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Sixfold Development - Business Requirements Document

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Version History

Version	Date	Author(s)	Changes/Comments
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1. Introduction

1.1 Project Goal

Our goal at Sixfold Development is to create a single-page web application by the beginning of June 2020, that allows users to better manage a cohabitational lifestyle. Our application will provide users the ability to search for available households and better manage their expenses, tasks, and supplies. This will be Sixfold Development's debut project as a technological company.

1.2 Project Need

Sixfold development has identified that managing a household's needs is difficult when coordinating multiple people. The difficulty often lies with ineffective communication amongst household parties and lack of access to essential documents and information. These difficulties ultimately lead to a monetary loss, often for all parties, which our project aims to resolve.

1.3 Project Scope

Our project will offer adults in California access to a single-page web application that will provide features to recruit tenants, manage expenses, manage tasks, and request supplies and goods. Sixfold Development will develop the website, software, and databases required to provide these features.

2. Business Requirements

The list of requirements for our project include:
- Core Requirements - The necessary features for enforcing security and management of our system.
- User Requirements - The features users expect to have access to when using our application.
- Tenant Requirements - The features that tenants of a household expect to have access to when using our application

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2.1 Core Requirements

Server Management

- Request Management
    - Only a limited number of requests shall be processed concurrently. All other requests shall be placed into a queue.
    - If a user's request is placed into the queue, the user shall be notified that the server is busy and their request needs extra time.
    - If the server cannot fulfill a request within 30 seconds, the user will be notified that the request timed out.

Error Handling

- Errors and exceptions shall be handled by notifying the user and providing appropriate error codes and information.
- Errors and exceptions shall cancel any transaction they occur in and notify the user of the cancellation.
- Critical errors and exceptions shall alert the system administrator.

Transaction Logging

- All database transactions shall be logged containing the following:
    - The timestamp of the transaction
    - The user that made the transaction
    - The action used to make the transaction
- Logs shall be consolidated at the end of each month.
- Consolidated Logs shall be archived and deleted from the system after each year.

User Authentication

- Login:
    - **Users** must authenticate themselves using our login system by providing their display name or email address.
        - Display name must be a string of 1-30 alphanumeric ASCII characters.
        - Email address must be a string containing a valid email address.
        - Both shall be validated as case insensitive strings.
    - Their password shall, with accordance to NIST 800-63B password guidelines:
        - Be a minimum of 8 ASCII characters
        - Be a maximum of 64 ASCII characters
        - Be salted and hashed prior to verification
        - Not have any password hints
    - A maximum of 10 invalid login attempts shall be allowed before locking the account.
        - A locked account shall be unable to login for 15 minutes.
        - **Users** attempting to log into a locked account shall receive a prompt notifying them of their account status.
    - A unique session ID shall be assigned to the **user**.
- Logout:
    - **Users** logged into the system with a valid session shall be able to manually log out of the system.
    - **Users** logged into the system must be automatically logged out after 1 hour of no interaction with the system.
    - The **user's** session ID shall be discarded.
- Password Change:
    - A **user** shall be allowed to manually change their password during a valid login session:
    - A **user** must provide:
        - Their current password
        - Their new password twice for confirmation
    - Upon password change, the account will gain a new **salt** which will be appended. Afterwards, the password will be **hashed** and stored.
    - If a **user** fails to provide their current password, a prompt shall notify that the **user** has provided an incorrect password.
    - If a **user** fails to provide two different new passwords, a prompt shall notify that the user has provided mismatching passwords.
    - If a **user** provides their current password twice in lieu of providing new passwords, a prompt shall notify that the **user** cannot change their password to one they already have.
- Password Reset
    - A **user** shall be able to reset their password by providing both:

- ■ Their display name
- ■ Their email address
  - ○ Afterwards, the **user** shall be able to change their password by providing their new password twice.
  - ○ If the **user** fails to provide either their display name or email address, a prompt shall notify that the **user** lacks the credentials to verify their identity.
- ● Session Management
  - ○ **Users** must be assigned with a unique session ID upon successful login.
  - ○ The session ID must be validated for every interaction the **user** has with the system after logging in.
  - ○ **User** session ID must be discarded upon manual or automatic logout.
- ● Authorizations:
  - ○ **Users** that are not logged in shall have access to:
    - ■ Login
    - ■ Password Reset
  - ○ **Users** that are logged in shall have access to:
    - ■ Logout
    - ■ Password Change
    - ■ Password Reset
  - ○ Only the system administrator shall have access to session management.

