## **Business Requirements**

## **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 in 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 (objectives, context, and vision)**

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.

## **Issues/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.

## **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, throughput customer, reach 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. A client and user must have a valid email address (capable to email this address)
2. A client and user must have a valid password (follow password requirements)
3. A client must have a valid address for their main office of operation
4. A client and user must have a valid…

## **Functional Requirements**

**Functional requirements** define what a product must do, and what its features and functions are.

**Features for all Users:**

1. ***User Management***
   1. ***Summary:*** Users will have account and profile management features to manage their accounts with features that include: Account Creation, Deletion and Recovery.
   2. ***Precondition:*** User has navigated to the PMtoGo website and selected to sign up or login.
   3. ***Scenario***
      1. The system must allow:
         1. Account Creation/Deletion
            1. new users can create an account by entering email, full name, date of birth, address, username, and password.
            2. The system must allow current users to be able to delete their entire account by going into settings and selecting “Delete Account”.
         2. Forgot/Reset Password(recovery)
            1. users can click a “Forgot/Reset Password” button to allow the user to enter their email which will then send them an email with a link to create a new password.
            2. The system must be able to remove the old password linked to the account and replace it with the new password entered.
   4. ***Postcondition:*** User is granted access to software and jumped to the homepage
   5. ***Nonfunctional:*** If a user enters incorrect/invalid credentials, users can re-enter their data when prompted.
   6. Failure: User enters incorrect/invalid credentials…
2. ***User Profile***
   1. **Summary:** Users will be able to see their account history of past services and projects and their ratings.
   2. **Precondition:** User has logged into the website and taken to the homepage.
   3. **Scenario**
      1. The system must allow
         1. Users to login by entering their login credentials
         2. User to see the homepage
         3. User to select their profile
         4. The system must be able to store a user's history of past services, and projects in a database.
         5. The system must be able to get a list of services done and the service provider that provided that service for a user from the database for only property manager users.
         6. The system must be able to get a list of property managers and the service they provided from the database for only service providers users.
         7. The system must be able to create a list of all past reviews made by a user from the database and allow only that user to see the list.
   4. **Postcondition:** User is able to see their ratings of services or service rating and past projects and services they provided or were given.
   5. **Nonfunctional:** The homepage is loaded after a user logs in and can see the labeled features they have access to.
   6. Failure: Homepage is not loaded or features are not displayed.,
3. ***Calendar***
   1. **Summary:** This feature allows users to schedule appointments and projects.
   2. **Precondition:** The user has successfully logged into the website and directed to the homepage.
   3. **Scenario**
      1. The system must show users a calendar that has all of only their appointments, services, and ongoing projects.
      2. The system must allow only property manager users to schedule appointments on only valid available dates with service providers, contractors, or appraisers.
      3. The system must have an appointment manager for only service provider users that will allow service providers to add, delete, or modify appointments. Those changes must be updated in the database.
   4. **Postcondition:** A appointment is scheduled and the proper individuals are notified.
   5. **Nonfunctional:** The user is shown a status update message for the appointment/s that were scheduled
4. ***Document Storage***
   1. **Summary:** This feature allows users to share files and search up stored files using an optical text search algorithm
   2. **Precondition:** The user has successfully logged into the website and selected the Upload button from the homepage.
   3. **Scenario**
      1. The system must allow users to upload documents to be saved in the database and only be accessible by the user who uploaded the file and those the file was shared with.
      2. The system must be able to search documents using the optical text search algorithm and return any document matching the searched terms.
      3. The system must allow the document owner to be able to share the document with others.
   4. **Postcondition:** A document is uploaded and stored or retrieved from the database and shown to the user
   5. **Nonfunctional:** The user is shown a status update message for the uploaded files.
5. ***Dashboard***
   1. **Summary**
   2. **Precondition:** The user has navigated to the website and successfully logged into the system and directed to the homepage.
   3. **Scenario**
      1. The system must show a dashboard that has either no appointments or upcoming appointments while sorting appointments by date.
      2. The system must be able to automatically find the average rating of all reviews of service provider users and display it on the dashboard.
      3. The system must for property manager users create an automated property value estimation and show updates from service providers on the dashboard.
   4. **Postcondition**
   5. **Nonfunctional**

