

# Plants Project

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## Ideation:

Plants Native to New Zealand:

- Colour/Scent
- Seasonal(when to plant, when they flower)
- Kingdom/Family
- Status(threatened, at risk, not threatened)
- Instructions on how to care for the plant(watering, pruning, etc)
- Instructions on how to plant the plant(soil depth, etc)

## Concept:

This project is about plants which are native to New Zealand. The project will be a source of information so that everyone can work together to protect our native species from extinction.

The purpose of this project is to help people find native species(Plant Region), to help them find out if the species is in danger(Status), and if necessary, to help them plant more(Planting instructions).

The website/database can be used by scientific researchers, who can find the plants in their specified region(s) and then study them. The website can also be used by environmental caretakers, who can look at the plant status, and then go to the region and plant more. They could also go to the region to see how the plants are doing, and potentially be able to help the endangered plants.

The project helps in storing and finding information about plants which are native to New Zealand, which can help people to see the plants as well as take care of the species.

## **Relevant Implications:**

### **Database:**

A relevant implication to my database is the cultural implication. This implication ensures that the information in the database is culturally appropriate. My website is about plants native to New Zealand, which hold deep value in Maori culture. Some of these plants also play vital roles in forests to maintain ecosystems, with some of the trees supporting native birds. The purpose of my project was to display information about these plants in a way that is easy for the user to understand. To address the cultural implications, I have made the statuses of the plants visible both on the all plant page and on the individual plant pages. I have also made sure that the data displayed about the plants (especially the plant statuses) is accurate by checking on both the [Department of Conservation](#) website and the [New Zealand Plant Conservation Network](#). The watchlist option for users who sign up also makes it easier for them to keep track of specific plants, especially ones that are at risk. I have also created a plant filter on my all plants page to aid in keeping track of threatened or at risk plants. This filter displays the plants based on their status: Threatened, Not threatened, or At risk. Lastly, I have addressed the cultural and environmental implications in my project by including planting instructions on my individual plant pages, which can help the users of my website contribute to preserving the native plants which hold significant importance in our culture and environment.

Another relevant implication to my database is privacy. This implication makes sure that any user information that has been collected is kept secure. To address this relevant implication, I have hashed all the passwords that the user enters using the werkzeug library, so if my database is somehow compromised, then the passwords will still be protected because they will be unreadable. Additionally, a limited number of people are able to access my database, allowing me to maintain the confidentiality of the user information. I have also imported secrets and generated my secret key. This protects the user sessions and prevents those with malicious intent from accessing session data. The users of my website are also not required to sign up to view the plants, so they can use the website without providing personal information if they do not want to, ensuring their privacy.

### **Website:**

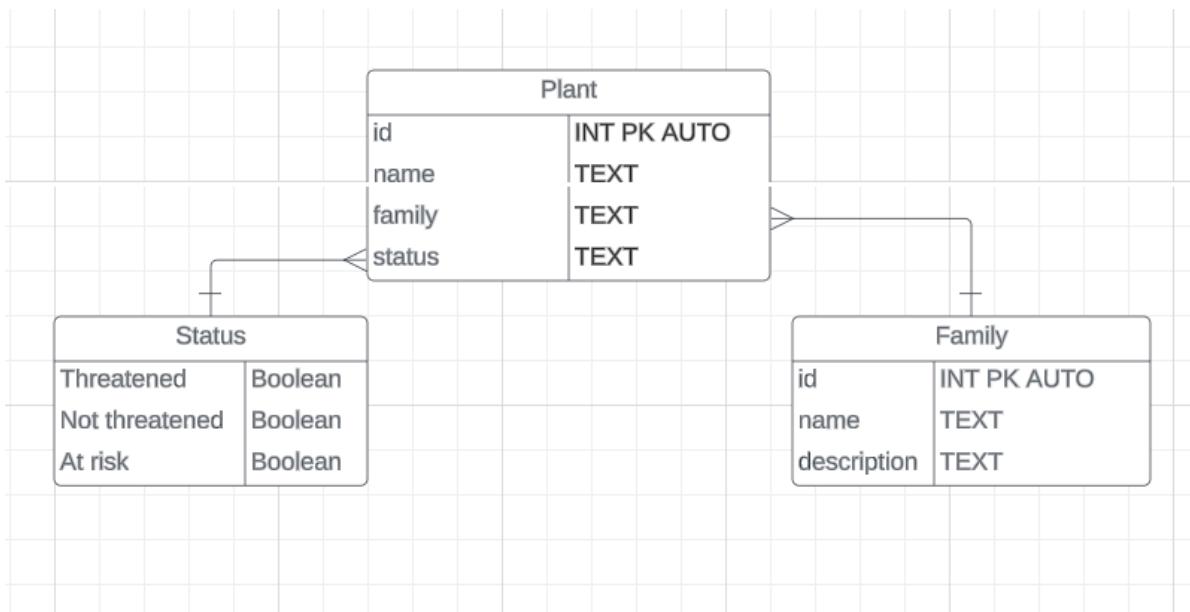
A relevant implication that applies to my website is accessibility. This relevant implication ensures that all users can access content easily. To address this implication, I have made several changes to my website. For example, on the all plants page, I have made it so that the whole card is a clickable link, allowing for users with motor difficulties to use the website more easily. All the cards also change colour when you hover over them, and they slightly lift up or give other indications that you are hovering over them. This would make these cards more accessible to visually impaired users. I also made the buttons throughout my website larger so that they would be easier to click to make it easier for everyone, but particularly for those who are elderly, have motor difficulties, or have visual impairments. Additionally, I provided alternate text for the images, which would help blind or visually impaired users use my website.

Another important relevant implication is aesthetics. This relevant implication makes sure that the website is visually appealing, which encourages users to stay on the website. To address this implication, I have consistently used a palette of greens, browns, creams, black, and white. I chose this palette to match the plant theme, which would enhance user appeal as they chose to look at a website of plants, and plants are generally associated with green and brown colours. I also added a favicon, which is a small plant icon, to support the plant theme and to enhance the user experience. When they have my website open on a tab, they can look at the plant icon, which would make them want to come back to the website. I have also followed common design conventions to create a modern design which will appeal to users and addresses this implication. I have made sure to stay consistent with the layout, and made sure to keep it simple. For example, all of my individual plant pages follow the same layout, so when users switch between them they get used to the layout and they don't have to deal with something new every time. This will mean that they can navigate the website more easily. I also tried to use whitespace to follow design conventions and to help avoid clutter so that the website would be easier to process for users.

### Database Notes:

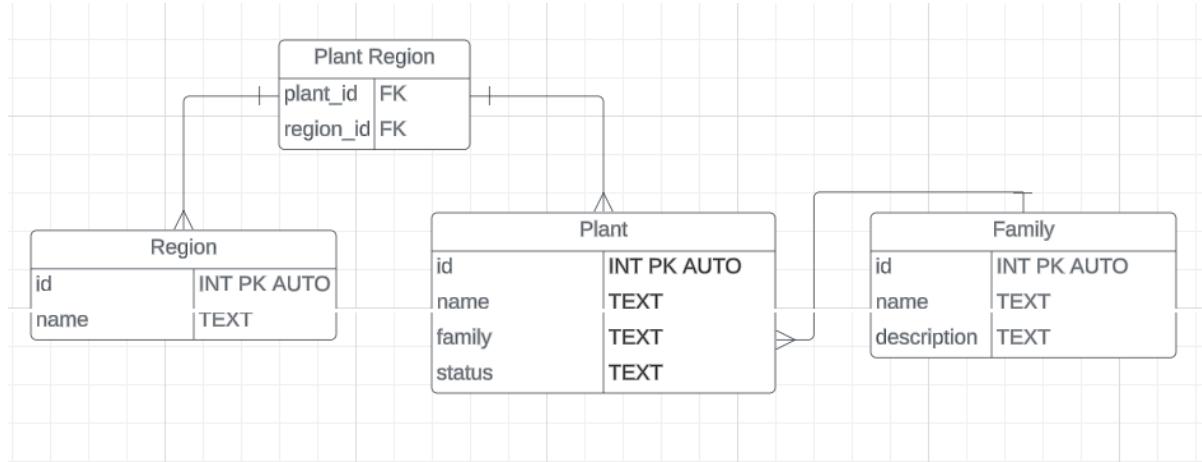
#### Entity Relationship Diagrams:

##### Version 1:



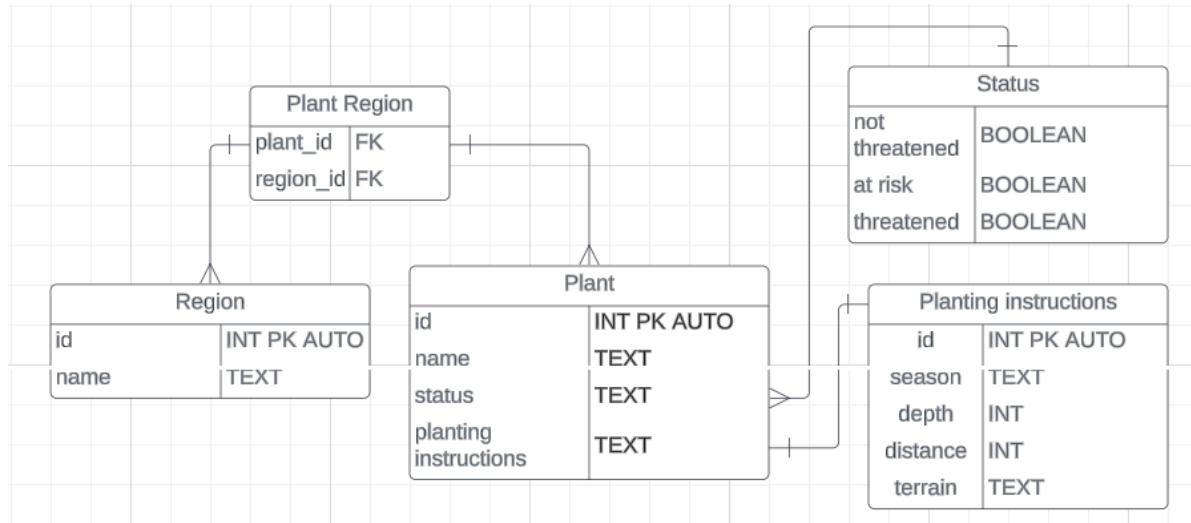
**Version 2:**

I added tables with many-to-many relationships to meet the standard requirements.



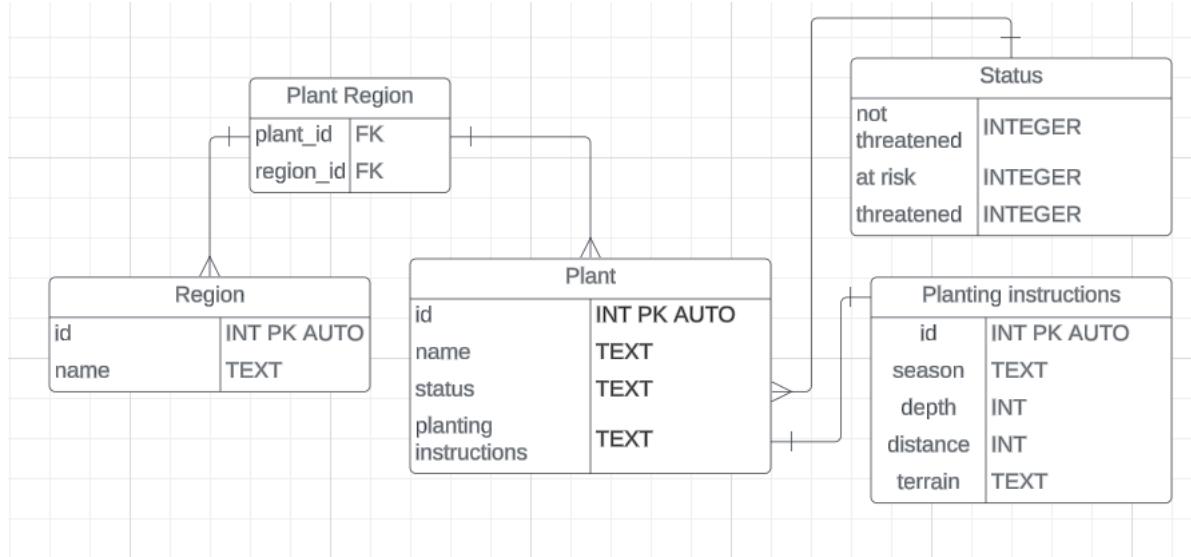
### Version 3:

I changed the family table back to a status table as that was more relevant to the purpose of the project. I also added a Planting instructions table to add more information about the plant, rather than just having where it is and how threatened it is.



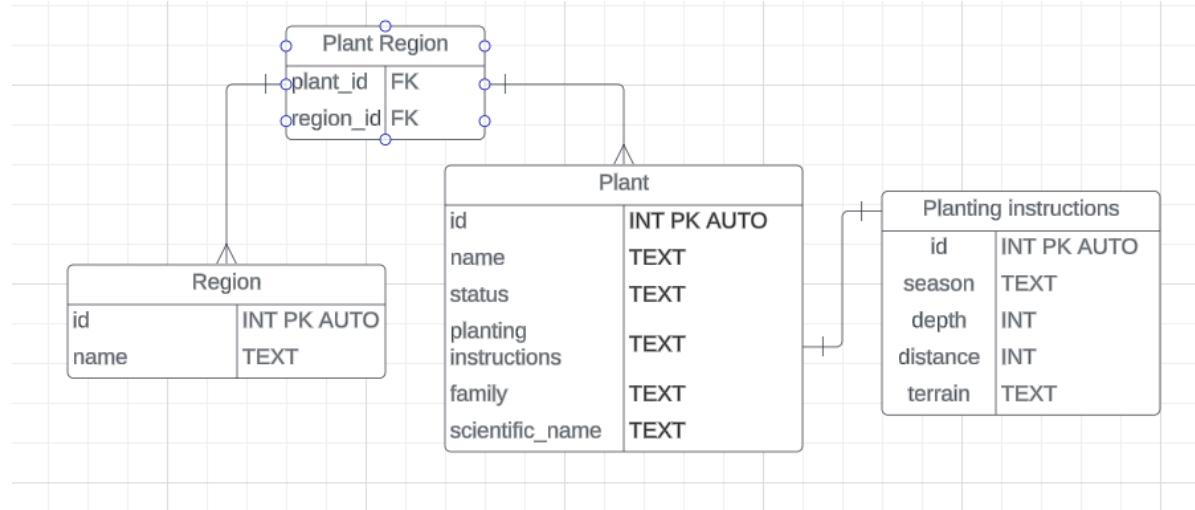
**Version 4:**

I changed the type of the Statuses from Boolean to Integer. This would make it easier to reference them in my code.