Documentation

- ● User Manual
  - ○ Shall provide new and current users information on their authorizations and how to use all their features.
  - ○ Shall be accessible to non-registered users and users.
- ● FAQ
  - ○ Shall provide questions and answers to the systems most common questions.
  - ○ Shall be accessible to non-registered users and users.

System Analytics

- ● Website Usage Statistics
  - ○ The website shall keep track of the following statistics:
    - ■ The number of non-registered users that visit the site per month.
    - ■ The number of successful login attempts per month.
    - ■ The type and number of transactions made per month.

Data Access Layer

- Shall allow records and logs used by our system to be created, read, updated, and deleted.
- Shall be accessible through the provided features.
- Shall be accessed through transactions that either complete or don't do anything.

2.2 User Requirements

User Account Features

- Account Creation
  - A **non-registered user** shall be able to create a user account by providing
    - A display name
      - Must be unique in the system
      - Shall be at least 1 and a maximum of 30 alphanumeric ASCII characters
    - A first name and last name
      - Shall each be a combination of at 1-30 ASCII characters that are either alphabetic or an apostrophe or period.
    - A gender that is either male, female, or other
    - A date of birth in the format of MM/DD/YYYY
      - **Users** must be 18 years of age.
      - Date of birth shall be used to calculate age and shall not be stored in our system.
    - A valid password twice for confirmation.
  - If any of the above fields are invalid upon a request to create an account, the **current user** shall be notified that their input is invalid and be allowed another attempt.
  - If all fields are valid, a profile must be created for the account.
    - If profile creation fails, then the account creation must be cancelled and the **user** shall be notified and be allowed another attempt.
- Account Editing
  - A **user** shall be able to edit the following details regarding their account:
    - Their display name
      - Must be unique in the system.
      - Shall be at least 1-30 alphanumeric ASCII characters
    - Their first name and last name

- ● Shall each be a combination of at 1-30 ASCII characters that are either alphabetic or an apostrophe or period.
  - ■ Their age shall be an integer between 18 and 130 years old.
  - ○ If a **user** fails to provide valid input for any of the above details, the changes must not be made to their account and the **user** shall be notified.
  - ○ If any of the above details fail to be edited, the **current user** must be notified that there was an error and all changes must be undone.
  - ○ A **user** must provide user authentication in order to successfully edit their account.
    - ■ If a **user** fails to provide user authentication, the changes must not be made to their account and the **user** shall be notified.
    - ■ If successful, the user profile must be edited to reflect the changes as well.
      - ● If not, the **user** must be notified that an error occurred and the changes must not be made.
- ● Account Deletion:
  - ○ A **user** shall be able to delete their account and all information associated with it.
    - ■ If a **user** is currently a tenant, they must either **disband** or **leave** the **household** before deleting their account.
  - ○ A **user** must provide user authentication in order to successfully delete their account.
    - ■ If a **user** fails to provide user authentication, the account must not be deleted and the **user** shall be notified.
- ● Authorizations:
  - ○ **Non registered users** shall have access to Account Creation
  - ○ Registered **users** shall have access to Account Editing and Account Deletion.

User Profile
- ● Profile Creation
  - ○ A user profile must be automatically created after account creation.
  - ○ The profile must have the following details provided by the **user** upon account creation:
    - ■ Their display name
    - ■ Their first name and last name
    - ■ Their age calculated from provided date of birth
    - ■ Their gender
  - ○ The profile shall also have a profile description.
    - ■ Shall have a 500 ASCII character limit.
    - ■ Shall be empty by default.
- ● Profile Viewing
  - ○ Shall display the following details about the profile to a **user**:

- - - ■ Display Name
      - ■ First Name and Last Name
      - ■ Age
      - ■ Gender
      - ■ Profile Description
    - ○ If any of the details fail to be retrieved, the entire process shall be aborted and the **user** notified that the profile cannot be viewed.
- ● Profile Editing
  - ○ Shall allow a **user** to edit their profile description.
    - ■ If any non ASCII characters are used, the **user** shall be notified and the edit shall not be performed.
    - ■ Shall not allow the **user** to input more than 500 characters.
  - ○ All other details about a user profile must be edited by editing their account.
  - ○ If any of the above details fail to be edited, the **current user** must be notified that there was an error and all changes must be undone.
- ● Authorizations:
  - ○ A **user** must be able to view and edit their own profile
  - ○ Other **users** shall be able to view another user's profile

