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PLANTSCAPE

Full-stack MERN Application

OVERVIEW OF PLANTSCAPE

- The intended purpose of *Plantscape* is to create an organised collection of landscaped areas or plants so a user may access information, care instructions and schedules in one central location. It is intended as both a means to concentrate relevant information as well as to log and schedule care events such as watering, feeding and fertilising. Regardless of whether the user is an individual garden owner or a landscape professional, its intent is to promote a meaningful connection to a user's landscape, empowering them to become actively involved with the success of the flora that surrounds them.

WHY PLANTSCAPE

- Allows a user to plan out and effectively care for the plants in their garden
- Facilitates a seamless handover between landscaper/client
- Includes vital plant care information in a single location
- Responds to changes as a user adds and removes plants
- Relevant to both urban and rural gardens or homes
- The user is in control of how the application is structured - a “space” is simply a segment of a house/garden, and an “area” is a planting location within it
- Automated reminders can help with less regular tasks like fertilisation and pruning

TARGET AUDIENCE

Plantscape is primarily targeted towards individuals wishing to establish and maintain a new garden, or to catalogue and maintain an already established garden. These individuals live in rural, semi-rural or even metropolitan areas and the responsibility for garden maintenance could be shared between multiple individuals.

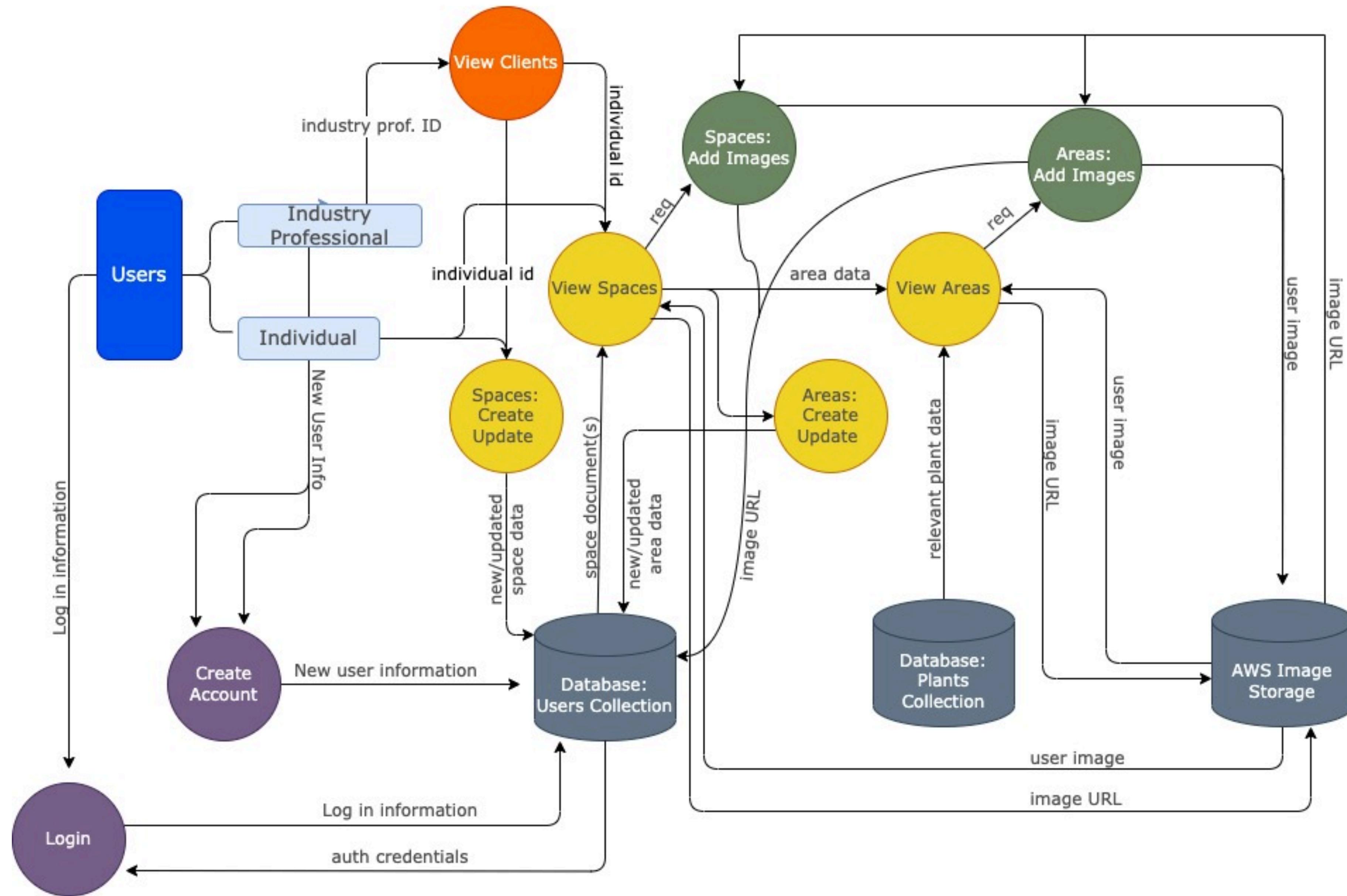
- An aspiring gardener/s wanting to establish a new garden
- An existing gardener/s wanting to document and catalogue the plants in their current garden
- A home or apartment owner/s in a metropolitan setting wanting to keep a record of the plants in their home and details of their upkeep