**Property Manager Features:**

1. ***Property Evaluation***
   1. **Summary:** This feature will allow for 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.
   2. **Precondition:** The user has navigated to the website and sucessfuly logged into the system and selected the Property Evaluation feature from the homepage.
   3. **Scenario:**
      1. The system must:
         1. Allow users to select property evaluation from available features.
         2. Allow users to enter property dimensions.
         3. Allow users to enter the number of bedrooms.
         4. Allow users to enter descriptors for each room, i.e. Fireplace, Sauna Room, Skylight, etc.
         5. Allow users to enter the number of bathrooms.
         6. Allow users to enter descriptors for the property, i.e. Swimming Pool, Tomato Garden, etc.
         7. Be able to generate a current estimate for the property.
         8. Allow users to input modifications to their property.
         9. Be able to generate an estimated property value, based on the modifications entered.
         10. Calculate an accurate property value estimation using design, condition, size, and room count of the property.
   4. **Postcondition:**The property value is displayed to the user along with the details of what the value was based on.
   5. **Nonfunctional:**
   6. **Failure: property evaluation is not generated…**
2. ***Maintenance and Renovation***
   1. **Summary:** This feature should gather maintenance, renovation and remodeling project details from users and generate an estimated price and property value change for the requested services and projects.
   2. **Precondition:** The user has successfully logged into the website and selected the Maintenance and Renovation feature from the homepage.
   3. **Details:**
      1. Maintenance and Renovation:
         1. Project Details
            1. The system must ask the user questions about their desired project such as maintenance, renovation, or remodeling.
            2. The system must be able to allow the user to pick from a list of services selected according to the user's project detail answers.
         2. Compare
            1. The system must be able to compare different costs of maintenance and renovation services and show the user a list from lowest to highest cost.
            2. The system must allow the user to enter their budget to automatically show services that would fit under the budget.
         3. Estimate
            1. The system must be able to estimate the cost of maintenance and renovation projects.
            2. The system must show how the property value increases or decreases from the inquired services.
         4. Smart Saver
            1. The system must have the automatic price history chart show up-to-date prices that are no older than 24 hours.
            2. The system must be able to gather accurate prices from websites and stored them in the database
            3. The system must allow the user to enter their own data selecting a service and clicking an “Add Data” button which will allow the users to enter the price.
            4. The system must be able to create a chart with either automatically obtained data or with manually entered data.
            5. The system must be able to save the name, price, and date in the database for each inquiry.
            6. The system must be able to get the name, price, and date from the database and create an accurate chart and the correct price and date is displayed on the chart.
            7. The system must be able to change chart data to show the correct amount of timespan history equaling the timespan chosen by the user either being 1 month, 3 months, or 1 year
   4. **Postcondition:** The user has received an estimated price, price chart and property value for their project.
   5. **Nonfunctional:**
3. ***Service Management***
   1. **Summary:** This feature will allow user to manage their all their services with service providers such a requesting, cancelling or changing the frequency of a service. In addition to signing service agreement contracts, rating a service and seeing all of their services.
   2. **Precondition:** The user has successfully logged in to the website, was directed to the homepage and selected the Service Mangement feature from the homepage.
   3. **Details:**
      1. Service Search
         1. The system must allow everyone including non-users to search for service providers and it must show a list of those providers matching the search.
      2. Request Service
         1. The system must allow users to send a request for service to registered service providers and the request will be saved along with the date and time in a database.
         2. The system must show the service providers all service requests that were sent to them by the users that requested them.
      3. Show Services
         1. The system must be able to show the user all the services they signed-up for along with its status, details, and cost.
      4. Service Tools
         1. The system must allow users to request a change in service frequency between weekly, bi-weekly, monthly, quarterly, or annually and cancellations that can be automatically done or require the service provider to review based on their cancellation policy.
      5. Service Rating
         1. The system must allow users to submit a rating using a Likert scale and an optional review to each service provider they had used.
      6. Sign Contract
         1. The system must be able to allow service providers users only to upload contracts to be saved in the database and shared with other users of their choice.
         2. The system must allow users requesting service to be able to digitally sign the contracts sent by service provider users and the signed contract must be saved in the database and automatically sent to both users.
   4. **Postcondition:** The service request or change is sent to the service provider. The contract is digitally signed and the service rating is uploaded.
   5. **Nonfunctional:** The user is shown a status update message for the service request, change, contract signing or rating.
4. ***Neighborhood Crime Alerts***
   1. **Summary:** This feature will allow users to report and view crimes committed such as graffiti or breaking and entering in their neigborhood. Users will also be able to receive emailed notifications of these reported crimes.
   2. **Precondition:** The user has successfully logged into the website, was directed to the homeepage and selected the Neighborhood Crime Alerts feature.
   3. **Scenario:**
      1. The system must allow
         1. The system must allow the users to create posts about recent crimes by submitting the location, crime type, crime summary, date, and time.
         2. The system must save the location, crime type, crime summary, date, and time in the database along with their relation.
         3. The system must automatically create a dot marker based on the location of the crime on the Crime Map for each crime and insert the information of the event.
         4. The system must make a popup bubble when a user hover their mouse above a dot on the marker and remove the bubble when the cursor is removed.
         5. The system must allow only the user who created a crime marker to be able to edit or delete it.
         6. The system must allow users to sign-up for email notifications and to set a radius in miles around their house so if a crime happens within that radius the notification is sent.
         7. The system must allow users to remove the notification feature.
   4. **Postcondition:** The crime is reported and other users where notified.
   5. **Nonfunctional:** The user is shown a status update message for their reported crime
5. ***DIY Manager***
   1. **Summary:** This feature will allow user 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 calendar.
   2. **Precondition:** The user has successfully logged into the website and selected the DIY feature from the homepage.
   3. **Scenario**
      1. The system must be able to allow users to post DIY tutorials by allowing them to enter a title, steps, and summary. Along with each step the user must be required to enter how long the step should take, what tools or materials are needed, and how much for all the tools and materials.
      2. The system must be able to save title, steps, and summary in the database with its relation.
      3. The system must be able to post the saved tutorial into a public list of tutorials with the ability for other users to add it to their project list. It must also allow multiple projects to be added.
      4. The system must allow the users to mark their free time on a calendar and then automatically schedule tasks into the free time given.
      5. The system must be able to make a combined list of the total supplies and prices needed from all projects in the project list.
      6. The system must be able to have a button that allows the user to print the supplies list or share it through email.
   4. **Postcondition:** The DIY tutorial is uploaded.
   5. **Nonfunctional:** The user is shown a status update message for their DIY tutorial post.

