
| Preconditions: | The user has successfully logged into the website, was directed to the homepage, and selected the Neighborhood Crime Alerts feature. |
| Standard Path | 1. User sees a map and their crime alerts 2. User selects to add crime 3. User is prompted to enter crime alert details 4. User inputs location 5. User inputs crime type 6. User inputs crime summary 7. User inputs date and time of the crime 8. Crime location is marked on map with details 9. Crime alert is saved 10. Local individuals are alerted |
| Alternative Path  (Edit or Delete Alert) | 1. User sees a map and their crime alerts 2. User selects desired crime alert to modify or delete from list of their alerts 3. User choose to “edit” or “delete” 4. If edit, user is prompted to enter new crime alert details 5. User saves 6. If delete, confirms deletion |
| Postconditions: | The crime was reported and other users were notified. A crime alerts change or deletion is updated |
| Nonfunctional: | 1. The system must make a popup bubble when a user hovers their mouse above a dot on the map and the bubble when the cursor is removed 2. User can remove notification setting 3. User is shown status update message for their reported crime |

| Use Case ID: | 10 |
| --- | --- |
| Use Case Name: | DIY Manager |
| Actors: | User is Property Managers |
| Description: | This feature will allow users to upload Do It Yourself tutorials on maintenance and renovation projects for other users to see. Users will be able to save these tutorials and add the project to their calendars. |
| Preconditions: | The user has successfully logged into the website and selected the DIY feature from the homepage. |
| Standard Path | 1. User sees list of DIY tutorials, 2. User selects add DIY tutorial 3. User enters tutorial summary and title    1. What are you building or fixing? 4. User enters list of necessary materials and tools 5. User enter material cost 6. User enters time spent on project 7. User enters steps 8. User tutorial is saved |
| Alternative Path  (Save DIY tutorial) | 1. User sees list of DIY tutorials and saved tutorials 2. User selects desired DIY tutorial 3. User selects “save” 4. User can use calendar to schedule time for DIY tutorial |
| Postconditions: | The DIY tutorial is uploaded. DIY tutorials are saved and highlighted at the top of the list. |
| Nonfunctional: | 1. The user is shown a status update message for their DIY tutorial post 2. The DIY tutorial search should be under 5 seeconds. 3. The amount of storage to be allocated to store DIY’s will be 5000 mb’s. |

**Service Provider Features:**

| Use Case ID: | 11 |
| --- | --- |
| Use Case Name: | Request Management |
| Actors: | User is Service Providers |
| Description: | This feature service provider uses to manage their requests from property manager users. |
| Preconditions: | The user has successfully logged into the website and selected the Request Management feature. |
| Standard Path | 1. User sees their requests 2. User selects an add request 3. User sees request details 4. User confirms or declines request, all parties are notified 5. User schedules an appointment |
| Alternative Path  (Frequency change/cancellations) | 1. User sees their request 2. User selects an service change request 3. User views request 4. User confirms request or schedule an appointment    1. All parties are notified 5. Service status change is updated |
| Alternative Path  (Service Rating) | 1. After completing or canceling a service 2. User is prompted to enter a rating 3. Rating is saved |
| Postconditions: | A service is updated and a rating is uploaded. |
| Nonfunctional: | 1. The user is shown a status update message for their updates. 2. The user is able to see request details clearly. 3. All parties are notified when a request is accepted and when an appointment date is scheduled . 4. The user is prompted to enter a rating after completing or cancelling a service. |

## **Failures**

In case of any failure the system should check that the postconditions for the feature were fulfilled and ensure no failures have occurred.

Account Recovery: If a user or client is not able to successfully log in to their account because they forgot their password or username they will be able to select that option on the login page. After selecting the forgotten password/username the user and client can input their email and will be able to enter a new password. Once they have updated their password they would be directed to the homepage to try logging in.

Logging and Log Archiving: When a user or client fails to log in the time date and reason for that failure will be logged into the archive. At the end of each year, the system will offload the log data to make room for the new year's logging

Login & Dashboard: After a user logged into the website and the homepage does not show the features then the user would receive an “Unable to load” error message and be asked to refresh the page.

Document Storage: If a user uploads a document or signs a document and this document is not saved into the database then an error has occurred and the user will receive an “unsuccessful upload” error message informing them that the document storage or signing failed.

Calendar: If the user uses the calendar feature and their upcoming appointments do not show up or an appointment is not scheduled and saved then an “unsuccessful upload” error has occurred. The system should inform the users and ask them to refresh the page.

Property evaluation: If the system does not generate any property value, or a new property generation was not logged for that user, then the system should send an “Unable to load” error message to the user, informing them that an error has occurred.

Maintenance and Renovation: If the user does not receive an property estimated project, price chart, and property value then an “Unable to load” error has occurred. The system should send the user an error message and ask the user to refresh the page.

Service Management:If the user is not shown a status update message for the service request, change, contract signing, or rating then an “unsuccessful upload” error has occurred. The system should send the user an error message and inform the user that it will try again.

Neighborhood Crime Alerts: If the user's crime is not reported to all neighbors and the other users were not notified, then an “unsuccessful upload” error has occurred. The system should try notifying the users one more time and then kill the process and prompt the user to restart.

DIY Manager: The DIY tutorial is not uploaded, then an “unsuccessful upload” error has occurred. The system should try uploading the instructions one more time and inform the user.

Request Management: If a service is not updated and a file or rating is not uploaded, then an “unsuccessful upload” error has occurred. The system should try the process again and inform the user.

## **Criteria for Success**

A successful program will meet the postconditions of each feature and the following criteria:

Account Creation: New users and clients can sign up for PMtoGo by selecting our sign-up option on the login page. The user will then be prompted for their full name, email, date of birth, property address and username and password. Users will be able to input multiple properties after their initial sign-up. Clients will be prompted to enter their organization or company name, the main office of operations address, and phone number.

Authentication & Authorization: A user is able to successfully log in within three attempts by providing their username, and password. Once logged in to the website they would have had access to their associated features.

Logging:

The system must:

* save error messages to the log.
* notify the system admin after a specific number of errors.
* must save all successful log-ins to the log.
* must save all unsuccessful login attempts to the log.
* must notify the system admin after a specific number of unsuccessful login attempts.
* log all user activity within the application.
* delete old logs after one year.

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