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Messaging

- ● User Messages
  - ○ Messages creation
    - ■ To create and send a message, a **user** must select the messaging option through a household search and provide **message content**:
      - ● The input shall have a 2000 ASCII character limit.
      - ● Shall be empty by default.
    - ■ If a **user** provides an input with more than 2000, no message will be created or sent and the **user** shall be notified.
    - ■ If the input is valid, a message shall be created and sent to the provided **user** with the following details:
      - ● The sender's display name
      - ● The receiver's display name
      - ● The current date, time and timezone.
      - ● The **message content**.
- ● System Messages
  - ○ Message creation
    - ■ A **system message** can only be created by system.
- ● Message Inbox
  - ○ A message must be automatically stored in the receiver's message inbox
    - ■ **Message sender**
    - ■ **Message receiver**

- - - **Message content**
      - **Messaging time** - automatically record the time when creating the message based on sender's time zone.
    - For each **user**, the maximum storage for message inbox is 2000.
      - If the quantity of messages is more than 2000, the messages with earliest messaging time will be deleted.
      - If a message is not **Marked** for more than 180 days, it shall be deleted from the receiver's message inbox.
      - A **user** shall only be able to **mark** 200 messages**.**
- Message View
  - Shall display a list of messages
    - The list will be sorted by the Messaging time.
    - **User** shall be able to click a message in the list to view message detail:
      - Messaging sender
      - Messaging content
      - Messaging time
      - Option to delete this message
      - Option to mark this message
      - Option to reply this message
- Message Deletion
  - Shall display a warning with confirm and cancel
    - If the **user** click confirm, this message shall be deleted from the message inbox, and the **use**r shall return to the message list.
    - If the **user** clicks cancel, no messages shall be deleted, the **user** shall return to the message list.
- Message Mark
  - Shall change the status for the message to **Marked.**
  - Marked message shall not be automatically deleted.
  - A **user** shall be able to **Unmark** a marked message.
  - **Unmarked** message shall be automatically deleted.
- Message Reply
  - A **user** shall be able to reply to a message which is not a system message.
  - Shall display a message creation prompt.
  - A message must be automatically stored in the receiver's message inbox after finishing replying.
- Authorizations
  - **Users** shall have access to their message inbox.
  - **Users** shall only create and send a message to a **host** through a household searching.
  - **Users** shall be able to view, delete and **mark** a message.
  - **Users** shall be able to reply to a received message.
  - **Users** shall not be able to reply to a **system message**.

Invitation

- Invitation Creation
    - To create and send an **invitation**, a **host** or **co-host** must provide the receiver's **display name.**
        - The input shall be at least 1-30 alphanumeric ASCII characters.
        - The input display name must exist in the system and not belong to a **user** that is a **tenant** of a **household.**
    - If a **user** fails to provide valid input for any of the above details, no **invitations** shall be created or sent and the user shall be notified.
    - If the input is valid, an **invitation** shall be created and sent to the provided **user** with the following details:
        - The sender's display name
        - The receiver's display name
        - The current date, time and timezone.
        - An option to accept the invitation
        - An option to decline the invitation
- Invitation Inbox
    - An **invitation** must be automatically stored in the receiver's invitation inbox.
        - **Invitation sender**
        - **Invitation receiver**
        - **Inviting household** - sender's current **household**
        - **Inviting time** - automatically record the time when creating the invitation based on sender's time zone.
    - For each **user**, the maximum storage for invitation inbox is 20.
        - If the quantity of invitations is more than 20, the **invitation** with the earliest inviting time will be deleted.
        - If an **invitation** is not **accepted** or **declined** for more than 180 days, it shall be deleted from the receiver's invitation inbox.
- Invitation View
    - Shall display a list of **invitations**
        - The list will be sorted by date and time.
        - **User** shall be able to click an **invitation** in the list to view invitation details:
            - Invitation sender
            - Inviting household profile
            - Inviting time
        - An **invitation** shall be deleted from the receiver's invitation inbox after the receiver accepted or declined the **invitation**.
        - If a **user** accepted an **invitation**, this **user** shall automatically join the inviting **household** as a **tenant**.
        - If a **user** declined an **invitation**, this **user** shall return to the invitation list.
    - Authorizations:

- **Users** shall have access to their invitation inbox.
- **Users** shall be able to view, accept or decline **invitations**.
- Only a **host** or **co-host** can create an **invitation**.

Household Creation

- **Users** shall be able to create a **household** by providing:
  - A household name
    - Must be unique in the system.
    - Shall have a character range of 1-50 alphanumeric ASCII characters.
  - A valid physical address
    - A street address with a character range of 1-50 ASCII characters.
    - A city name with a character range of 1-50 ASCII characters.
    - A numeric ZIP code.
    - The entered address must exist in CA.
    - Optional: Apartment number and suite number.
  - The monthly rent
    - Shall be a nonnegative number with 2 decimal places.
- If any of the above details are invalid, the **current user** must be notified and the **household** must not be created.
- A household profile must be created as a **household** is created. Otherwise the household creation must be cancelled.
- If household creation is successful, the **current user** must be automatically included in the **household** as a **host**.
- Authorizations:
  - A **non-tenant user** shall be able to use the household creation feature.