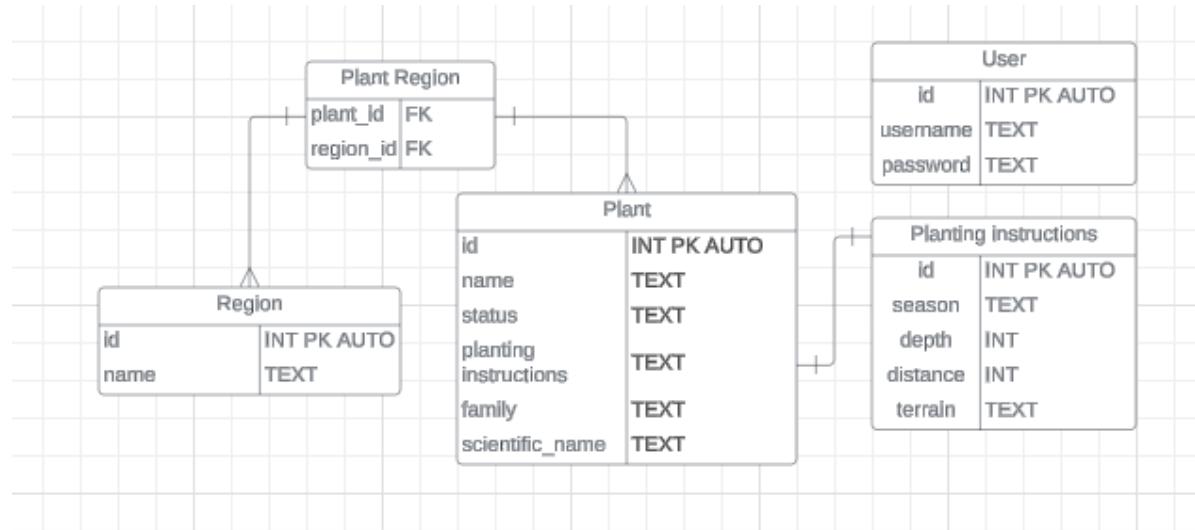
**Version 5:**

I decided to remove the Status table as it did not contribute much to the database. I realised that having it change from Threatened, Not threatened, or Endangered could be put in the Plant table rather than having a separate and inconvenient Status table.



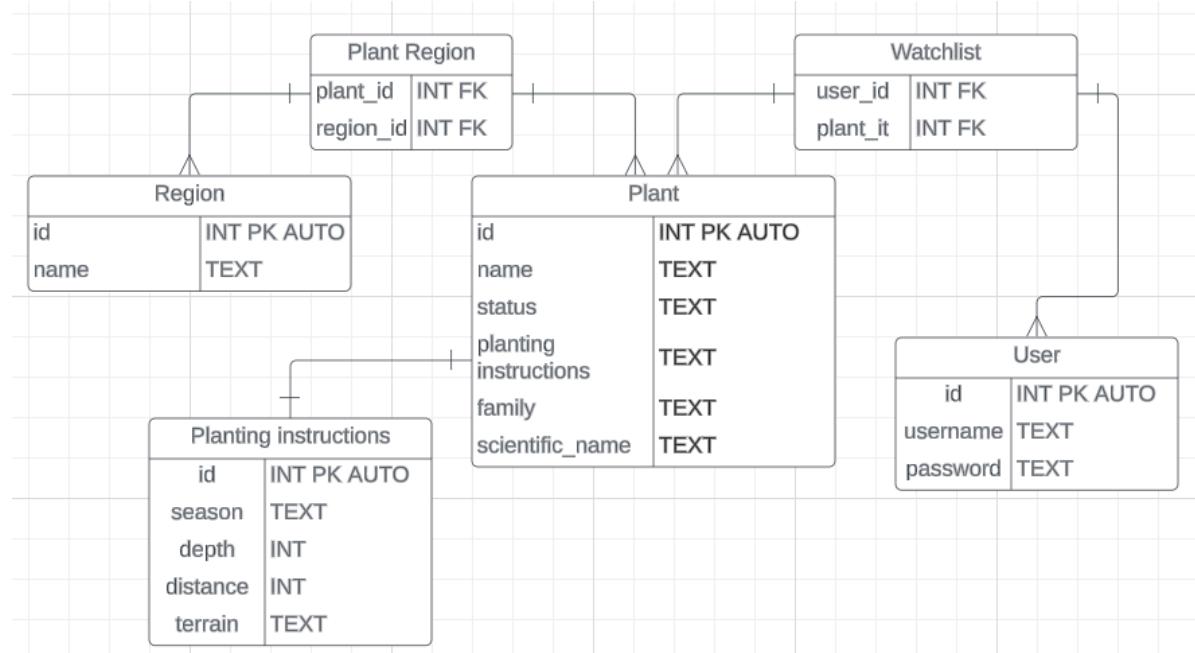
**Version 6:**

I have added a User table, which is where the usernames and passwords from the sign up are stored. Whenever someone logs in, this information is accessed.



### Version 7:

In this version, I have implemented the Watchlists into my program, so I created a bridge Watchlist table to link together the Plant and User tables. I created this bridge table because there is a many to many relationship between plants and users.



**Initial Database Queries(SQL):**

<b>Query</b>	<b>Expected Result</b>	<b>Actual result (P/F)</b>
SELECT * FROM Plant;	1, Kowhai, Not threatened, [1, Autumn, 15, 30, flat] 2, Kauri, Threatened, [1, All, 10, 60, flat]	Pass
SELECT * FROM Plant WHERE status="threatened"	2, Kauri, Threatened, [1, All, 10, 60, flat]	Pass
SELECT Planting_instructions FROM Plant WHERE season = "Autumn" AND terrain="flat";	1, Kowhai, Not threatened, [1, Autumn, 15, 30, flat]	Pass
SELECT * FROM Plant WHERE terrain="flat" ORDER BY name; (alphabetical order)	2, Kauri, Threatened, [1, All, 10, 60, flat] 1, Kowhai, Not threatened, [1, Autumn, 15, 30, flat]	Pass

**Initial Database Tables(with sample data):**

Structure	Sample 1- Kowhai	Sample 2- Kauri
Plant table: - Plant id - Plant name - Plant status - Plant planting instructions	1 (following is from other tables) Kowhai Not threatened 1	1 (following is from other tables) Kauri Threatened 2
Planting instructions table - Instructions id - Season - Depth(cm) - Distance - Terrain	1 Autumn 15 30 flat	1 All 10 60 flat
Status table: - Threatened - Not threatened - At risk	No Yes No	Yes No No

Region table: - Region id - Name of region	1 Northland	1, 2 Northland, Auckland
Plant Region table: - Plant id - Region id	1 1 (Foreign keys to Plant table and Region table)	2 1, 2 (Foreign keys to Plant table and Region table)

## **Plant Data:**

All of the data for the plants was found from <https://www.nzpcn.org.nz/flora/species/>, with double checks on <https://www.doc.govt.nz/nature/native-plants/>. This ensured the reliability of the data in my database. This information is what is retrieved from the database and displayed on my website.

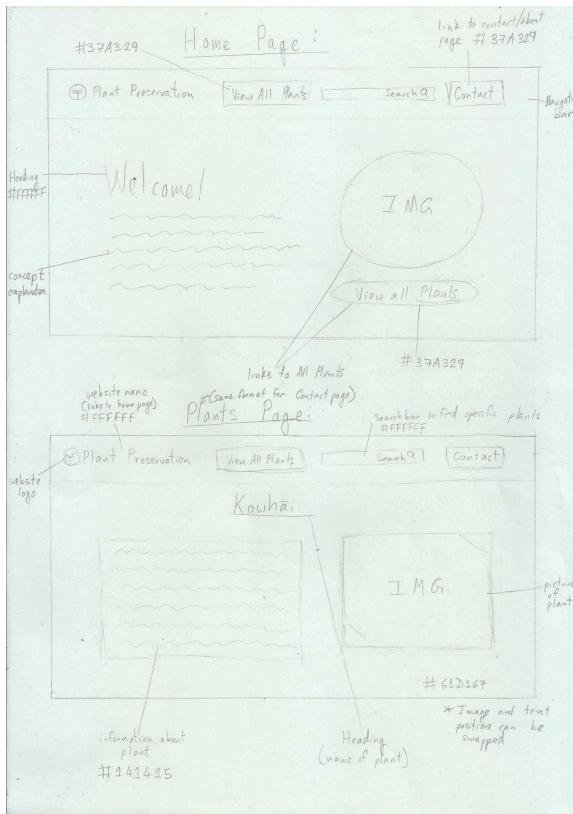
### **PlantRegion(Bridge table) Data from DOC:**

Name of Plant	Name of Region
Kowhai	Auckland, Wellington
Kauri	Whangarei, Dargaville
Pohutukawa	Auckland, Tauranga
Cabbage Tree	Christchurch, Hamilton, Wellington
Puriri	Kerikeri
Rata	Wellington, New Plymouth
Harakeke	Rotorua, Nelson, Christchurch, Wellington
Totara	Auckland, Wellington

Kahikatea	Hamilton, Rotorua
Rimu	Westport, Hokitika
Silver Fern	Wellington, Rotorua
Kawakawa	Auckland, Whangarei
Titoki	Auckland, Hamilton
Hebe	Dunedin, Christchurch
Horopito	Rotorua, Taupo
Horoeka	Auckland, Wellington
Manuka	Whangarei, Kerikeri, Nelson
Totarol	Rotorua, Hamilton
Karaka	Auckland, Wellington
Rengarenga Lily	Auckland, Wellington
Mahoe	Wellington
Towai	Rotorua, Hamilton
Tutu	Auckland
Tanekaha	Whangarei, Auckland
Kanuka	Auckland, Wellington
Kaikomako	Rotorua, Auckland
Tawhiri	Whangarei
Hinau	Hamilton, Rotorua
Kiekie	Westport, Hokitika
Mingimingi	Wellington, Auckland
Toetoe	Christchurch, Dunedin

## Website Layout:

### Initial layout idea:



I have decided to make the link to the home page the logo/name of the website, and have put it in the top left corner. I made this decision to have consistency and meet the general standards that most websites follow.

This will make it easier for my user to navigate the website, helping it follow Nielsen's heuristics.

I also decided to keep the design relatively simple, with only a few things on my navigation bar and only three main things on each page(heading, text, and images). Keeping the website minimalistic and easily readable will also make it easier for users.

On my home page, I decided to have a small introduction paragraph explaining what the website is for so that the users know how to use it.

**Version 1:**

This is my initial home page, all plants page, search bar, and navigation bar. I still need to add a contact page, a description and links in my home page, find a better way to display results in my all plants page, and add images to my individual plant pages.



← → ⌛ 127.0.0.1:5000/all\_plant

Home All Plants Search plants... Search



[Kowhai](#)

Not Threatened



[Kauri](#)

Endangered



← → ⌛ 127.0.0.1:5000/plant/17

Home All Plants Search plants... Search

**Manuka**

Status: Not Threatened

Planting instructions: Plant in Spring or early Autumn on a well-drained soil terrain at a depth which is shallow and at a distance of 4-6m from other plants.

Family: Myrtaceae

Scientific name: *Leptospermum scoparium*

Plant region:

## Version 2:

← → ⌛ 127.0.0.1:5000/all\_plant

Home All Plants Search plants... Search

Contact us here:  
abcd@gmail.com

Kowhai Not-Threatened	Kauri Endangered	Pohutukawa Not-Threatened	Cabbage Tree Not-Threatened	Puriri Not-Threatened	Rata Not-Threatened
Harakeke Not-Threatened	Totara Not-Threatened	Kahikatea Not-Threatened	Rimu Not-Threatened	Silver Fern Threatened	Kawakawa Threatened
Miro Not-Threatened	Kopihope Not-Threatened	Koromiko Not-Threatened	Kotukutuku Not-Threatened	Kowhai Not-Threatened	Kawakawa Threatened

I've started on making an image gallery to display the items in my all plants page in a more visually appealing and readable way. The user shouldn't have to scroll as much now to find the plant they want.



## Manuka



Status: Not Threatened

Planting instructions: Plant in Spring or early Autumn on a well-drained soil terrain at a depth which is shallow and at a distance of 4-6m from other plants.