TARGET AUDIENCE (CONTINUED)

- Additionally, we are also targeting our application towards the owners of small landscaping businesses. They can use the application's functionality to create a new client and input garden information as part of their service package.
- The common attribute of individual 1, 2 and 3, as well as the small business owner, is that they all want an efficient, user-friendly and helpful application to document not only their plants, but also details on the plants' upkeep and maintenance.
- Note: While our application is geared towards the hobbyist or casual gardener, the scope of the application can still meet the needs of even the more seasoned gardener. The data model we have chosen is flexible and individual enough to allow users to input as many planting areas in as many planting spaces as needed.

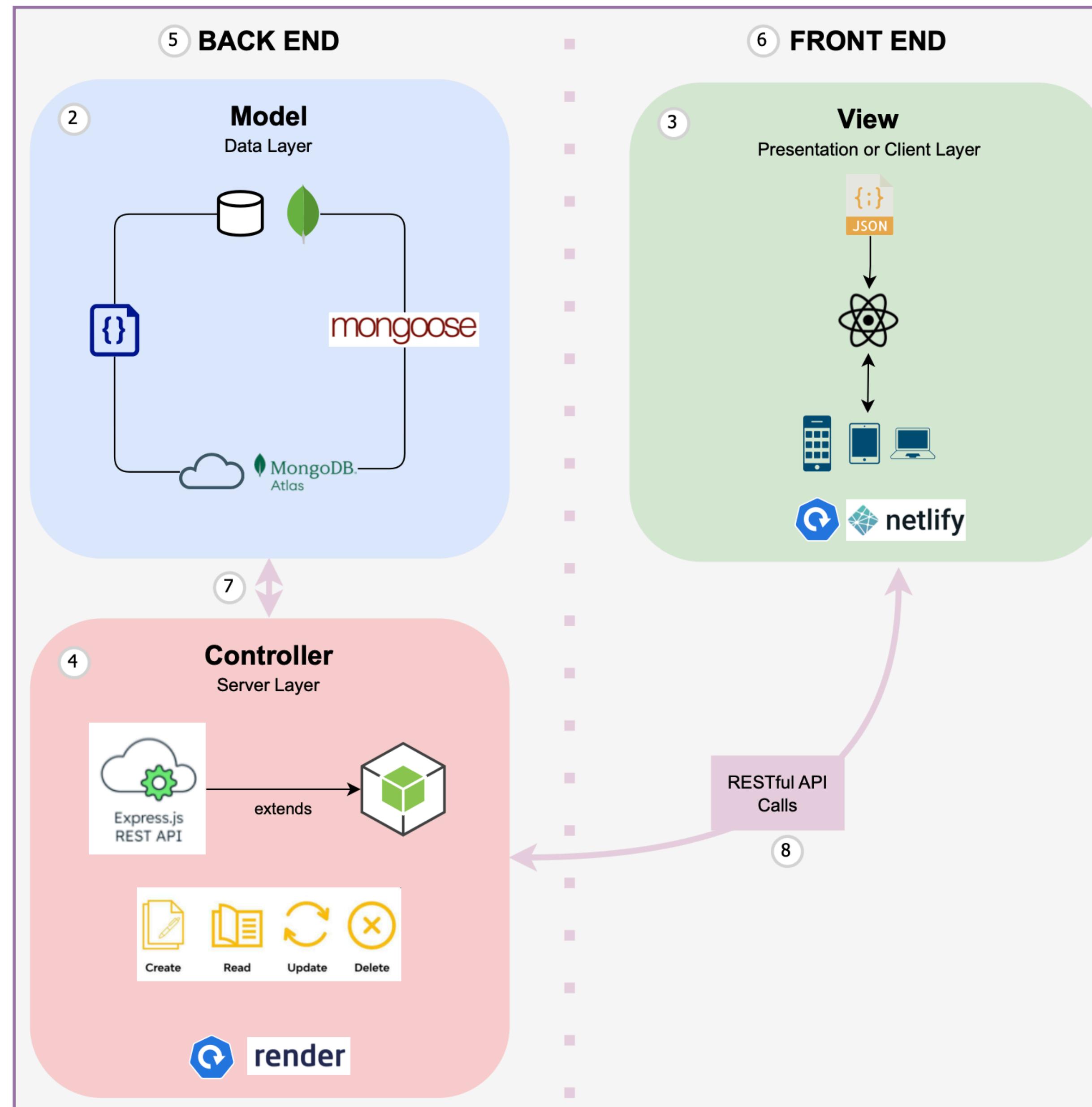
DATA FLOW

Data Flow Diagram Overview



APP ARCHITECTURE

Application Architecture Diagram



- 9
-
- Users
- Model-View-Controller (MVC) architectural pattern
- The Model component manages the application's data and business logic.
- The Controller component is responsible for handling user input and updating the other components.
- The View component is responsible for displaying data to the end user. It handles layout and display.
- Cloud data storage
- Database
- Deployment
- MongoDB document
- React
- MongoDB
- Node
- Collect Data
- Display Results

1. MVC Architecture

Our application follows the Model-View-Controller (MVC) architectural design for software. This is used in software development contexts to implement user interfaces, data and controlling logic. It emphasises a clear separation of concerns, especially between software's business logic and display. This is evident above in the division between the front and back end. The MVC pattern allows for robust software with improved maintenance capabilities.

2. Model

The Model component is broadly responsible for managing the application's data and business logic. It consists of various interconnected applications and technologies, including the document-database, MongoDB, as well as the schema generation tool, Mongoose, which also provides data validation potential. This database structure is based on documents which are stored in the MongoDB Atlas service.

3. View