Household Search

- Search via Household Name
  - A **user** shall provide an existing **household name**.
    - If the **household** with the provided **household name** is **available**, the search shall:
      - Allow the **user** to view the associated household profile.
      - Offer an option to message the **host** of the **household**.
  - The **user** shall be notified that no **households** were found if:
    - The **household** with the provided household name is **unavailable**.
    - The **user** provides a non-existent **household name**.
  - The **user** shall be notified if they provided an invalid **household name**. The search shall also be cancelled.
- Search via Zip Code

- ○ A **user** must provide a valid zip code
    - ■ The search shall return a list of household names belonging to **households** with a matching zip code.
        - ● The list shall only contain household names of **available households**.
        - ● The list shall be ordered alphabetically by household name.
        - ● The list shall be paginated with 20 entries per page.
    - ■ If a household name is selected, the search shall:
        - ● Allow the **user** to view the household profile of the **household** with the selected household name.
        - ● Offer an option to message the **host** of the **household**.
- ○ The **user** shall be notified that no **households** were found if no **available households** have a matching zip code.
- ○ The **user** shall be notified that they provided an invalid zip code if their input is invalid. The search shall be cancelled.
- ● Authorizations:
    - ○ All **users** shall have access to both search functionalities.

2.3 Tenant Requirements

Household Profile

- Household Profile Creation:
    - A **household profile** must be automatically created upon **household** creation.
    - A **household profile** must have the following details provided upon household creation:
        - A household name
        - A physical address
        - A monthly rent
        - A **host** display name
    - A **household profile** must additionally have the following details:
        - An availability setting that is either **available** or **unavailable**.
        - A household description
            - Shall have a 1000 ASCII character limit.
            - Shall be empty by default.
- Household Profile Viewing:
    - Shall display the following details to a non-tenant user:
        - The household name
        - The zip code:
        - The **host** display name
        - The household description.
    - Shall display the following details to a tenant:
        - The household name
        - The physical address
        - The host display name
        - The availability
        - The household description
    - The correct details must be shown depending on the **user's** authorizations.
    - If any of the details fail to be retrieved, the entire process shall be aborted and the **current user** shall be notified that the household profile cannot be viewed.
- Household Profile Editing:
    - Shall allow a **current** to edit the following details of their **current**:
        - The household name
            - Must be unique in the system.
            - Shall have a character range of 1-50 alphanumeric ASCII characters.
        - The physical address
            - A street address with a character range of 1-50 ASCII characters.
            - A city name with a character range of 1-50 ASCII characters.

- A numeric ZIP code.
- The entered address must exist in CA.
  - ■ The availability as either **available** or **unavailable**.
  - ■ The household description
    - Shall have a 1000 ASCII character limit.
    - Shall be empty by default.
  - ■ The monthly rent:
    - Shall be provided in USD
    - No negative values are allowed.
- The **host's** display name must automatically be changed whenever the **host** changes their display name by editing their account.
- If the **host** fails to provide valid input for any of the above details, the changes must not be made to the household profile and the **host** must be notified.
- If any of the above details fail to be edited, the **current user** must be notified that there was an error and all changes must be undone.
- Authorizations:
  - All **users** shall be able to view a household profile through a household search.
  - **Tenants** shall be able to view their household profile.
  - **Hosts** shall be able to edit their household profiles.

Tenant Management

- Household Invite
  - Shall send an **invitation** to a **non-tenant user** to b by providing their display name
  - If the provided display name is invalid, cannot be found, or belongs to a **tenant** of a **household**, the **current user** must be notified and the invite must be cancelled.
  - Shall send an **invitation** to the selected **user** with the following details:
  - If an **invitation** cannot be sent to the selected **user**, the **current user** must be notified and the invite must be cancelled.
- Tenant List
  - Shall provide the display names of all **tenants** in the **household** in the form of a list.
    - ■ Display order must be **host**, **co-hosts**, and the remaining **tenants**.
    - ■ Display order must be alphabetical order by display name within each role.
  - Upon selecting a display name, the **current user** shall view their user profile.
  - If the display names are unable to be retrieved, the **current user** shall be notified and the process shall be cancelled.
- Promote Tenant
  - Shall **promote** a selected **tenant** to either a **co-host** or **host**.
  - Shall **promote** a selected **co-host** to a **host**.