Family: Myrtaceae

Scientific name: *Leptospermum scoparium*

Plant region:

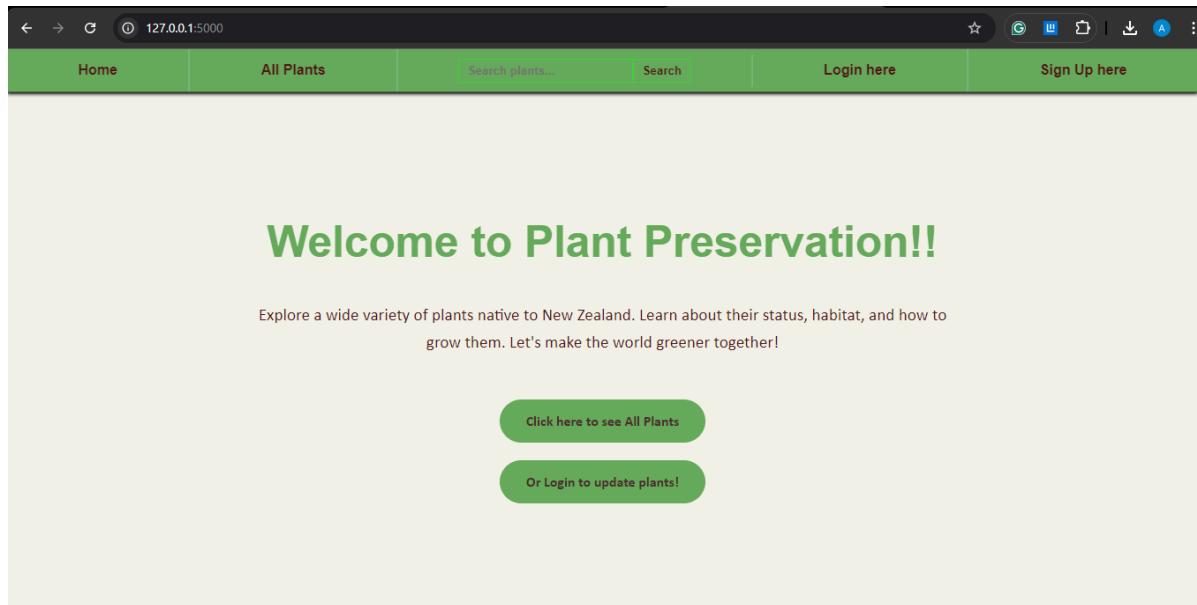
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I've also been able to add images to my individual plants pages.

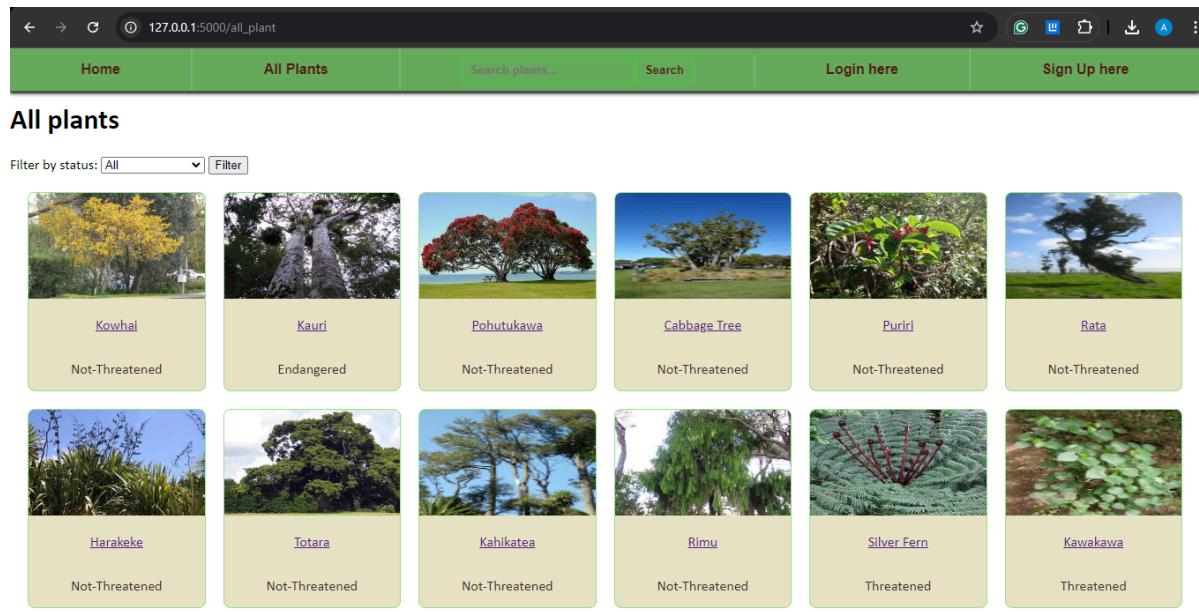
I also changed the font colours in the navigation bar to a dark brown, so the text will contrast the green more. This change made the text more readable, and the brown fits the plant theme of the website much better than the purple did.

## Version 3:

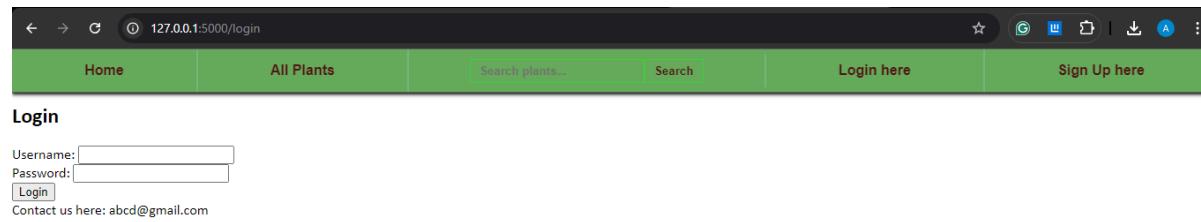
I have made changes to my navigation bar so that the buttons are evenly spaced and so that the gap on the very left of the navigation bar is gone. The search bar is also positioned in the center of the navigation bar now, both vertically and horizontally. These changes make the whole navigation bar look cleaner, and so easier to understand and use.



I also added a title and description to the home page, like I originally planned. I also changed the background colour to a very light cream colour, which made the background less harsh on eyes. I have also added buttons to my home page which lead to other pages on the site, which clearly directs the user to those pages, rather than them having to look at the navigation bar to find what they need. The two pages that I linked the buttons to are what I think the first pages the user would want to visit will be.



The all plants page image gallery is laid out better now, with the image and text fitting inside the boxes. The boxes are also spaced more evenly now and I added a soft brown colour so that they contrast the background. There is also a title on this page now, so that the user is better able to understand which part of the website they are on.



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I have also created a login page, and a custom 404 page, but I need to do more styling for them as my next steps.



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The navigation bar also disappears when the 404 page appears, which is an issue that I need to resolve.

An issue that I encountered was that I was accessing the images for plants in an unconventional way. Previously, I just used the name of the plant and didn't have a column for images in my database and I had this code on my all plant page:

```
<div class="gallery-item">
    
    <p>{{ plant[1] }}</p>
```

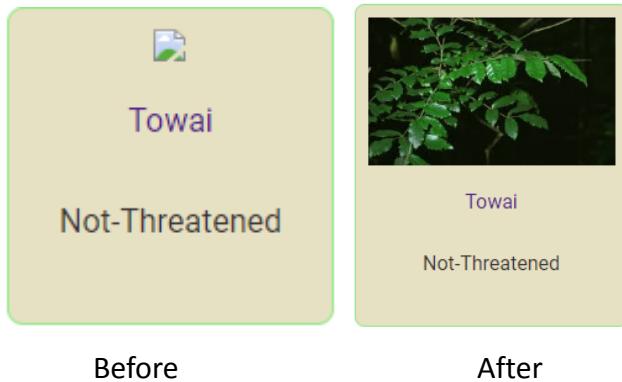
This meant that I could only use .jpg images, which wouldn't have worked if images with a .png or some other extension were added to my website in the future. So, I decided to change how I stored my images and added a column to store image links in my database:

	<code>id</code>	<code>name</code>	<code>status</code>	<code>family</code>	<code>scientific_name</code>	<code>image</code>
21	22	Towai	Not-Threatened	Cunoniaceae	Pterophylla sylvicola	/static/images/towai.jfif

I also changed my code to this:

```
<div class="gallery-item">  
    
  <p>{{ plant[1] }}</p>
```

To make sure that this worked, I added a .jfif image to my Towai plant. This is how the image was displayed on my all plant page before and after:

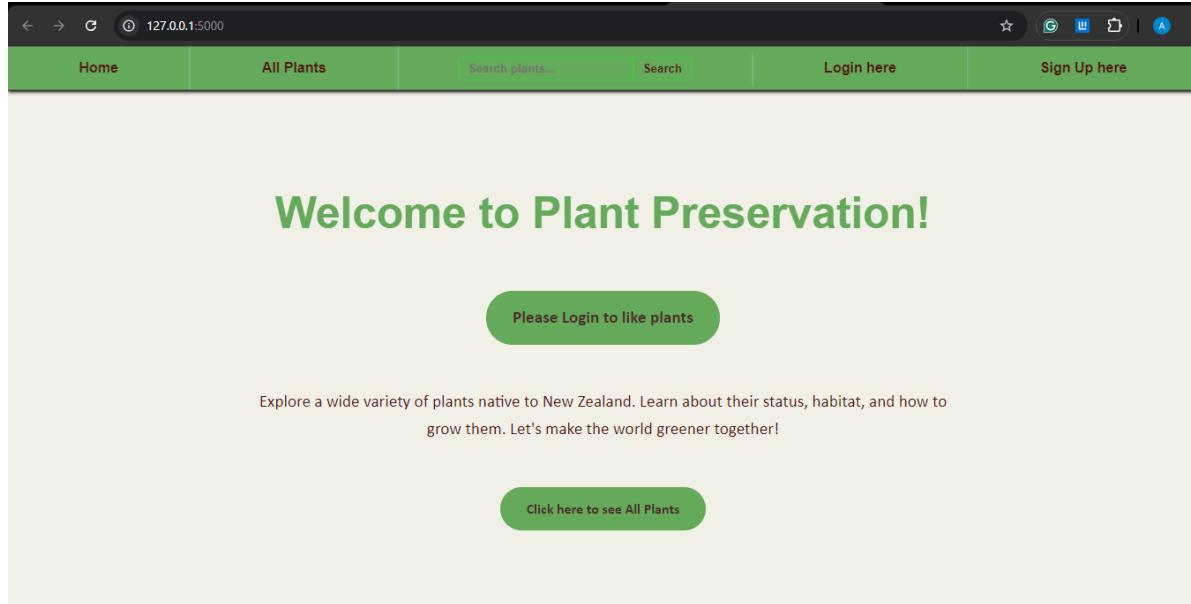


Before

After

I also initially had my status filter on the search bar, but I decided to change it and move it to the all plants page as I thought that the users would find it easier to use there. I also realised that when the user would search for a plant they likely wouldn't know its status off by heart, which is why I decided to move the filter to the all plant page itself.

#### Version 4:



I decided to change the buttons on my home page to be more noticeable since they're different sizes and they have text in between.

← → ⌛ 127.0.0.1:5000/plant/17

Home All Plants Search plants... Search Login here Sign Up here

## Manuka



**Status: Not-Threatened**

Planting instructions: Plant in Spring or early Autumn on a well-drained soil terrain at a depth which is shallow and at a distance of 4-6m from other plants.

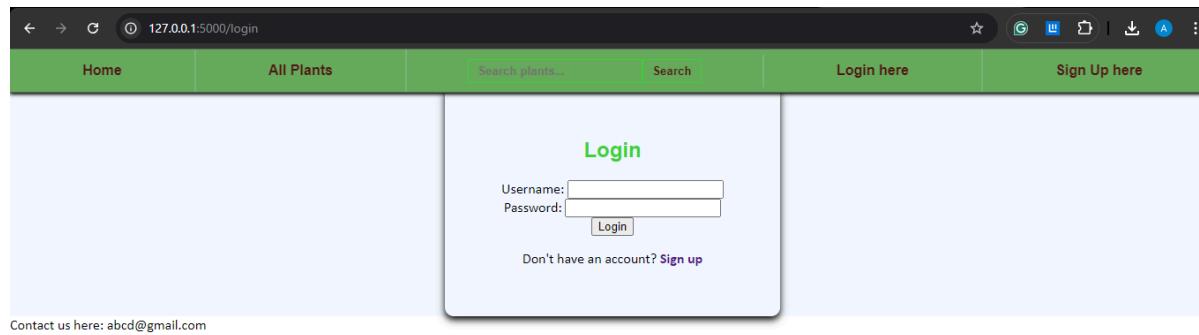
Family: Myrtaceae

Scientific name: *Leptospermum scoparium*

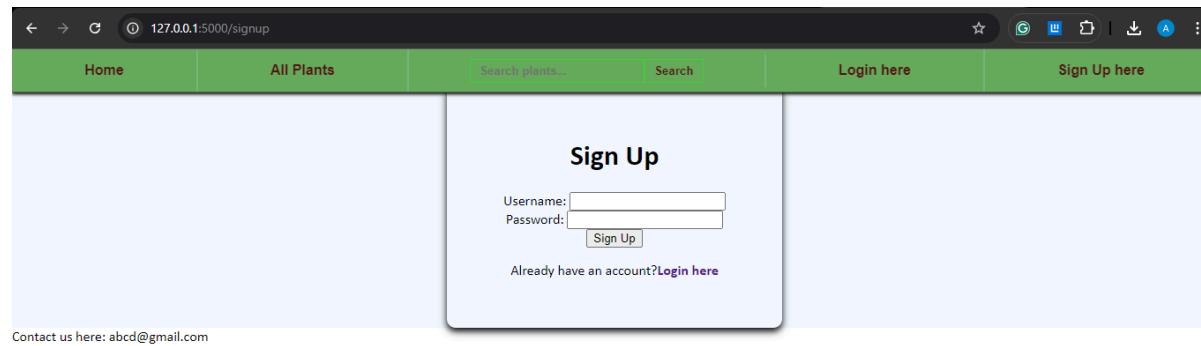
Plant region:

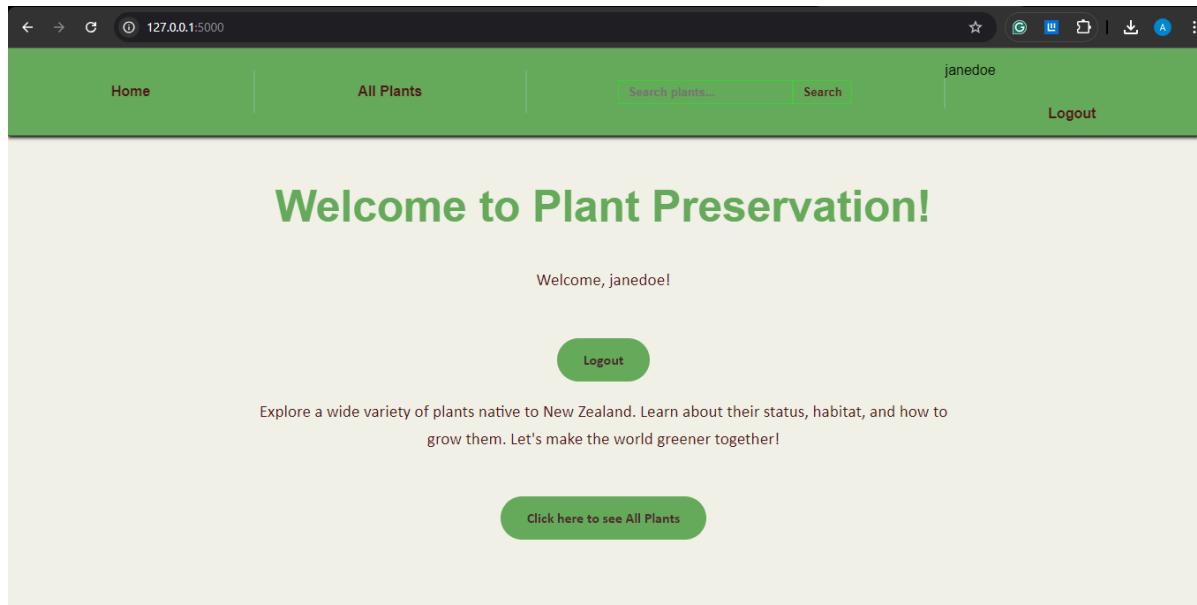
Contact us here: abcd@gmail.com

I also improved the layout of the individual plant pages. Now it matches my initial idea more, and the box layout grabs attention. I also made the Status a larger font and a different colour to the other text because one of the major purposes of the website is to show users the status of the plant. This is why the items in my all plant page also have the status on them.

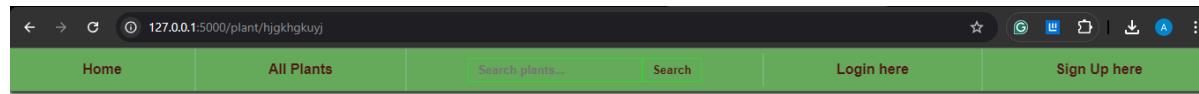


I also wrote some CSS for my login and signup pages, so they look more appealing and follow design conventions a bit more now.





The style also changes when some logs in. When they log in, the website redirects to the home page with a welcome for the person on the page. The sign up and login buttons on the navigation bar also change to the person's username and the logout button.



# 404

Page not found

[Click here to go back to the homepage](#)

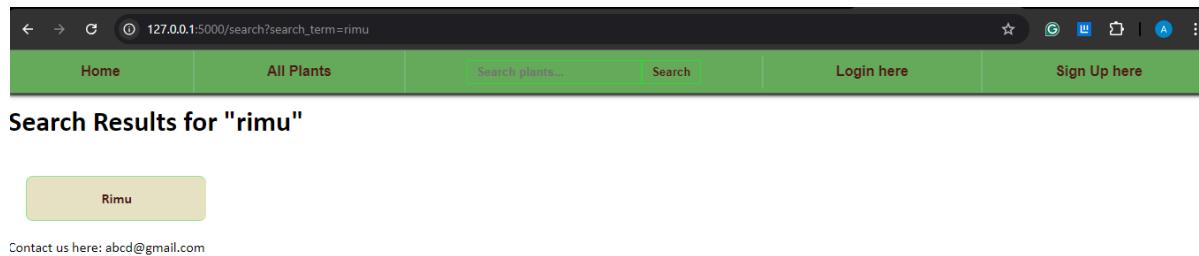
Contact us here: abcd@gmail.com

The navigation bar no longer disappears when the 404 page shows up. Furthermore, I updated the style of the page to be more minimalistic and simple, with a link back to the home page, so that the user doesn't have to find their way out but is instead guided.



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An issue that I encountered was that when I searched for a plant, the result would show up in the navigation bar, and all the other navigation buttons would disappear. I realised that this was happening because I had classed my results as list items and hadn't distinguished them in any way from the navigation buttons.



Another issue was that my footer would never stay at the bottom of the page. I fixed this by changing the styling so that it would float to the bottom and left.

← → ⌂ 127.0.0.1:5000/plant/30

Home All Plants Search plants... Search Login here Sign Up here

## Mingimingi



**Status:** Not-Threatened

Planting instructions: Plant in Throughout the year on a well-drained soil terrain at a depth which is twice the root ball and at a distance of 1-2m from other plants.

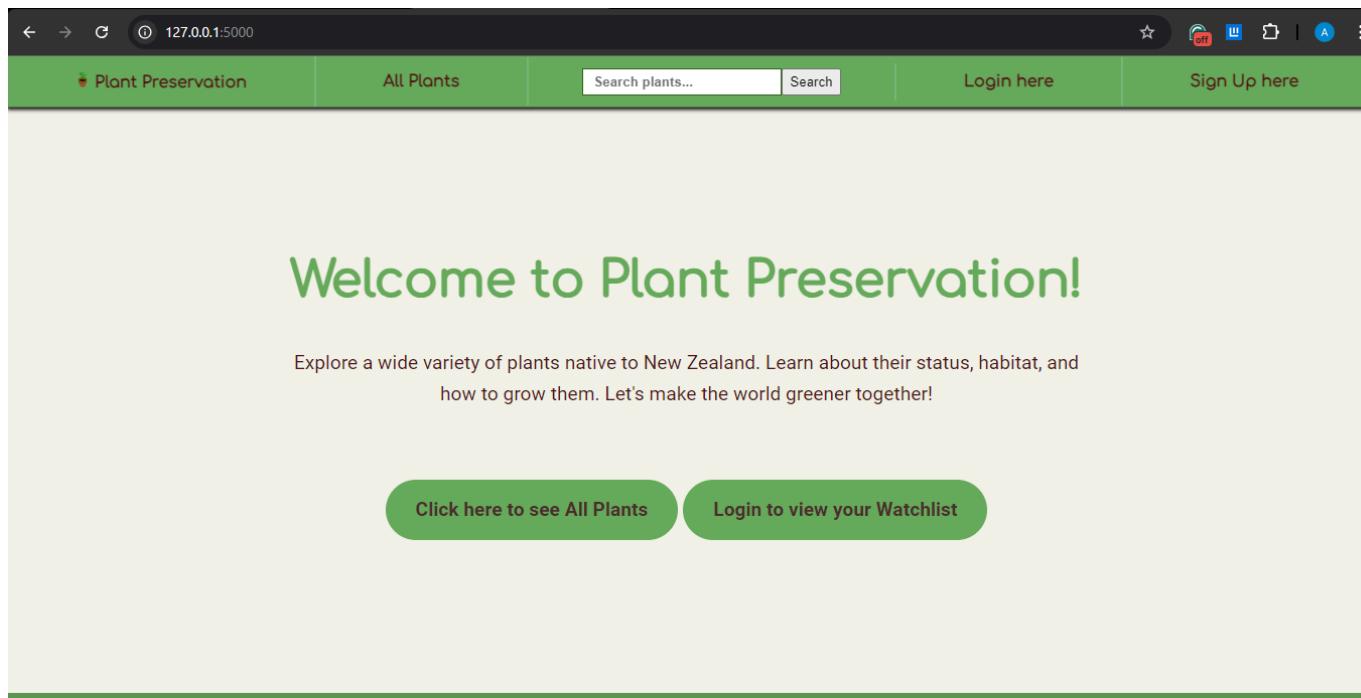
Family: Rubiaceae

Scientific name: *Coprosma propinqua*

Plant region:

Another problem was that the images on the individual plant pages would go over the edge of the background. I fixed this by editing the styling of the images and changing the aspect ratios.

## Version 5:



I changed the search bar so that it's more visible now. I did this because of the feedback I received from others. I also changed the way the buttons were displayed because I got feedback that they should be the same size and beside each other to better follow design conventions.

All plants

Filter by status:

All

Filter

Kowhai

Kauri

Pohutukawa

Cabbage Tree

Puriri

I changed the styling of the status filter on my all plant page because I got feedback that it was very small and unnoticeable in the corner. I agreed with that feedback, so I made the filter bigger and more modernly styled so that users would be more likely to use it. It was also pointed out that the images looked squished, so I changed the CSS so that they would be their normal sizes and the edges would get cut off. I think this looks much better than what I had for the images before.

← → ⌂ 127.0.0.1:5000/plant/3

Plant Preservation All Plants Search plants... Search Login here Sign Up here

## Pohutukawa



**Status: Not-Threatened**

Planting instructions: Plant in Spring or Autumn on a well-drained soil terrain at a depth which is twice the root ball and at a distance of 2-3m from other plants.