The View component is broadly responsible for displaying data to the end user by handling layout and display. The View is updated by the Controller intermediary. It never engages directly with the Model component. It is handed JSON data by the Controller which is then used by the browser and React to construct dynamic web pages.

4. Controller

The Controller component is broadly responsible for handling user input in the form of API calls and updating the other components accordingly.

5. Back End

The back end consists of the database layer and the server layer, both of which are not directly accessed by the end user.

6. Front End

The front end mainly consists of React and the browser which work together to translate JSON data into user-friendly interfaces and webpages.

7. Back End Relations

The browser sends requests to the Controller and then the Controller interacts with the Model to send and receive data.

8. Back End / Front End Relations

The Controller then interacts with the View to render the JSON data using stylised React components. This information is then returned back to the Controller to ultimately instruct the browser at point 9 how to display the web page.

9. The End User

The User interacts with the application through the browser such as Chrome, Safari or Firefox by making a RESTful API call. These requests are sent to the Controller which retrieves the information from the Model. This is then sent to the View, rendered and sent back to the Controller to ultimately be returned to the browser.

MOBILE WIREFRAMES

Home Page - Mobile

The mobile home page for Planticity features three main sections:

- Spaces:** A list of outdoor areas including Front Yard, Side Yard, Back Yard, and Kitchen, with an "Add space" button.
- Areas:** A list of specific plant growing locations including Verge, Windowsill, Herbs, and Veranda, with a "...all areas" button.
- Plants:** A list of plant species including Wattle, Lilli Pilli, Acacia, and Bottle Brush, with a "...all plants" button.

Each section includes a representative image: a staircase with lush greenery, a garden area with a table and chairs, and a close-up of a plant with small, round leaves.

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View Space - Mobile



Planticity

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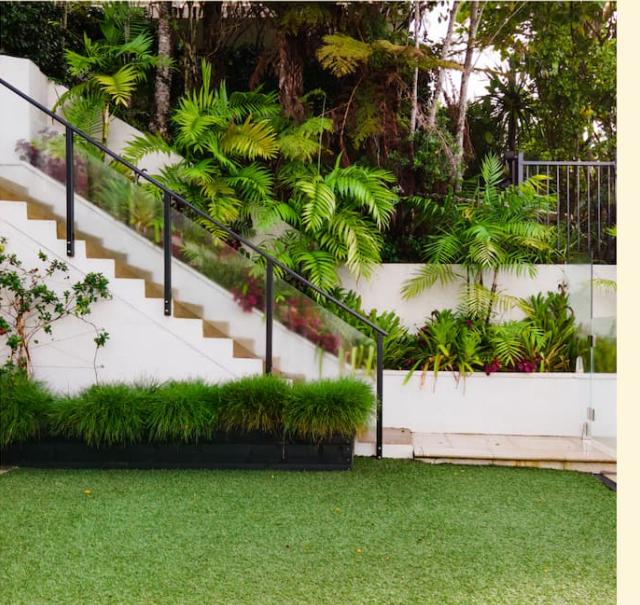
Front Yard

edit space

Areas

- Verge
- Windowsill
- Herbs
- Veranda

[Add Area](#) [Edit Area](#)