- - - Upon **promoting** a selected **co-host** or **tenant** to a **host**, the current **host** shall be demoted to a **tenant**.
    - Shall require user authentication to confirm the **promotion**.
      - If user authentication fails, the **current user** shall be notified and the **promotion** shall be cancelled.
    - In both cases the **promoted user** shall be notified of their **promotion**.
    - If failure occurs while promoting a **tenant**, the **current user** must be notified and the **promotion** shall be cancelled.
  - Demote Tenant
    - Shall **demote** a selected a selected **co-host** to a **tenant**.
    - Shall require user authentication to confirm the **demotion**.
      - If user authentication fails, the **current user** shall be notified and the **demotion** shall be cancelled.
    - The **demoted user** shall be notified of their **demotion**.
    - If failure occurs while **demoting** a **tenant**, the **current user** must be notified and the **demotion** shall be cancelled.
  - Remove Tenant
    - Shall **remove** a selected **tenant** from the **household**.
      - Shall not be able to **remove** the **host** from the **household**.
    - **Removal** shall not alter past and current **household records**.
    - Shall require user authentication to confirm the removal.
      - If user authentication fails, the **current user** shall be notified and the promotion shall be cancelled.
    - If failure occurs while removing a **tenant**, the **current user** must be notified and the removal shall be cancelled.
  - Leave Household
    - Shall **remove** the **current user** from the **household**.
      - Upon leaving, the **user** shall lose access to all **household** related features.
    - **Leaving** shall not alter past and current **household records**.
    - Shall require user authentication to confirm **leaving** the **household**.
      - If user authentication fails, the **current user** shall be notified and the promotion shall be cancelled.
    - If failure occurs while a **tenant** is attempting to **leave** a household, the **current user** must be notified and the **user** shall remain a part of the household.
  - Disband Household
    - Shall **remove** all **tenants** of the **household** and delete the **household**.
      - All **tenants** shall be notified that their **household** is being disbanded.
    - Shall require user authentication to confirm **disbandment** of the **household**
      - If user authentication fails, the **current user** shall be notified and the **disbandment** shall be cancelled.
    - If failure occurs while **disbanding** the **household**, the **current user** must be notified and the **household** shall remain.
- Authorizations:

- ○ All **tenants** shall have access to the tenant list.
- ○ **Co-hosts** and **tenants** shall have access to the leave household feature.
- ○ **Co-hosts** and the **host** shall have access to the household invite feature.
- ○ Only the **host** shall have access to the following features:
  - ■ Promote Tenant
  - ■ Demote Tenant
  - ■ Remove Tenant
  - ■ Disband household
- ○ The **host** shall not have access to the leave household feature.

Expense Management

- ● Expense Creation:
  - ○ Shall create an **expense** by providing the following details
    - ■ An expense name
      - ● Shall have a range of 1-50 alphanumeric ASCII characters
      - ● Shall be unique amongst expenses.
    - ■ An expense type
      - ● Shall have a range of 1-50 alphanumeric ASCII characters
      - ● Shall be able to choose from predefined and user-defined types
    - ■ Payment Date
      - ● Dates must be formatted as MM/DD/YYYY
      - ● Must be after the creation date.
    - ■ A Total Payment Amount
      - ● Must be provided in USD
      - ● Total amount to pay is $0.00 by default.
      - ● If the **expense** is a **rent** type, the total amount to pay is equal to the **household's monthly rent**.
    - ■ Expense Splits
      - ● **Tenants** shall be added by the **current user** to an **expense** and assigned a **split percentage**.
        - ○ The maximum number of **tenants** per **expense** is the number of **tenants** in the **household**.
        - ○ The sum of all split percentages of every **tenant** added shall not be outside the range of 0% and 100%.
      - ● The **split percentage** shall take a percentage of the total amount to pay and assign it to the **tenant** as a **split payment**.
        - ○ **Split payment** must be in the form of USD.
        - ○ Must be updated every time the split percentage is edited.
  - ○ Shall include the following **expense** details upon creation:
    - ■ The display name of the **host** or **co-host** that created the **expense**.
    - ■ The date the **expense** was created.