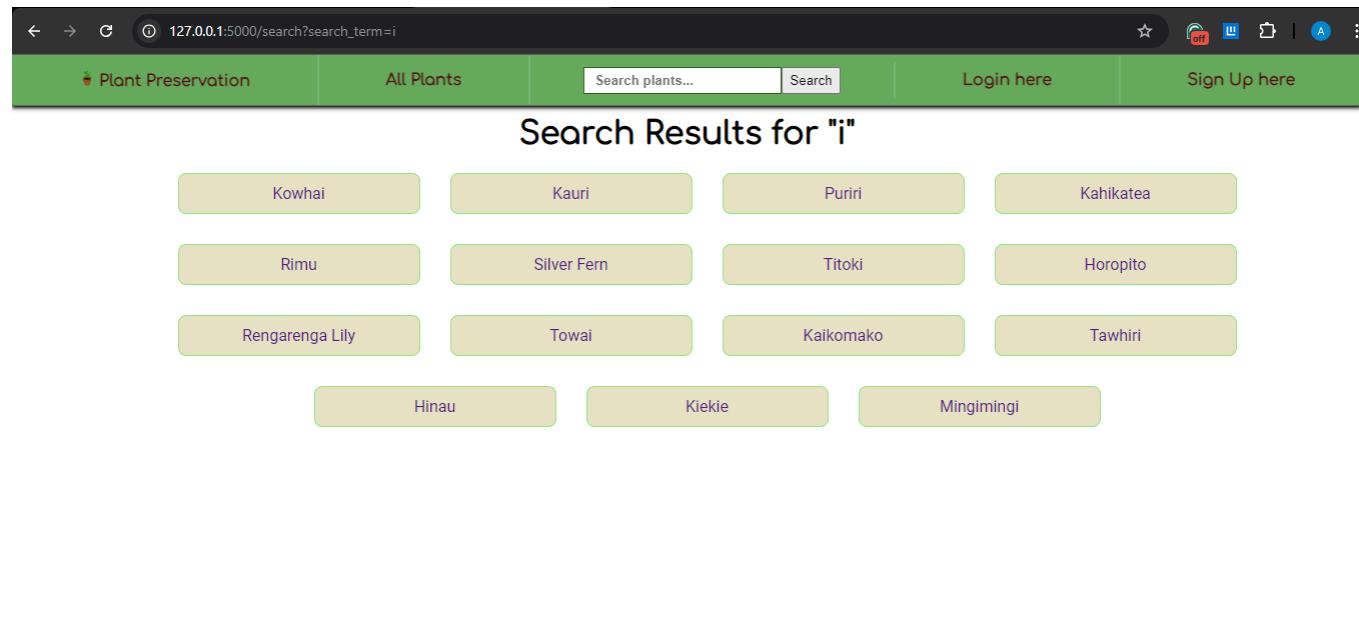
Family: Myrtaceae

Scientific name: Metrosideros excelsa

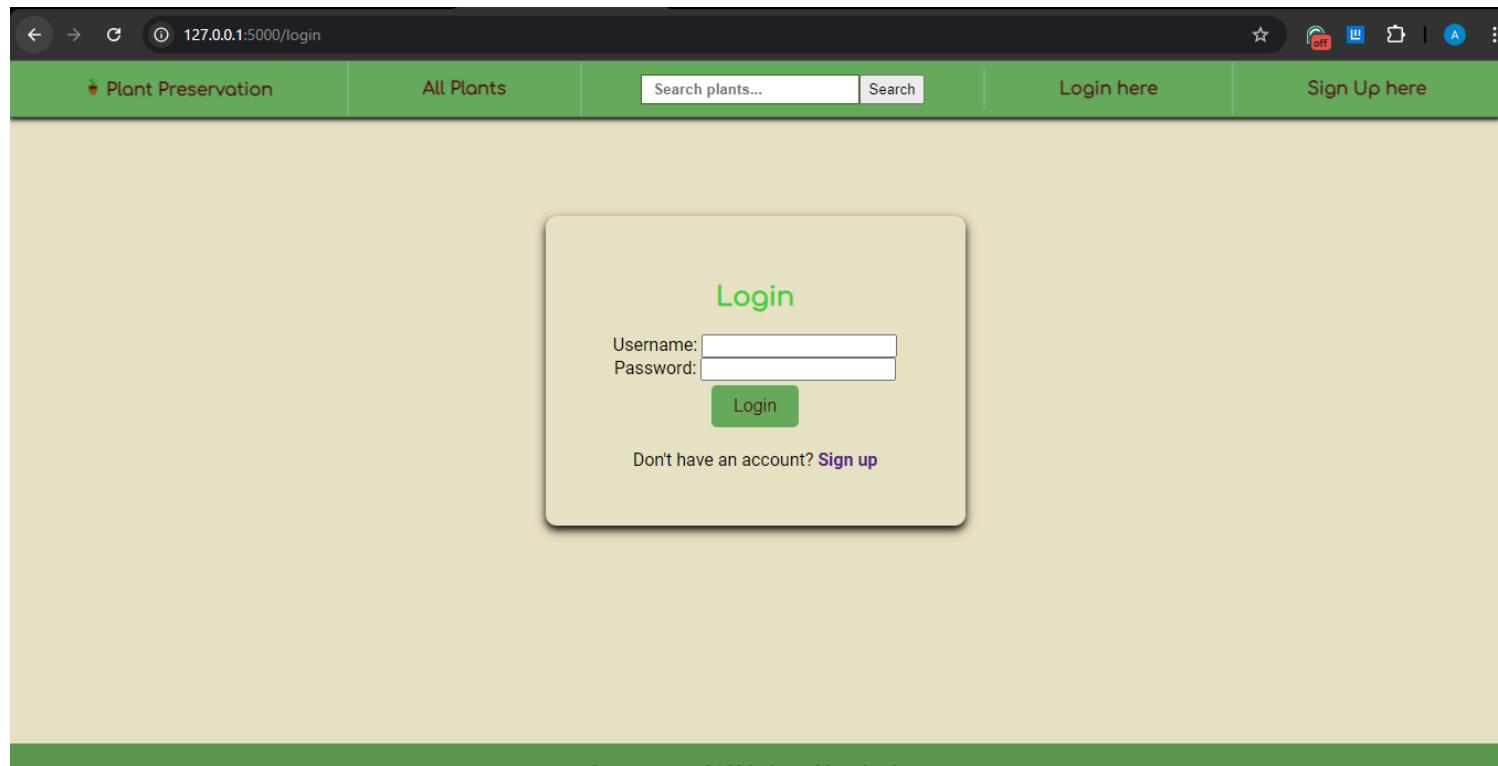
Plant regions: Auckland, Tauranga

[Log in](#) to add this plant to your watchlist.

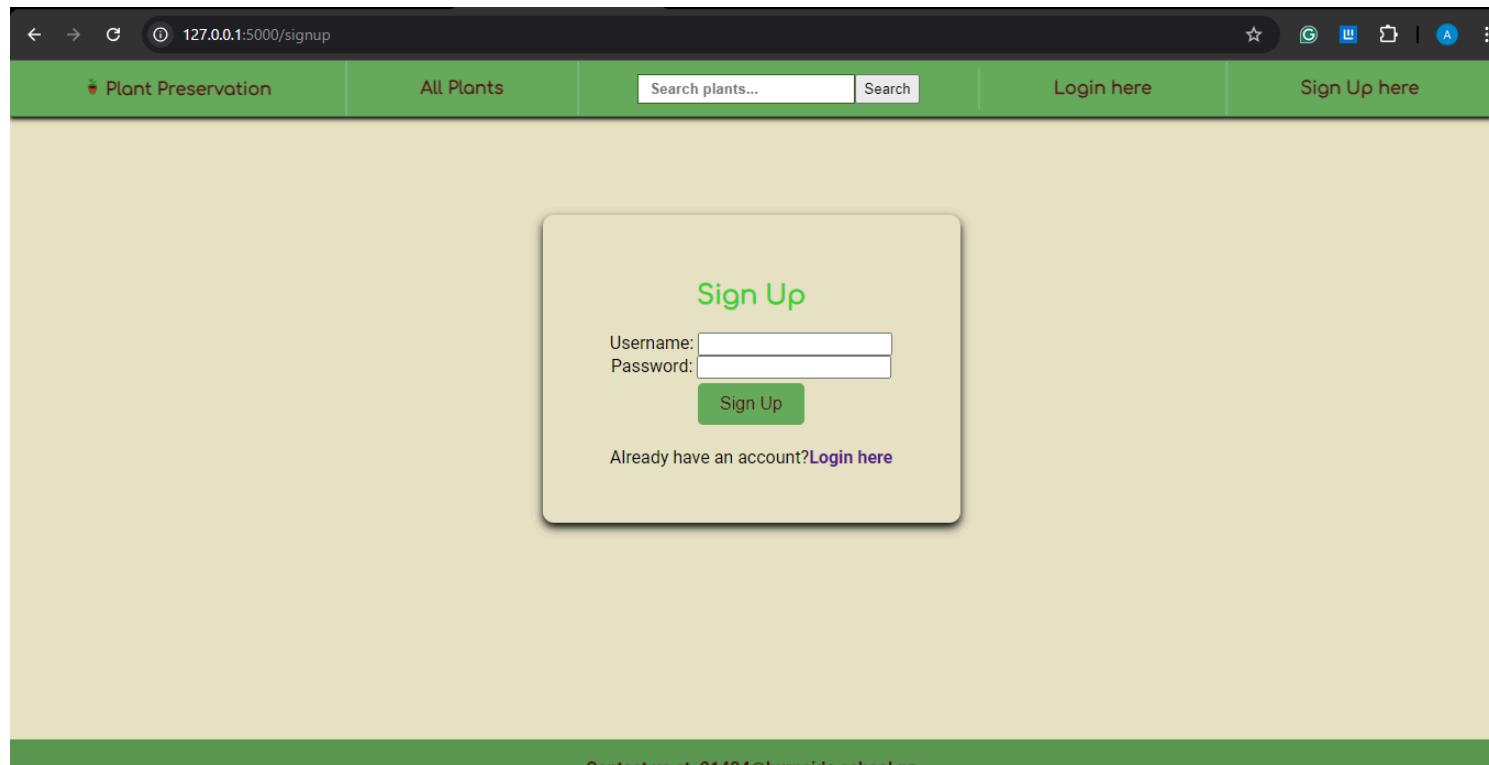
The style for my individual plants page hasn't changed much, but this is the default version of it. This version says "Log in to add this plant to your watchlist." at the bottom, while the version of this page when you are logged in has a "Add to watchlist button". I also changed the fonts throughout my website to more curved fonts as I thought that they would fit the plant theme more.

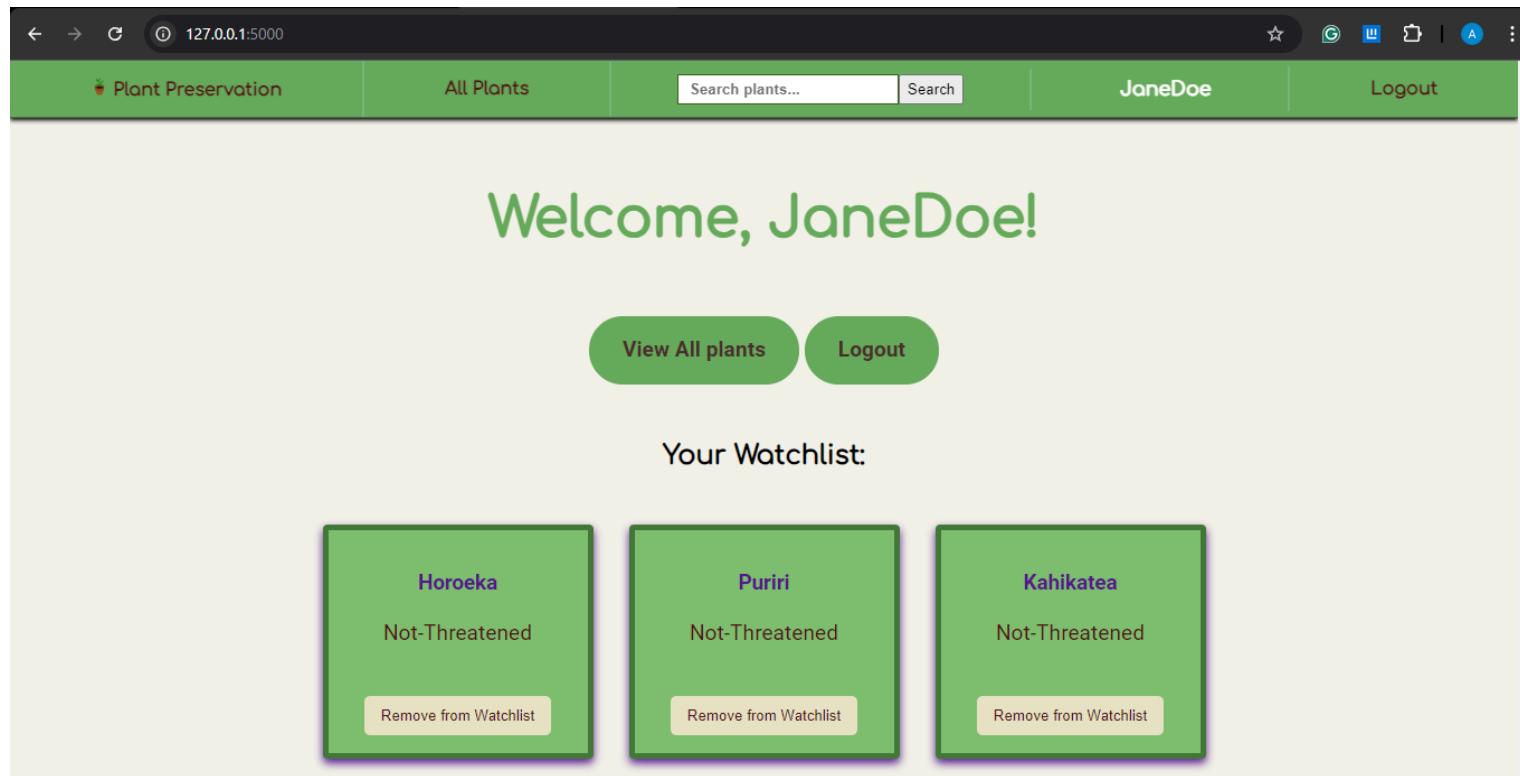


The search results page's title has a nicer font now, and I think the title looks more prominent now.



The login and signup pages have different coloured backgrounds now. I thought that the cream colour would be nicer to look at than the light blue I had before. I also realised that I had a `<div>` tag in the wrong place, which meant that in the previous version the login and signup headings were different colours. I fixed this, and now the styling for both these pages should be the same, since I used the same CSS for both of them.





The navigation bar also stays the same size when someone logs in. I also received feedback that the username should be displayed in the top right corner of the navigation bar, with the logout button beside it. I took this advice and changed the layout of my navigation bar a little bit so that I could follow common design conventions more.

← → ⌂ ⓘ 127.0.0.1:5000/plant/3

Plant Preservation All Plants Search plants... Search JaneDoe Logout

## Pohutukawa



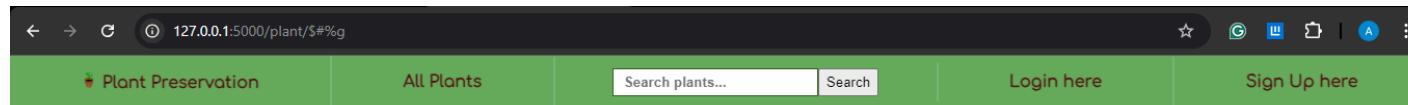
**Status: Not-Threatened**

Planting instructions: Plant in Spring or Autumn on a well-drained soil terrain at a depth which is twice the root ball and at a distance of 2-3m from other plants.

Family: Myrtaceae  
Scientific name: Metrosideros excelsa  
Plant regions: Auckland, Tauranga

Add to Watchlist

This is what the individual plant page looks like when someone is logged in. As I mentioned before, there is an “Add to watchlist” button at the bottom now.



# 404

Page not found

[Click here to go back to the homepage](#)

Contact us at: 21434@burnside.school.nz

The footer also doesn't move up anymore when the contact page is displayed.

Overall, I think that this version has had a lot of minor tweaks compared to the bigger changes made in previous versions. I think that the feedback I received helped me refine the styling of each page, creating a consistent modern design throughout the website.

## App Routes:

### Version 1:

```
#homepage
@app.route('/')
def homepage():
```

```
#plants page

@app.route('/plant/<int:id>')
def plant(id):

#about/contact information page
@app.route('/contact')
def contactpage():
```

## Addition 2:

I have added an individual plants page route which connects to the database and retrieves information from the Plant and Planting\_instruction tables to display on the individual plant pages.