Plants

- Wattle
- Lilli Pilli
- Acacia
- Bottle Brush

[Add plants](#)

Lilli Pilli

Scientific name: *Syzygium*
Care: Deep soil, water twice weekly

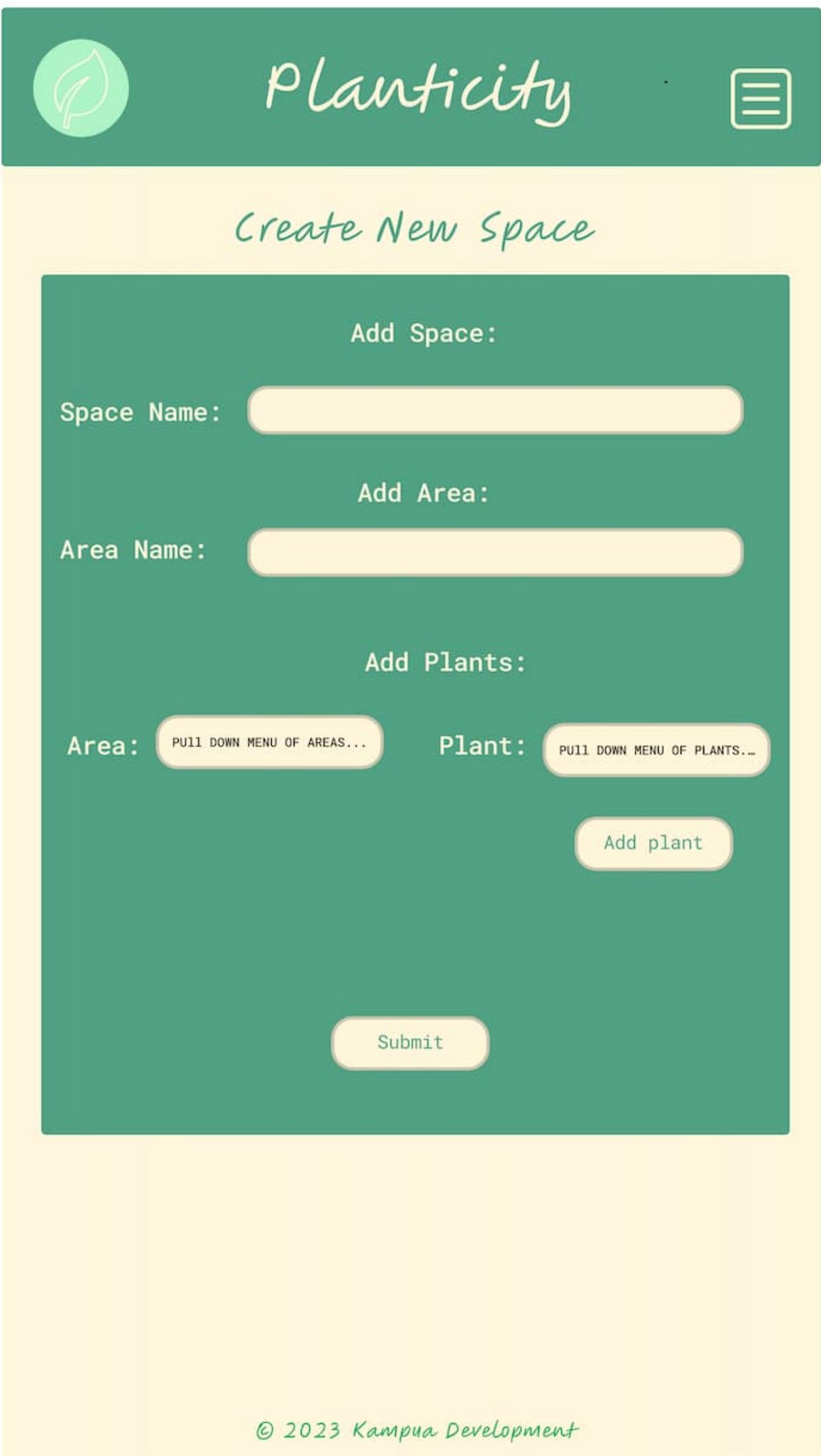
Description:
The lilly pilli comes mainly from what were three different genus: *Syzygium* sp., *Acmena* sp. and *Waterousia* sp. As sometimes happens in the worlds of botany and horticulture, plants are reclassified, so many now belong the group *Syzygium*. Plant growers often still apply the more traditional names, such as *Acmena*, to avoid confusion.
Most of the lilly pilli varieties you'll find for sale are cultivars, bred for specific characteristics such as density, fast growth, foliage colour and the like. With so many varieties to choose from, there is a lilly pilli for virtually any situation, either in the ground or in a pot.