**Service Provider Features:**

1. ***Request Management***
   1. **Summary:** This feature service provider user to manage their request from property manager users.
   2. **Precondition:** The user has successfully logged into the website and selected the Request Mangement feature from the homepage.
   3. **Scenario**
      1. View Request
         1. The system must allow users to see any request made by clients such as adding, canceling, or changing the frequency of service.
      2. Update Service
         1. The system must allow users to update changes to services such as the frequency change and the cancel service status such as, pending, ongoing, or finished.
      3. Service Rating
         1. The system must allow users to see services that have already been completed or canceled so that they can leave a rating.
         2. The system must save the rating along with the service provider into a database.
         3. The system must be able to get all ratings related to a service provider to make it public view for other users.
      4. Upload Contracts
         1. The system must be able to upload files to the system’s database and save those who will be able to access each file.
         2. The system must be able to allow only users who have access to the files to view the files.
   4. **Postcondition:** A service is update and a file or rating is uploaded.
   5. **Nonfunctional:** The user is shown a status update message for their updates or uploaded files.

## **Non- Functional Requirements**

**Nonfunctional requirements** describe the general properties of a system. They are also known as *quality attributes*.

* Property Evaluation:
* Maintenance and Renovation:
* Service Management
* Smart Saver
  + When the user clicks to change a timespan the chart should update in under 2 seconds.
  + When a user tries to enter anything other than 0-9 or a decimal point while entering a price it should give an error stating “Non-valid Price”
* Neighbor Crime Alert
* DIY Manager
* Request management
* User Management
* User Profile
* Calendar
* Document Storage
* Dashboard
* The homepage will include tabs to jump to different sections of the webpage.

## **Failures(how the system acts/behave in case of failure)**

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 forgot password/username the user and client can input their email and will be sent a message containing a link to change their 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

## **Target State(Criteria for Success) / Success Factors**

A successful program will meet 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 the name, email, date of birth, and property address. 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,

Authentication & Authorization: A user is able to successfully log in within three attempts by providing their username, 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.

**Out of Scope**

# **References:**

<https://www.youtube.com/watch?v=QYkkDIXE8Ys>

<https://www.youtube.com/watch?v=llXFQjas73U>

<https://www.youtube.com/watch?v=jX6s9A6SCG8>