- ■ The **split payment** shall be calculated from the **split percentage** and the total payment amount.
  - ○ If a **rent expense** already exists and the **current user** attempts to make another **rent expense**, they must be notified that there cannot be more than 1 **rent expense** per household and the creation shall be cancelled.
  - ○ If any of the above fields are invalid, the **current user** must be notified and expense creation shall be cancelled.
- ● Expense Viewing
  - ○ Shall display the following details about a selected **expense**:
    - ■ Expense Name
    - ■ Expense Type
    - ■ Creation Date
    - ■ Payment Date
    - ■ Total Payment Amount
    - ■ For each tenant:
      - ● Display Name
      - ● Split Percentage
      - ● Split Payment
  - ○ If any of the above details cannot be retrieved, the entire process shall be aborted and the user notified that the selected **expense** cannot be viewed.
- ● Expense Editing
  - ○ Shall allow any of the following details of a selected **expense** to be edited:
    - ■ Expense Name
    - ■ Expense Type
    - ■ Payment Date
    - ■ Total Payment Amount
      - ● Shall not be editable for a **rent expense.** Must be edited through household profile editing.
    - ■ The **tenants** added to the expense:
      - ● Their **Split Percentage**
        - ○ Adding or removing a **tenant** from an **expense** shall not change the **split percentages** of other **tenants**.
        - ○ Editing the **split percentage** will automatically update the tenant's **split payment**.
  - ○ If any of the above details are invalid, the changes must not be made to the **expense** and the **current user** shall be notified.
    - ■ The **current user** shall be allowed to correct their mistakes and make another attempt.
  - ○ If any of the above details fail to be edited, the **current user** must be notified that there was an error and all changes must be undone.
- ● Expense Deletion
  - ○ Shall allow a selected **expense** to be deleted from the system

- - - If the selected **expense** is a **rent expense**, the **current user** must be notified that the **rent expense** cannot be deleted. The deletion must be cancelled.
    - Shall require the **current user** to provide authentication before the deletion can occur.
      - If authentication fails, the **user** shall be notified and the deletion shall be cancelled.
- Authorizations:
  - **Hosts** and **co-hosts** shall have access to the following features:
    - Expense Creation
    - Expense Edit
    - Expense Deletion
  - All **tenants** of a **household** shall be able to view their **expenses**.

Task Management

- Task Creation
  - Shall create a **task** by providing the following details:
    - A unique task name
      - Shall have a range of 1-50 alphanumeric ASCII characters
      - Shall be unique amongst both tasks and repeating tasks.
    - A starting date and due date
      - Dates must be formatted as MM/DD/YYYY.
      - Dates must be the current date or a future date.
      - Dates are set to the current date by default.
    - **Instructions**
      - Shall Include a text field with a limit of 1000 ASCII characters
      - Shall allow alphanumeric and special characters.
    - A **Responsible Tenant List**
      - Shall select tenants that are part of the **household**
      - Shall have at least 1 **tenant**.
      - Shall have a maximum number of **tenants** equal to the number of **tenants** in the **household**.
  - The task shall have a completion status that is either **complete** or **incomplete**. By default it shall be **incomplete**.
  - The **task** shall have the display name of the **user** that creates the **task**.
  - If any of the above details are invalid, the **user** shall be notified and the **task** shall not be created.
- Repeating Task Creation
  - Shall create a **repeating task** by providing the following details:
    - A unique task name
      - Shall have a range of 1-50 alphanumeric ASCII characters

- Shall be unique amongst both tasks and repeating tasks.
    - A starting date
        - Dates must be formatted as MM/DD/YYYY
        - Dates must be the current date or a future date.
        - Date is set to the current date by default.
    - **Cycle Period**
        - Shall be between 1 and 90 days.
    - **Instructions**
        - Shall Include a text field with a limit of 1000 ASCII characters
        - Shall allow alphanumeric and special characters.
    - A **Responsible Tenant List**
        - Shall select **tenants** that are part of the **household** by their display name.
        - Shall have at least 1 **tenant**.
        - Shall have a maximum number of **tenants** equal to the number of **tenants** in the **household**.
    - The **repeating task** shall create a due date based on the starting date and **cycle period**.
    - The **repeating task** shall select a **responsible tenant** randomly from the responsible tenant list.
    - The **repeating task** shall have the display name of the **user** that creates the **repeating task**.
    - If any of the above details are invalid, the **current user** must be notified and the **repeating task** must not be created.
- Repeating Task Update
    - **Repeating tasks** must automatically update the following details after the due date passes:
        - The starting date shall become the day after the due date.
        - The due date shall be determined from the new starting date and **cycle period**.
        - The **responsible tenant** shall be randomly selected from the **responsible tenant list**.
            - If the **task** was **incomplete**, the **responsible tenant shall not change**.
            - If the **task** was complete, a new **responsible tenant** shall be selected.
        - The completion status shall be changed to **incomplete**, if the **task** was previously **completed**.
    - If any of the fields fail to update, the creator of the **repeating task** shall be notified and the **repeating task** shall delete itself.
- Task Viewing
    - Shall display the following details of a selected task to any **tenant** of the **household**:

- Task name
- Starting date
- Due Date
- Completion Status
- **Instructions**
- **Responsible Tenant List**
  - Shall display the tenant's display name(s).
- Shall additionally display the following details if a **repeating task** is selected:
  - **Cycle Period**
  - **Responsible Tenant** Display Name
- If any of the details fail to be retrieved, the entire process shall be aborted and the **user** notified that the selected task or repeating task cannot be viewed.
- Task Editing
  - Shall allow any of the following **task's** details to be edited to a new valid value:
    - The task name
    - Due Date
    - Instructions
    - Responsible Tenant List
  - If the selected task is a **repeating task,** the following details shall be editable, provided the new values are valid:
    - **Cycle Period**
      - The **repeating task** will update with this new value after the next due date.
  - The display names listed in the **responsible tenant list** must automatically be updated when the **user** edits their display name through account editing.
  - If any of the above details are invalid, the changes must not be made to the task or **repeating task** and the **current user** shall be notified.
    - The **current user** shall be allowed to correct their mistakes and make another attempt.
  - If any of the above details fail to be edited, the **current user** must be notified that there was an error and all changes must be undone.
- Task Deletion:
  - Shall allow a selected **task** to be manually deleted from the system.
  - Shall require the **current user** to provide authentication before the deletion can occur.
    - If authentication fails, the **user** shall be notified and the deletion shall be cancelled.
  - **Tasks** shall be automatically deleted if:
    - The **task's** due date has passed for 180 days.
  - If the **task** is unable to be deleted from the system, the **current user** shall be notified and the deletion shall be cancelled.
- Task Reminders

- ○ Shall automatically message the **responsible tenant(s)** at most 1 day before the due date if their **task** or **repeating task** is not complete.
  - ■ Message shall be sent to **tenant's** message inbox.
    - ● If the message inbox is full, the **user** must be notified to empty their mailbox.
  - ■ Message shall consist of the **task's** or **repeating task's**:
    - ● Task Name
    - ● Start Date
    - ● Due Date
    - ● Instructions
- ○ The system shall attempt to message the **responsible tenant(s)** once.
- ○ The system shall only send 1 message per task.
- ○ The system shall only send a message for a **repeating task** once for every time the due date passes.
- ● Task Completion
  - ○ A **responsible tenant(s)** shall be able to set their **incomplete** task as **complete** before the due date passes.
  - ○ If an error occurs, the changes shall not be made and the **current user** shall be notified.
- ● Authorizations:
  - ○ **Tenants** of the **household** shall have access to the task viewing feature.
  - ○ The **responsible tenant** shall have access to the task completion feature.
  - ○ **Hosts** and **co-hosts** shall have access to the following features:
    - ■ Task Creation
    - ■ Task Editing
    - ■ Task Deletion
  - ○ No **users** shall have access to the following system features:
    - ■ Task Reminders
    - ■ Repeating Task Update

Supply Request Management

- ● Supply Request Creation
  - ○ Shall create a **supply request** in the system by providing the following details:
    - ■ A supply name that shall have a range of 1-50 alphanumeric ASCII characters.
    - ■ A description:
      - ● Shall Include a text field with a limit of 1000 ASCII characters
      - ● Shall allow alphanumeric and special characters.
  - ○ Shall automatically obtain a creation date from the system.
  - ○ Shall automatically obtain the creator's display name.

- ○ If any of the above details are invalid, the **current user** must be notified and the **supply request** must not be created.
- ● Supply Request Viewing
  - ○ Shall display the following details of a selected **supply request**:
    - ■ Supply name
    - ■ Creation Date
    - ■ Creator Display Name
    - ■ Description
  - ○ If any of the above details is unable to be retrieved, the process shall be aborted and the **current user** shall be notified.
- ● Supply Request Editing
  - ○ Shall provide the option to edit any of the following details of a selected **supply request** by providing new valid values:
    - ■ A supply name that shall have a range of 1-50 alphanumeric ASCII characters.
    - ■ Description
      - ● Shall include a text field with a limit of 1000 ASCII characters
      - ● Shall allow alphanumeric and special characters
  - ○ If any of the provided values are invalid, no changes shall be made to the **supply request** and the **current user** shall be notified.
    - ■ The **current user** shall be allowed to correct their mistakes and make another attempt.
  - ○ If any of the above details fail to be edited, the **current user** must be notified that there was an error and all changes must be undone.
- ● Supply Request Deletion
  - ○ Shall provide the option to delete a selected **supply request** from the system.
  - ○ Shall require the **current user** to provide user authentication before a deletion can occur.
    - ■ If authentication fails, the **user** shall be notified and the deletion shall be cancelled.
  - ○ If the **supply request** is unable to be deleted, the **current user** shall be notified and the deletion shall be cancelled.
- ● Authorizations:
  - ○ **Tenants** of the household shall have access to the following features:
    - ■ Supply Request Creation
    - ■ Supply Request Viewing
  - ○ **Hosts**, **co-hosts**, and the creator of a supply request shall have access to:
    - ■ Supply Request Editing
    - ■ Supply Request Deletion