My Notes:
Planted in January 2022 in Northwest Bed. Fed and fertilized June 2022, next feed November 2022

[Add Notes](#)

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Add Space - Mobile



Add Area - Mobile

The image shows a mobile application interface for 'Planticity'. At the top, there is a green header bar with a circular logo containing a leaf icon on the left, the word 'Planticity' in white cursive text in the center, and a menu icon (three horizontal lines) on the right. Below the header, the background is light yellow. In the center, there is a dark green rectangular form. At the top of this form, the text 'Create New Area' is written in a cursive font. Inside the form, the title 'Space Name' is displayed. Below it, the instruction 'Add Area:' is followed by a text input field with a light orange rounded rectangle. Underneath, the instruction 'Area Name:' is followed by another text input field with a light orange rounded rectangle. Further down, the instruction 'Add Plants:' is shown. To its left, the word 'Plant:' is followed by a text input field with a light orange rounded rectangle. Next to this field is a small button labeled 'SEARCH/PULL DOWN MENU OF PLANTS...'. To the right of the plant input field is another small button labeled 'Add plant'. Below these controls, the text 'list of added plants:' is displayed in a cursive font. At the bottom of the dark green form, there is a 'Submit' button with a light orange rounded rectangle. At the very bottom of the screen, there is a light yellow footer bar with a green rounded rectangle containing the text 'Back to Space'.

Planticity

Create New Area

Space Name

Add Area:

Area Name:

Add Plants:

Plant:

SEARCH/PULL DOWN MENU OF PLANTS...

Add plant

list of added plants:

Submit

Back to Space

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View All Plants - Mobile

The image shows two screenshots of the Planticity mobile application.

Screenshot 1: Ben's Plants

This screen shows a list of plants under the heading "Ben's Plants". The list includes:

- Plants
- Wattle
- Lilli Pilli
- Acacia
- Bottle Brush

A button labeled "Add plants" is at the bottom right. The background features a photograph of a branch with pinkish-red berries and yellow flowers.

Screenshot 2: Lilli Pilli

This screen provides detailed information about the Lilli Pilli plant:

- Scientific name:** Syzygium
- Care:** Deep soil, water twice weekly
- Description:** The lilly pillies come mainly from what were three different genera: Syzygium sp., Acmena sp., and Waterhousia sp. As sometimes happens in the worlds of botany and horticulture, plants are reclassified, so many now belong to the genus Syzygium. Plant growers often still apply the more traditional names, such as Acmena, to avoid confusion. Most of the lilly pillies you'll find for sale are cultivars, bred for specific characteristics such as density, fast growth, foliage colour and the like. With so many varieties to choose from, there is a lilly pilly for virtually any situation, either in the ground or in a pot.
- My Notes:** Planted in January 2022 in Northwest Bed. Fed and fertilized June 2022, next feed November 2022.

At the bottom of the screen is the copyright notice: © 2023 Kampua Development.

TABLET WIREFRAMES

The screenshot shows the Plantscape mobile application interface. At the top, there is a green header bar with a circular logo containing a stylized leaf icon on the left, the word "Plantscape" in white cursive text in the center, and two navigation items "My Garden" and "My Plants" on the right.

The main content area is divided into three sections:

- Spaces:** A sidebar on the left lists "Front Yard", "Side Yard", "Back Yard", and "Kitchen". Below this is a yellow "Add space" button. To the right is a photograph of a garden with a white fence, a set of stairs, and various green plants.
- Areas:** A sidebar on the left lists "Verge", "Windowsill", "Herbs", and "Veranda". Below this is a yellow "...all areas" button. To the right is a photograph of a garden area with a table, chairs, and potted plants under a large tree.
- Plants:** A sidebar on the left lists "Wattle", "Lilli Pilli", "Acacia", and "Bottle Brush". Below this is a yellow "...all plants" button. To the right is a close-up photograph of a plant with many small, round, green leaves.

At the bottom of the screen, there is a footer bar with the text "© 2023 Kampua Development".