### Addition 3:

Added an all plants page, and a contact page.

```
# all plants page
@app.route('/all_plant')
def all_plant():
    connect = sqlite3.connect('plant.db')
    cursor = connect.cursor()
    cursor.execute("SELECT * FROM Plant ORDER BY id;")
    plants = cursor.fetchall()
    connect.close()
    return render_template('all_plant.html', plant=plants)

# about/contact information page
@app.route('/contact')
def contactpage():
    return render_template("contact.html")
```

### Addition 4:

Key changes include the addition of a custom error 404 page, a login, and a search route.

```
# all plants page
@app.route('/all_plant', methods=['GET'])
def all_plant():
    status_filter = request.args.get('status', '').strip()
```

```
conn = sqlite3.connect('plant.db')
cursor = conn.cursor()
query = "SELECT * FROM Plant"
parameters = []
# add the status selected to the query
if status_filter:
    query += " WHERE status = ?"
    parameters.append(status_filter)
cursor.execute(query, parameters)
plants = cursor.fetchall()
conn.close()
return render_template('all_plant.html',
                      plant=plants,
                      status_filter=status_filter)

@app.route('/search', methods=['GET'])
def search():
    search_term = request.args.get('search_term', '').strip()
    conn = sqlite3.connect('plant.db')
    cursor = conn.cursor()
    # get search from Plant table
    result = cursor.execute("SELECT * FROM Plant WHERE name LIKE ?;",
                           (f"%{search_term}%", )).fetchall()
    conn.close()
    return render_template("search.html",
                          result=result,
                          search_term=search_term)
```

```

@app.route('/login', methods=['GET', 'POST'])
def login():
    message = None
    if request.method == 'POST':
        username = request.form['username']
        password = request.form['password']
        conn = sqlite3.connect('plant.db')
        cursor = conn.cursor()
        user = cursor.execute('SELECT * FROM users WHERE username = ?',
                              (username,)).fetchone()
        conn.close()
        if user and user['password'] == password:
            return redirect('/')
        else:
            message = 'Invalid credentials, please try again.'
    return render_template('login.html', message=message)

```

#### Addition 5:

I added a db\_query function which takes queries from each app route, connects to the database, retrieves the relevant information, and returns the results to the app routes. The implementation of this meant that now I don't have to connect to the database in every single route, so there is less repetitive code, and the program works more efficiently.

```

def db_query(query, single=False, params=()):
    conn = sqlite3.connect('plant.db')
    cursor = conn.cursor()
    cursor.execute(query, params)

```

```

if single:
    result = cursor.fetchone()
else:
    result = cursor.fetchall()
conn.close()
return result

```

#### Addition 6:

I implemented signup and logout pages, which meant that I could make user sessions. I also hashed the passwords that the user entered to make the passwords more secure.

```

app.route('/signup', methods=['GET', 'POST'])
def signup():
    if request.method == 'POST':
        username = request.form['username']
        password = request.form['password']
        conn = sqlite3.connect('plant.db')
        cursor = conn.cursor()
        cursor.execute("SELECT * FROM User where username = ?", (username,))
        existing_user = cursor.fetchone()
        if existing_user:
            conn.close()
            flash('Username already exists. Please choose another one.', "error")
            return redirect('/signup')
        hashed_password = generate_password_hash(password)
        cursor.execute("INSERT INTO User (username, password) VALUES (?, ?)",
                      (username, hashed_password))
        conn.commit()

```

```

    conn.close()
    flash("Your account has been created. Please log in.",
          "success")
    return redirect('/login')
return render_template('signup.html')

@app.route('/logout')
def logout():
    session.pop('username', None)
    flash("You have been logged out.", "success")
    return redirect('/')

```

#### Addition 7:

I decided to add functions to my routes.py, db\_query and db\_insert. These functions mean that I do not have to connect to the database every single time I need to access the database. The functions have helped me avoid redundant code. I have also edited many of the routes such as the homepage route and individual plant page route to accommodate for the logins. These changes can be seen in GitHub.

```

# function with connection to query database and to avoid redundant code
def db_query(query, single=False, params=()):
    conn = sqlite3.connect('plant.db')
    cursor = conn.cursor()
    cursor.execute(query, params)
    # if single=True, fetch only one result
    if single:
        result = cursor.fetchone()
    # or else fetchall (single=False)
    else:
        result = cursor.fetchall()
    conn.close()

```

```
return result

# function with connection to database so that we can insert/remove from it
def db_insert(query, params=()):
    conn = sqlite3.connect('plant.db')
    cursor = conn.cursor()
    # execute the query
    cursor.execute(query, params)
    conn.commit()
    conn.close()
```

### Addition 8:

I added add to watchlist and remove from watchlist routes. I also decided to remove the contact route as it wasn't being used in my current design.

```
# add to watchlist route
@app.route('/add_to_watchlist/<int:plant_id>', methods=['POST'])
def add_to_watchlist(plant_id):
    # get the username from the session so that we know where to add the plant
    username = session.get('username')
    user_query = "SELECT id FROM User WHERE username = ?;"
```

```
if existing:
    flash("This plant is already in your watchlist.")
else:
    # if the plant isn't already in the users watchlist, then add it
    insert_query = """
        INSERT INTO Watchlist(user_id, plant_id)
        VALUES (?, ?);"""

    # use the db_insert function to access the database
    db_insert(insert_query, params=(user_id, plant_id))
    flash("Plant added to your watchlist.")

else:
    flash("User not found.")

return redirect(f'/plant/{plant_id}')


# remove from watchlist route
@app.route('/remove_watchlist<int:plant_id>', methods=['POST'])
def remove_watchlist(plant_id):
    """get the username from the session
    so that we know where to remove the plant from"""
    username = session.get('username')

    user_query = "SELECT id FROM User WHERE username = ?"
    user = db_query(user_query, single=True, params=(username,))
    if not user:
        flash('User not found.')
        return redirect('/')

    user_id = user[0]
    # remove the plant from the user's watchlist by using db_insert function
```

```

remove_query = "DELETE FROM Watchlist WHERE user_id = ? AND plant_id = ?"
db_insert(remove_query, params=(user_id, plant_id))
flash('Plant removed from your watchlist.')
return redirect('/')

```

## Fonts & Colours:

### Initial idea:

Titles/Headings in Lora medium

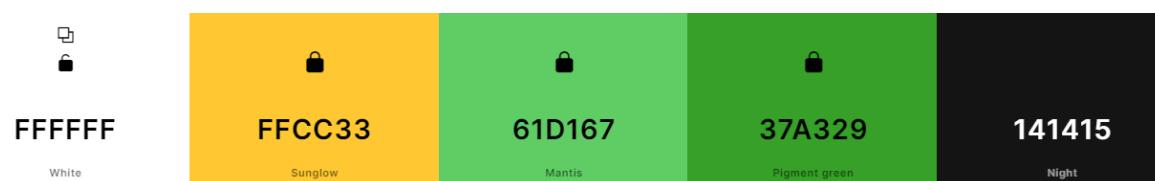
Paragraphs in Verdana

e.g.

**Lorem ipsum dolor sit amet**

Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

I decided not to use these fonts as I felt that they looked too brick-like on my website. Instead, I used Comfortaa and Roboto, which are smoother fonts. I thought that they were more aesthetically pleasing to look at, and they matched all the rounded borders I used.



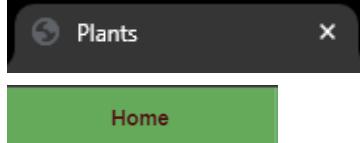
I decided not to go with these initial colours as they were too bright and harsh for the users to look at.



I also did not use these colours as while they did fit the plant theme, they didn't contrast enough which would make it difficult for users to read the text, especially visually impaired or elderly users.

Instead, I decided to choose colours which support the minimalist layout of the website while still having enough contrast to be readable and fitting the plant theme.

## **User feedback:**

Comments	Changes made/not made
<p><b>Vibhuti (Software Engineer)</b></p> <p>1) The Home button should be the name of the website to follow web design conventions</p>	<p>1) This was a part of my initial design idea and I decided to add it in. Additionally, I decided to add a favicon to improve the aesthetic design.</p> <p>Before:</p>  <p>After:</p>  <p>Tab displays a favicon.</p> <p>The 'Home' button has been replaced with</p>

2) The buttons on the homepage are uneven, and they should be the same size, as well as beside each other.

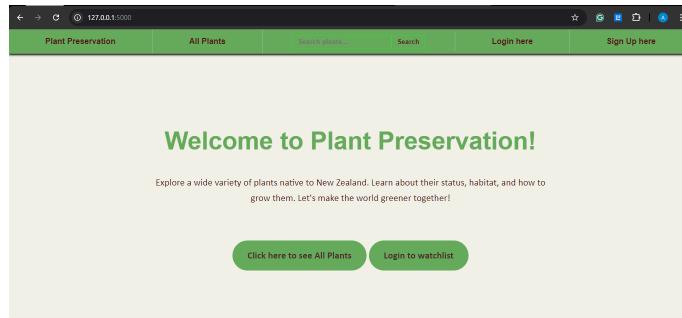
the name of the website and its favicon on the navigation bar.

2) I took this feedback into account and changed the layout of the buttons on the homepage to be more aesthetically pleasing, and so that they follow design conventions better.

Before:



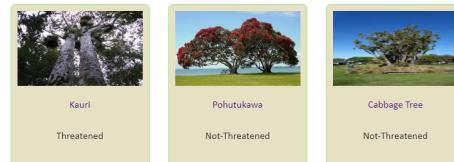
After:



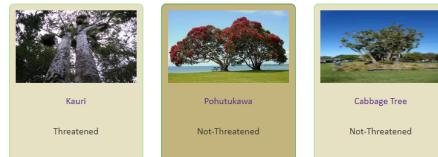
- 3) The cards on the all plant page should have some kind of response when you hover over them

- 3) I decided to take this advice and changed my layout so that when you hover the border changes colour, and the background colour also changes.

Before:



After:



The Pohutukawa plant changes colour when being hovered over. The same goes for all of the plants.

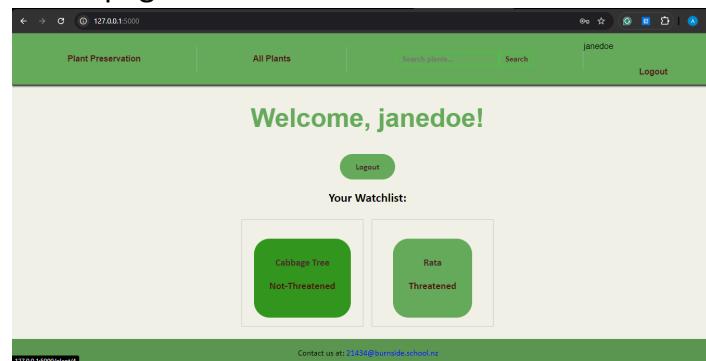
**Divya  
(Software Engineer)**

- 1) The individual plant pages should have arrows on each side to go back and forth through the plants

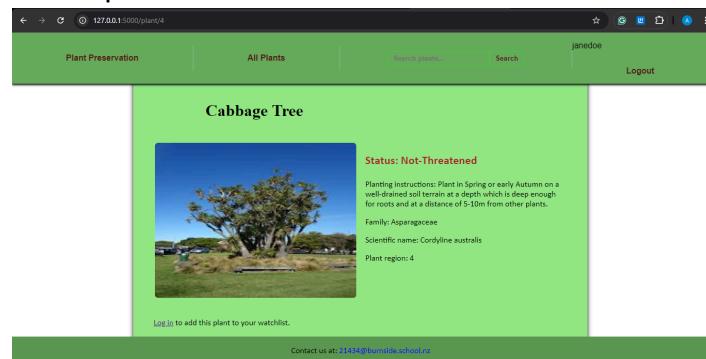
- 1) I love this idea, and I want to implement it in the long term. However, I do not think that I have enough time left to complete this.

2) The user should be able to click on the plants they have watchlisted to go to that page

2) I thought that this was a great suggestion and have implemented it so that the plants in the watchlist which are displayed on the home page are links now.



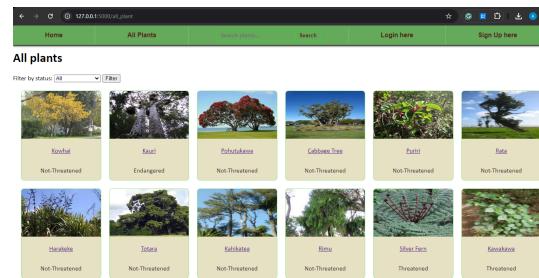
The cabbage tree card in the watchlist is now a link that leads to this page(same for other plants in watchlist):



3) The filter should have a nicer layout that's easier to see and use

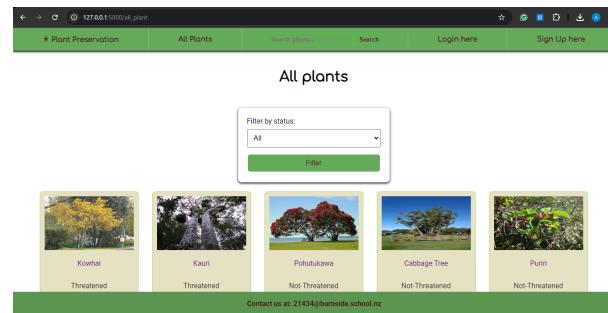
3) I agreed with this as the filter dropdown and button were not very visible on my all plant page. I decided to add a box at the top of my page to make it nicer. I also ended up moving the title of the page to the centre of the page, rather than on the side to make the page more aesthetically pleasing.

Before:



The filter is not very visible and the All plants title is far to the left, not following website design conventions.

After:



The title is in the centre of the page, and the status filter is much more visible and appealing to look at.

### Jessica (Non-Software engineer)

- 1) The colour scheme is nice, but I think that the buttons on the sign up, login, and filter could be styled better

- 1) I have addressed this and made the buttons larger and added some CSS for them. This should also make the buttons more accessible for visually impaired or elderly users. I also changed the sign up heading so that both forms would have a consistent design.  
Before:

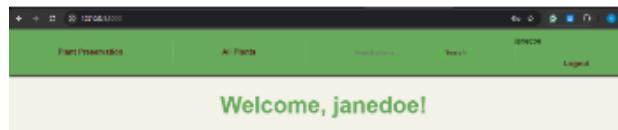
- 2) After you login, the username could be styled better in the top right corner
- 3) The font for the Plant headings could be a more interesting font
- 4) Nice 404 page :)

After:

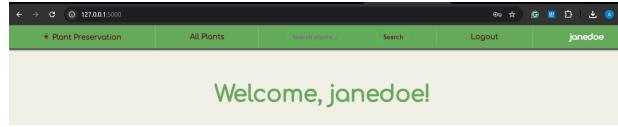
The image shows two separate forms side-by-side. The left form is titled 'Login' in green text at the top. It contains two input fields: 'Username:' and 'Password:', both with placeholder text. Below these is a green rectangular button with the word 'Login' in white. At the bottom of the form is a small blue link that says 'Don't have an account? Sign up'. The right form is titled 'Sign Up' in green text at the top. It also has 'Username:' and 'Password:' input fields with placeholder text, followed by a green 'Sign Up' button. At the bottom is a small blue link that says 'Already have an account? Login here'.