3. Timeline/Requirements

Sprint NO.	Requirements	Priority	Effort	Start Date	End Date
	Project Plan Timeline				
1	Exception Handling	**High**	**Medium**	12/10/19	12/16/19
	Error Logging	**High**	**Medium**		
2	Data Storage for User Account	**High**	**Medium**	12/17/19	1/6/20
	User Account	**High**	**Low**		
	User Authentication	**High**	**High**		
	Data Validation	**Meidum**	**Medium**		
	Data Storage for User Profile	**High**	**Medium**		
	User Profile	**Medium**	**Low**		
	User Access Control	**High**	**Medium**		
3	Data Storage for Messaging	**High**	**Medium**	1/7/20	1/16/20
	Messaging	**Medium**	**Low**		
4	Data Storage for Household Profile	**High**	**Medium**	1/17/20	1/30/20
	Household Creation	**High**	**Medium**		
	Household Profile	**Medium**	**Medium**		
	Household Search	**Medium**	**Medium**		
5	Data Storage for Invitation	**High**	**Medium**	1/31/20	2/13/20
	Invitations	**Medium**	**Low**		
6	Data Storage for Tenants?	**High**	**Medium**	2/14/20	2/27/20
	Tenants Management	**High**	**High**		
7	Data Storage for Expense	**High**	**Medium**	2/28/20	3/13/20
	Expense Management	**Medium**	**Low**		
8	Data Storage for Task	**High**	**Medium**	3/14/20	3/28/20
	Task Management	**Medium**	**Low**		
9	Data Storage for Supply Requests	**High**	**Medium**	3/29/20	4/12/20
	Supply Request Management	**Medium**	**Low**		

4. Glossary

- Available - If a household shows up when performing a household search
- Current User: The person that is using the system/feature at the moment a request is made
- Co-Host - A tenant given special permissions by the host of their household that has almost complete control of the household
- Completed tasks - Tasks that have been marked as completed before the due date
- Cycle Period - Frequency of a repeating task
- Demote - When a host or co-host's role drops to whatever is selected
- Disband - When a household is deleted from the system, removing all tenants from the household
- Expenses - Bill that is assigned a name and type of bill that needs to be paid off
- Hash - The process of putting something through a hashing function for the purpose of password security
- Host - A tenant who has complete control of their respective household
- Household - A group consisting of a host and many tenants that represents a place of living, each with its own expenses
- Household Creation - The making of a household, complete with name and location
- Household Name - Name of respective household
- Household Profile - A collection of information about a household.
- Household Records - Details for expenses, tasks and supply requests
- Household Search - Ability for user to find a household
- Incomplete tasks - Tasks that have not been marked as complete before the due date passes
- Instructions - Specific instructions written about a task that provide additional details
- Invite - The act of a host sending an invitation to a user
- Invitation - A special form of communication where a user is given the option to join a host's household or not
- Leave - When a tenant removes themselves from a household
- Non-registered User - a person who has not made a registered account or has not logged in that is using our system
- Promote - When a host gives host role or co-host role to a tenant
- Removal - When a host removes a tenant from the household
- Rent Expenses - The total cost of rent for the household
- Repeating Task - A task which will be assigned continuously during the cycle period
- Responsible Tenant - A tenant who is responsible for a specific task
- Responsible Tenant List - List of tenants responsible for completing specific tasks
- Salt - A cryptographic technique that improves password security
- Supply Request - A request for any given object or good that a user can make to the household.
- Task - A job created by host or co-host that is assigned to a user in household
- Task Creation - Ability of host or co-host to create and assign tasks
- Tenant - A user who is within a household, can only be in one household at a time
- Tenant List - A list of all tenants that are within the household
- Unavailable - A household that is not displayed when performing a household search
- User - Any person that has created an account within our system
- User Profile- A collection of details about their respective user

5. References

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