Plantscape

[My Garden](#) [My Plants](#)

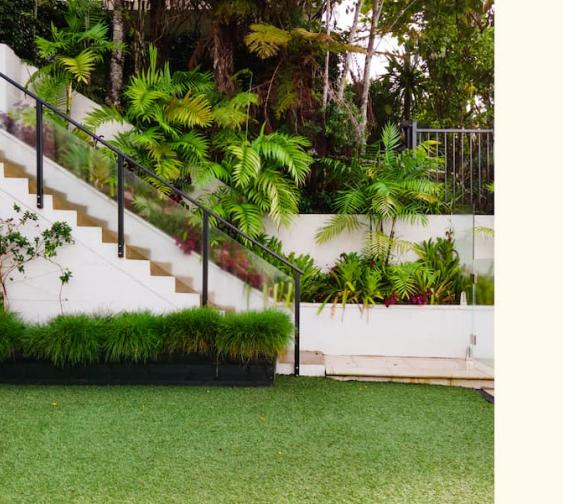
Front Yard

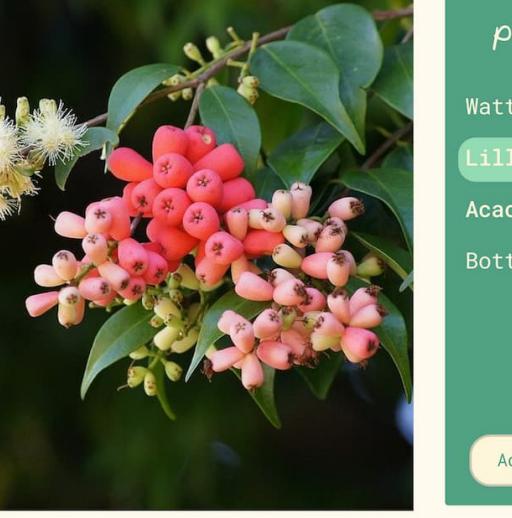
[edit space](#)

Areas

- Verge
- Windowsill
- Herbs
- Veranda

[Add Area](#) [Edit Area](#)





Plants

- Wattle
- Lilli Pilli
- Acacia
- Bottle Brush

[Add plants](#)

Lilli Pilli

Scientific name: *Syzygium*
Care: Deep soil, water twice weekly

Description:
The **lilly pilli** comes mainly from what were three different genus: *Syzygium* sp., *Acmena* sp. and *Waterhousiasp.* As sometimes happens in the worlds of botany and horticulture, plants are reclassified, so many now belong the group *Syzygium*. Plant growers often still apply the more traditional names, such as *Acmena*, to avoid confusion.

My Notes:
Planted in January 2022 in Northwest Bed. Fed and fertilized june 2022, next feed November 2022

[Add Notes](#)

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Plantscape

My Garden My Plants

Create New Space

Add Space:

Space Name:

Add Area:

Area Name:

Add Plants:

Area: Plant:

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The image shows a mobile application interface for 'Plantscape'. At the top, there is a green header bar with a circular logo containing a leaf icon on the left, the word 'Plantscape' in white cursive text in the center, and two navigation links 'My Garden' and 'My Plants' on the right. Below the header, the main content area has a light beige background. A large, bold, green title 'Create New Area' is centered at the top of this section. Below it is a dark green rectangular form. The form has the text 'Space Name' in white at the top. Underneath, there is a section labeled 'Add Area:' with a placeholder 'Area Name:' followed by a light orange input field. Below this is another section labeled 'Add Plants:' with a placeholder 'Plant:' followed by a light orange input field containing the text 'PULL DOWN MENU' and a small button labeled 'Add plant' next to it. At the bottom of the form, the text 'List of added plants:' is displayed in white. At the very bottom of the form is a light orange 'Submit' button. Below the form, there is a light green rounded rectangle containing the text 'Back to Space' in white. At the very bottom of the page, the copyright notice '© 2023 Kampua Development' is visible.

Space Name

Add Area:

Area Name:

Add Plants:

Plant: PULL DOWN MENU

List of added plants:

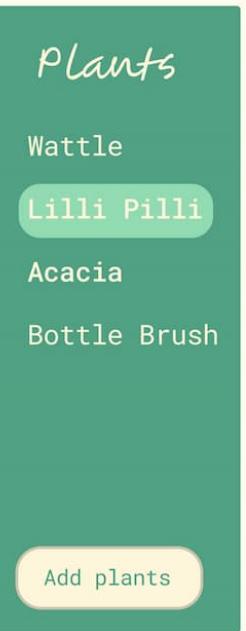
Submit

Back to Space

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Ben's Plants



Lilli Pilli

Scientific name: *Syzygium*
Care: Deep soil, water twice weekly

Description:

The [lilly pilli](#) comes mainly from what were three different genus: *Syzygium* sp., *Acmena* sp. and *Waterhousiasp*. As sometimes happens in the worlds of botany and horticulture, plants are reclassified, so many now belong the group *Syzygium*. Plant growers often still apply the more traditional names, such as *Acmena*, to avoid confusion. Most of the lilly pilli varieties you'll find for sale are cultivars, bred for specific characteristics such as density, fast growth, foliage colour and the like. With so many varieties to choose from, there is a lilly pilli for virtually any situation, either in the ground or in a pot.