- 2) I agreed with this feedback and so I changed the style so that it stands out more and doesn't look so boring. The navigation bar also doesn't become longer when a user logs in now.

Before:



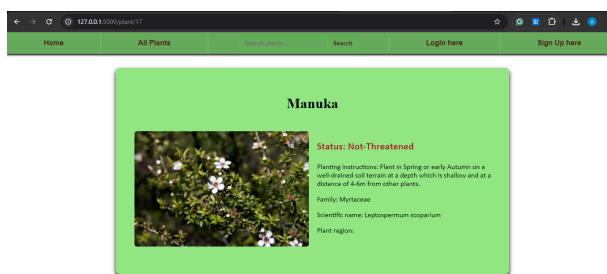
After:



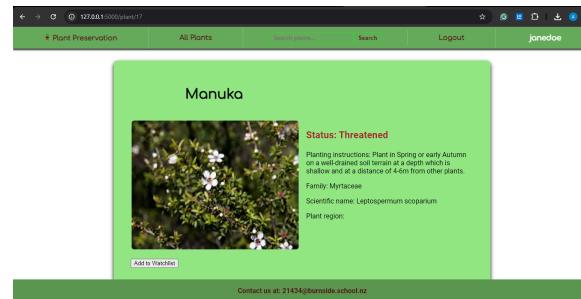
- 3) I also agreed and changed the fonts.

Before:

5) The green border around the search bar hurts your eyes



After:



5) I changed the border to a brown colour so that it would be less painful to look at. I also changed the styling on the search button so that it would be more visible and would turn a dark colour when you hovered over it.

Before:



After:

6) The images on the all plant page are squished up

6) I changed the styling for the images so that the aspect ratio wouldn't change as much.

Before:



The cabbage tree, rata, and a few other images look strange because the aspect ratio has been changed.

After:

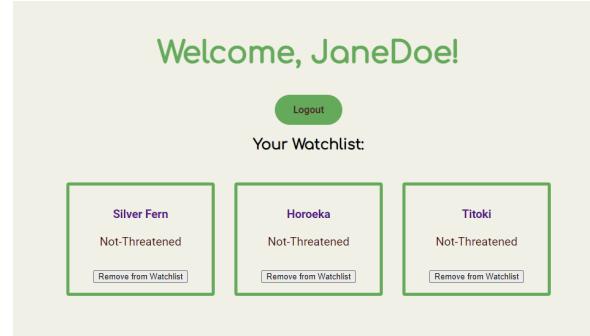


Extra parts of the image which don't fit are left off the card, but can be seen in the individual plant pages. This creates a more appealing design.

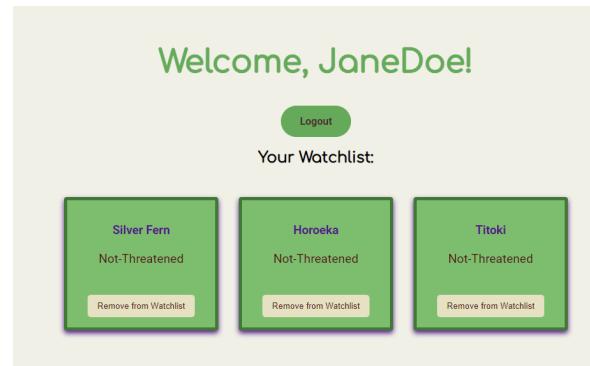
**Zahra**  
**(Non-Software engineer)**

- 1) The cards in the watchlist should be styled better

- 1) I agreed and added styling to these cards.  
Before:



After:



2) The search bar is barely visible. Maybe make it white.

2) I took the advice and decided to change my search bar again to have a white background with a darker green border. This made it easier to see on the navigation bar, improving its accessibility.

Before:



After:



3) The button on the individual plant page which lets me add the plant to my watchlist is very small and not noticeable in the corner

3) I agreed and made the button larger and so more visible.

Before:

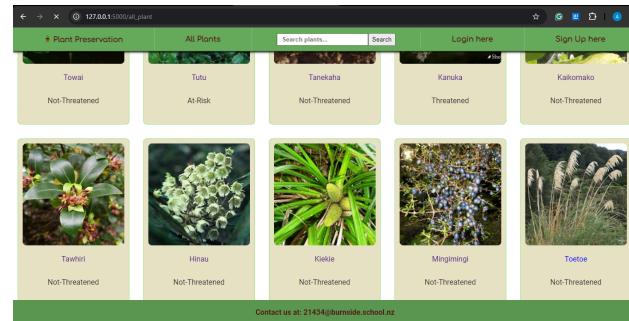


After:

4) The footer blocks some of the stuff on the page sometimes

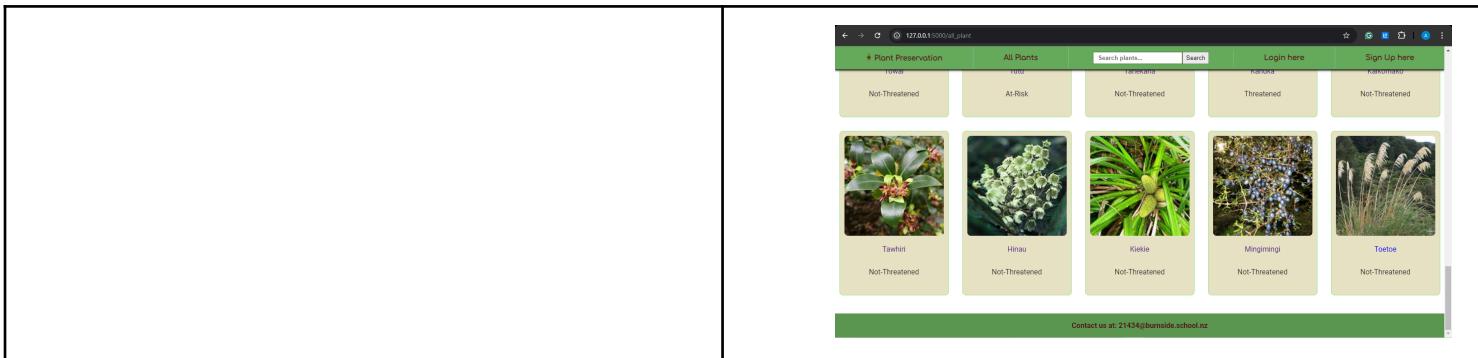
4) I agreed that this was an issue and changed the CSS so that the footer would always be at the bottom of the page after all of the page contents.

Before:



After:

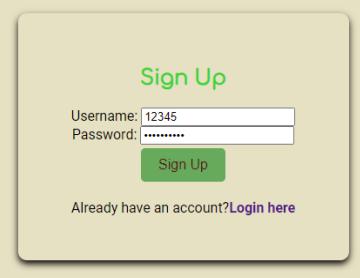


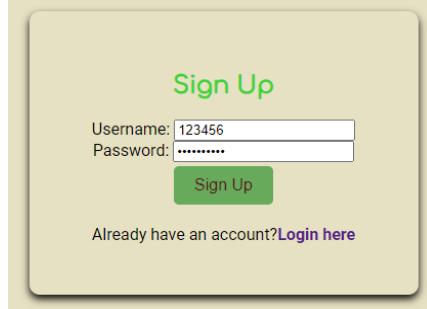
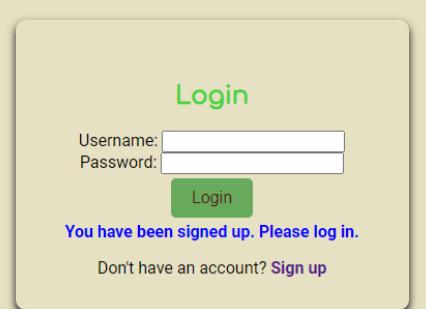
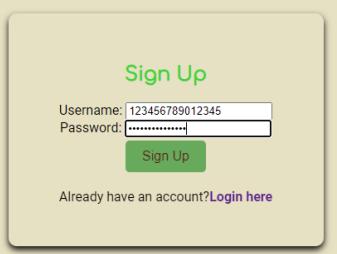


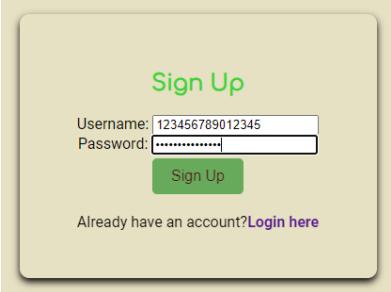
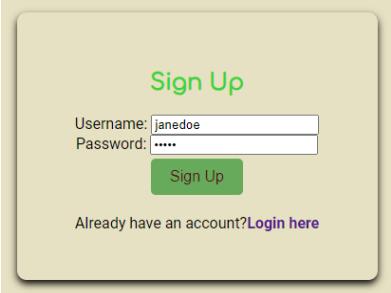
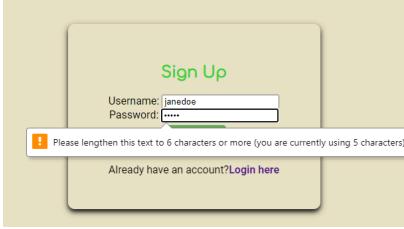
# Testing

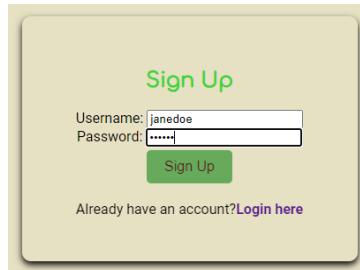
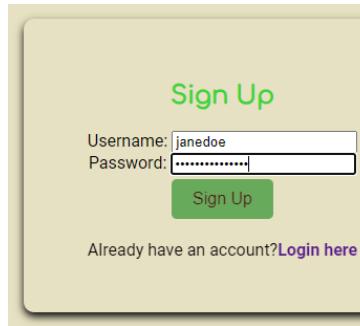
## Boundary testing:

### Sign up username and password input fields

What	How	Expected result	Actual result	Pass/Fail	Changes made from the last time this was tested
Minimum character limit on username in sign up page. The minimum number of	<p>By entering only 5 characters in</p> 	The website shouldn't accept 5 characters	 <p>The website asked me to enter more characters.</p>	Pass	This test had initially failed and logged me in even with 5 characters, so I added minlength="6" to my username input in my code. This made it so that I needed to input at least 6 characters or the website

<p>characters should be 6.</p>	<p>the username field</p>  <p>By entering 6 characters in the username field</p>	<p>The website should accept 6 characters and sign me up.</p>	 <p>The website signed me up, entering my username and password into the database.</p> <table border="1"> <thead> <tr> <th>id</th> <th>username</th> <th>password</th> </tr> </thead> <tbody> <tr> <td>24</td> <td>123456</td> <td>script:...</td> </tr> </tbody> </table>	id	username	password	24	123456	script:...	<p>Pass</p>	<p>wouldn't let me sign up.</p> <pre>&lt;label for="username"&gt;Username:&lt;/label&gt; &lt;input type="text" name="username" maxlength="15" minlength="6" required&gt;</pre>
id	username	password									
24	123456	script:...									
<p>Maximum character limit on username in sign up page. The maximum number of characters should be 15.</p>	<p>By entering 16 characters in the username field</p>	<p>I shouldn't be able to type more than 15 characters into the username field.</p>	 <p>I was not able to type a 16th character.</p>	<p>Pass</p>	<p>This test had initially failed, logging me in with 16 characters or letting me enter characters infinitely, so I added maxlength="15" to my username input in my code. This made it so that I needed to input under 15 characters or the website wouldn't let me sign up.</p> <pre>&lt;label for="username"&gt;Username:&lt;/label&gt; &lt;input type="text" name="username" maxlength="15" required&gt;</pre>						

	 <p>By entering 15 characters in the username field</p>	<p>The website should let me type 15 characters and sign me up.</p>	 <p>The website signed me up, entering my username and password into the database.</p> <pre> id    username      password 30  123456789012345  encrypt... </pre>		<pre> &lt;/label&gt;  &lt;input type="text" name="username" maxlength="15" minlength="6" required&gt; </pre>
<p>Minimum character limit on password in sign up page. The minimum number of characters should be 6.</p>	 <p>By entering only 5 characters in the password field</p>	<p>The website shouldn't accept 5 characters</p>	 <p>The website asked me to enter more characters</p>	<p>Pass</p>	<p>This test failed the first time I tested it. So, I added minlength="6" to my password input in my code. This made it so that I needed to input at least 6 characters or the website wouldn't let me sign up.</p> <pre> &lt;input type="password" name="password" minlength="6" required&gt; </pre>

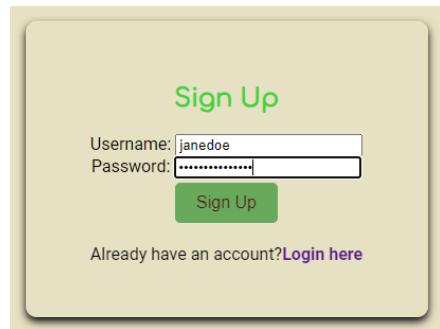
	 <p>By entering 6 characters in the password field</p>	The website should accept 6 characters and sign me up	 <p>The website signed me up, hashing my password and entering it into the database.</p>	Pass	
Maximum character limit on password in sign up page. The maximum number of characters should be 15.	 <p>By entering 16 characters in the password field</p>	The website shouldn't accept 16 characters	The website didn't let me type more than 15 characters in the input field, even when I copy and pasted 16 characters in.	Pass	<p>This test failed the first time I tried it because it let me type characters infinitely. So I added maxlength="15" to my password input in my code. This made it so that I needed to input at least 6 characters or the website wouldn't let me sign up.</p> <pre>&lt;input type="password" name="password" maxlength="15" minlength="6" required&gt;</pre>

**Sign Up**

Username:   
Password:

**Sign Up**

Already have an account? [Login here](#)



By entering 15 characters in the password field

The website should accept 15 characters and sign me up

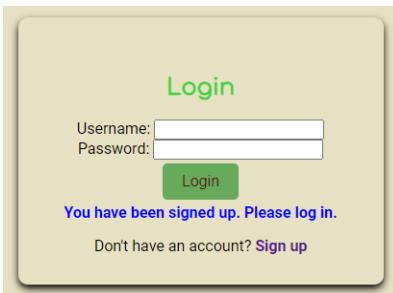
**Login**

Username:   
Password:

**Login**

You have been signed up. Please log in.