My Notes:

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Add Notes

DESKTOP WIREFRAMES



Plantscape

My Garden My Plants

Spaces

- Front Yard
- Side Yard
- Back Yard
- Kitchen

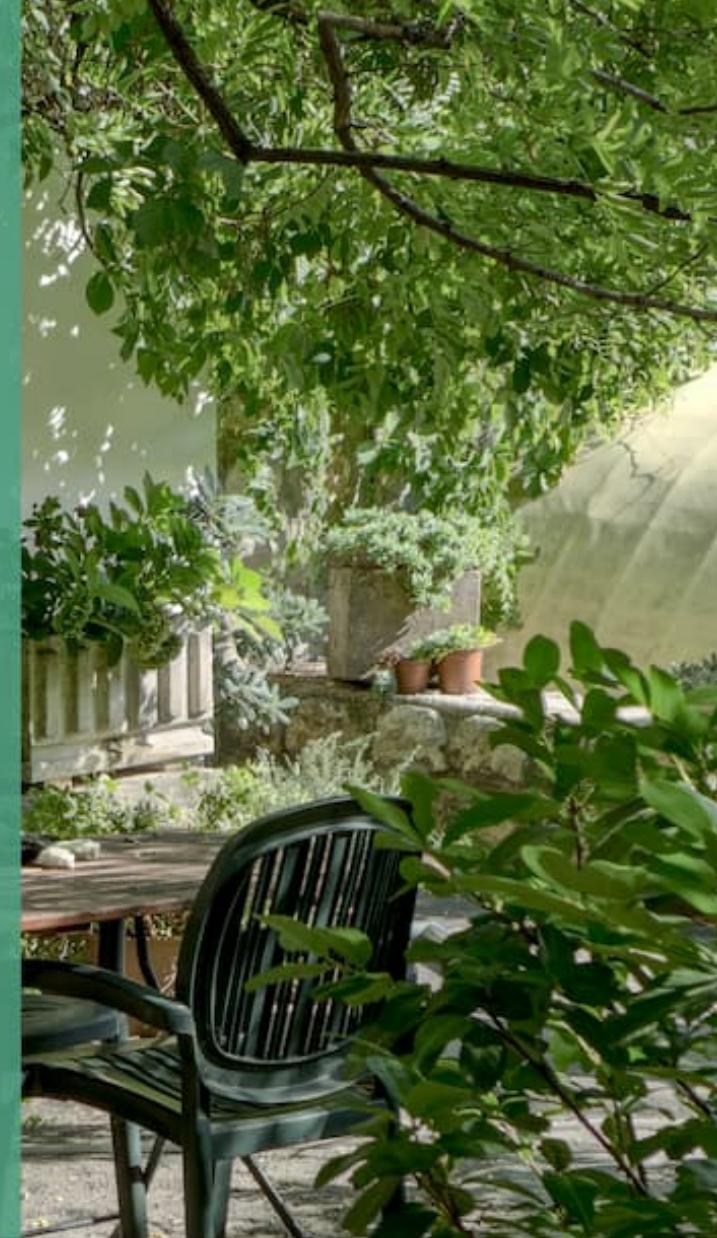
Add space



Areas

- Verge
- Windowsill
- Herbs
- Veranda

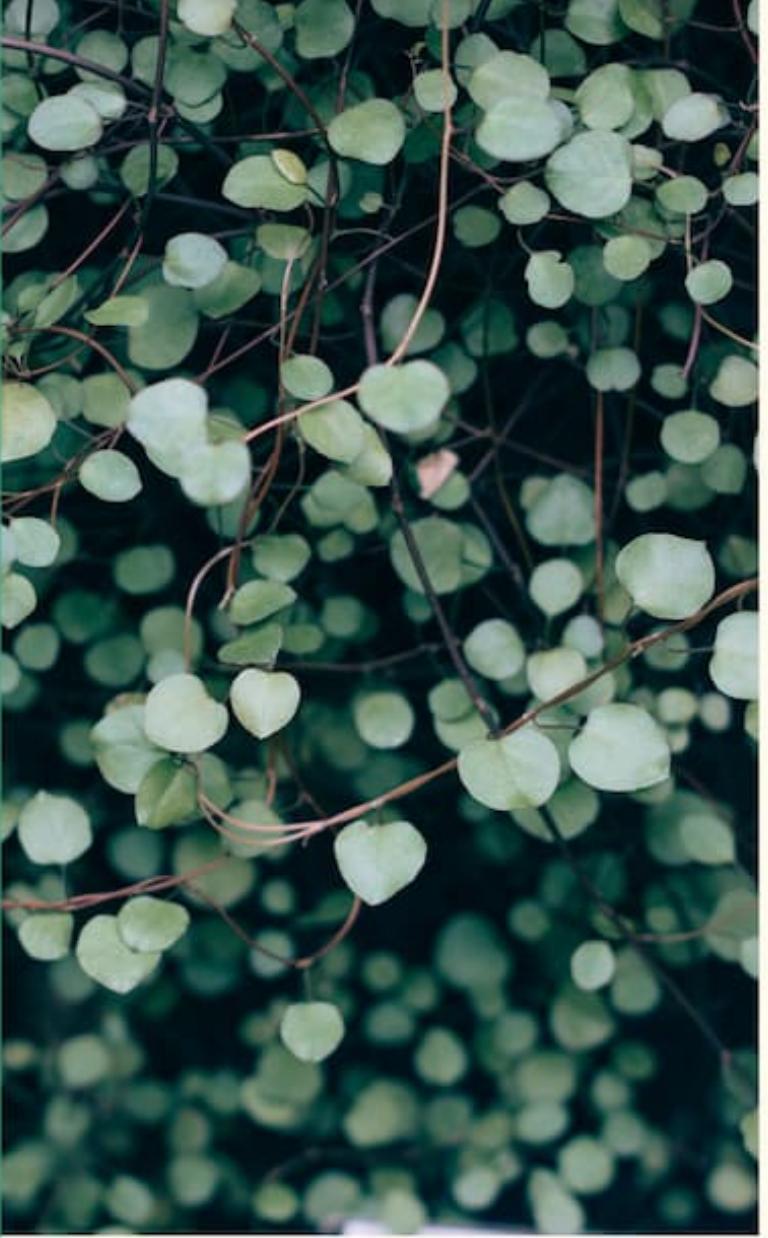
...all areas



Plants

- Wattle
- Lilli Pilli
- Acacia
- Bottle Brush

...all plants



View Space - Desktop



Plantscape

[My Garden](#)[My Plants](#)

Front Yard

[edit space](#)

Areas

[Verge](#)[Windowsill](#)[Herbs](#)[Veranda](#)[Add Area](#)[Edit Area](#)

Verge Plants

[Wattle](#)[Lilli Pilli](#)[Acacia](#)[Bottle Brush](#)[Add plants](#)

Lilli Pilli

Scientific name: *Syzygium*

Care: Deep soil, water twice weekly

Description:

The *lilly pilli* comes mainly from what were three different genus: *Syzygium* sp., *Acmena* sp. and *Waterhousiasp.* As sometimes happens in the worlds of botany and horticulture, plants are reclassified, so many now belong the group *Syzygium*. Plant growers often still apply the more traditional names, such as *Acmena*, to avoid confusion.

My Notes:

Planted in January 2022 in Northwest Bed. Fed and fertilized june 2022, next feed November 2022



Add Space - Desktop

The image shows the Plantscape mobile application interface. At the top, there is a green header bar with a circular logo containing a leaf icon on the left, the word "Plantscape" in white cursive text in the center, and two navigation links "My Garden" and "My Plants" on the right. Below the header, the main content area has a light beige background. In the center, the title "Create New Space" is displayed in a large, green, cursive font. Below the title is a dark green rectangular form. This form contains several input fields and buttons. At the top of the form, the text "Add Space:" is centered. Below it, the label "Space Name:" is followed by a long, thin, rounded rectangular input field. Next, the label "Add Area:" is centered, followed by the label "Area Name:" and another long, thin, rounded rectangular input field. Then, the label "Add Plants:" is centered. Below it, the label "Area:" is followed by a button labeled "PULL DOWN MENU OF AREAS". To the right of this, the label "Plant:" is followed by a button labeled "PULL DOWN MENU OF PLANTS". Below these buttons is a small, rounded rectangular button with the text "Add plant". At the bottom of the form is a "Submit" button.

Plantscape

My Garden My Plants

Create New Space

Add Space:

Space Name:

Add Area:

Area Name:

Add Plants:

Area: PULL DOWN MENU OF AREAS

Plant: PULL DOWN MENU OF PLANTS

Add plant

Submit

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Create New Area

Space Name

Add Area:

Area Name:

Add Plants:

Plant:

PULL DOWN MENU

Add plant

List of added plants:

Submit

Back to Space



Ben's Plants

Wattle

Lilli Pilli

Acacia

Bottle Brush

Kangaroo Paw

Morning Glory

Gymea Lilly

Blueberries

Roses

Add plants

Lilli Pilli

Scientific name: *Syzygium*

Care: Deep soil, water twice weekly

Description:

The [lilly pilli](#) comes mainly from what were three different genus: *Syzygium* sp., *Acmena* sp. and *Waterhousiasp.* As sometimes happens in the worlds of botany and horticulture, plants are reclassified, so many now belong the group *Syzygium*. Plant growers often still apply the more traditional names, such as *Acmena*, to avoid confusion.

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