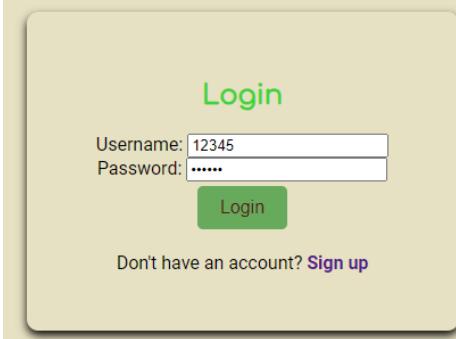
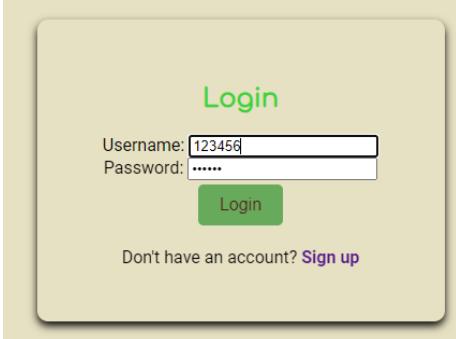
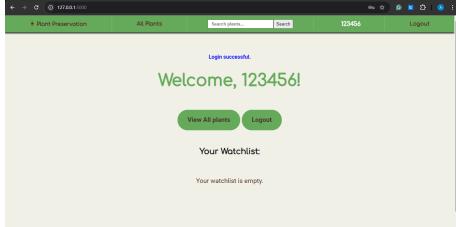
Don't have an account? [Sign up](#)

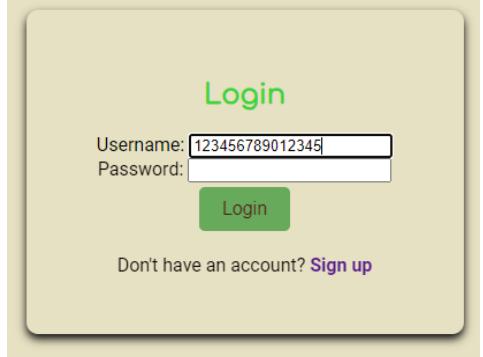
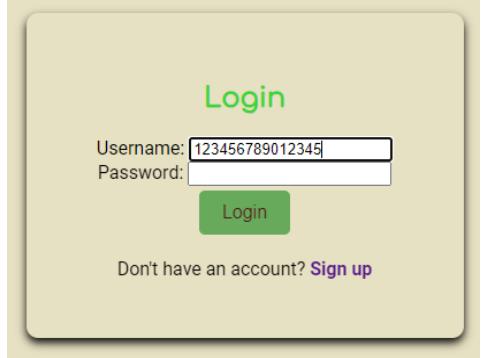
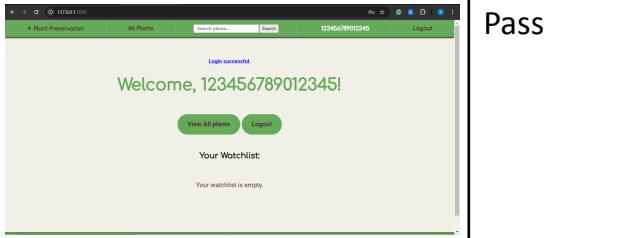


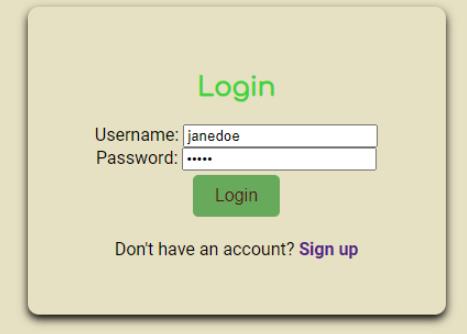
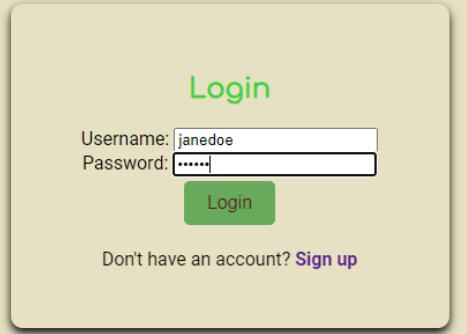
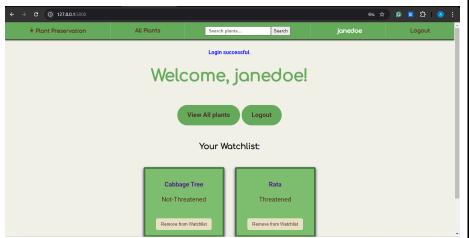
The website signed me up and redirected me to the login page, and entered my hashed password with my username into the database

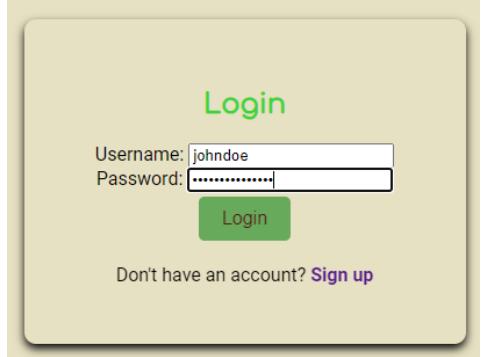
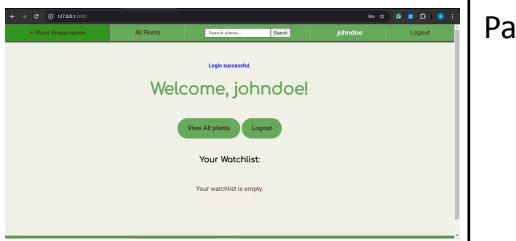
Pass

## Login username and password input fields

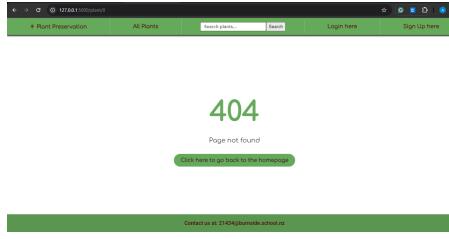
What	How	Expected result	Actual result	Pass/Fail	Changes made from the last time this was tested
Testing the minimum character limit of the username input on the login page	 <p>By entering only 5 characters into the username input</p>	The website should not let me enter only 5 characters.	 <p>The website asked me to enter more characters</p>	Pass	When I tested the sign up inputs and failed them, I changed the input requirements there, so I also changed them for the login. So all the login inputs passed the first time.
	 <p>By entering 6 characters into the username</p>	The website should log me in, enter my details into the database, and redirect me to the home page and welcome me.	 <p>The program checked that I was a user in the database, logged me in, and redirected me to the home page.</p>	Pass	

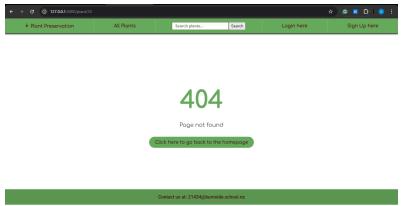
<p>Testing the maximum character limit of the username input on the login page</p>	 <p>The screenshot shows a login form with a yellow header containing the word "Login". Below it are two input fields: "Username:" and "Password:", both containing the value "123456789012345". A green "Login" button is below the inputs. At the bottom, there is a link "Don't have an account? <a href="#">Sign up</a>".</p> <p>By entering 16 characters in the username field</p>	<p>The website should not let me enter more than 15 characters into the username input</p>	<p>The website did not let me enter 16 characters into the username field.</p>	<p>Pass</p>	
	 <p>The screenshot shows a login form with a yellow header containing the word "Login". Below it are two input fields: "Username:" and "Password:", both containing the value "123456789012345". A green "Login" button is below the inputs. At the bottom, there is a link "Don't have an account? <a href="#">Sign up</a>".</p> <p>By entering 15 characters into the username field</p>	<p>The website should log me in, enter my details into the database, and redirect me to the home page and welcome me.</p>	 <p>The screenshot shows a successful login confirmation page. The top navigation bar includes "Plant Preservation", "All Plants", "Search plants...", "Search", "Logout", and a user ID "123456789012345". The main content area displays a message "Welcome, 123456789012345!" and a "Logout" button. Below this, there is a section titled "Your Watchlist" with the subtext "Your watchlist is empty."</p> <p>The website let me login in because I was within 15 characters and because I entered the correct username and password.</p>	<p>Pass</p>	

<p>Testing the minimum character limit of the password input on the login page</p>	 <p>By entering only 5 characters into the password field</p>	<p>The website should not let me enter only 5 characters.</p>	 <p>The website asked me to enter more characters.</p>	<p>Pass</p>
	 <p>By entering 6 characters into the password field</p>	<p>The website should log me in, enter my details into the database, and redirect me to the home page and welcome me.</p>	 <p>The website accepted the password because it was 6 characters and because it was the correct password.</p>	<p>Pass</p>

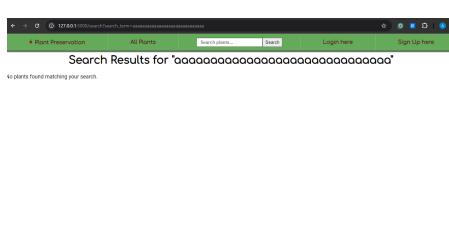
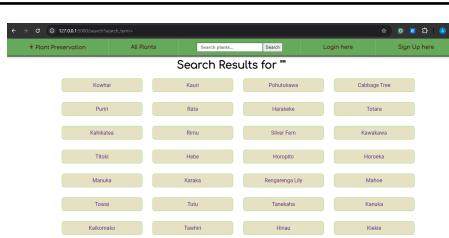
<p>Testing the maximum character limit of the password input on the login page</p>	 <p>By entering 16 characters in the password field</p>	<p>The website should not let me enter 16 characters because that is greater than 15.</p>	<p>The website didn't let me enter 16 characters into the password field. I was not able to type more than 15 characters.</p>	<p>Pass</p>	
	 <p>By entering 15 characters into the password field</p>	<p>The website should log me in, enter my details into the database, and redirect me to the home page and welcome me.</p>	 <p>The website accepted the password because it was 15 characters and because it was the correct password for that username.</p>	<p>Pass</p>	

## Individual plant page URLs

What	How	Expected result	Actual result	Pass/Fail	Changes made from the last time this was tested
Check if any plant page shows up for the id 0, an id which doesn't exist.	By putting in this url: http://127.0.0.1:5000/plant/0	The custom 404 page should show up		Pass	<p>This test passed the first time with this code in the individual plant page route:</p> <pre>if not id:     abort(404)</pre> <p>It also passed the 2nd time with this code:</p> <pre>if not plant:     abort(404)</pre>
Check if any plant shows up for an id that exists, id 1.	By putting in this url: http://127.0.0.1:5000/plant/1	The kowhai page should show up, as this is the page with the id 1		Pass	<p>This test also passed with both versions of the code</p> <p>1st version:</p> <pre>if not id:     abort(404)</pre> <p>2nd version:</p> <pre>if not plant:     abort(404)</pre>

Check if any plant page shows up for the id 33	By putting in this url: http://127.0.0.1:5000/plant/33	The custom 404 page should show up.		Pass	<p>This test had failed the first time with the first version of the code. It would display something like this:</p>  <p>Changing the code from looking for the plant variable rather than the id solved this issue.</p>
Check if any plant page shows up for the id 32 which is currently the last id in the database	By putting in this url: http://127.0.0.1:5000/plant/32	The Toetoe page should show up, as the plant with the id 32 is Toetoe.		Pass	<p>This test passed both versions of the code</p> <p>1st version:</p> <pre>if not id:     abort(404)</pre> <p>2nd version:</p> <pre>if not plant:     abort(404)</pre>

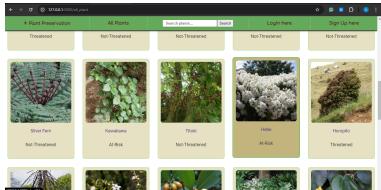
## Search bar

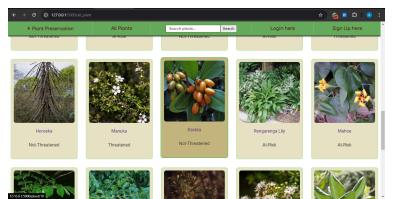
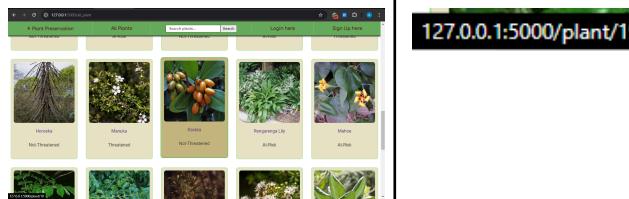
What	How	Expected result	Actual result	Pass/Fail	Changes made from the last time this was tested
The maximum character limit of the search bar	By entering 31 characters	The search bar should not let me type in 31 characters as this is greater than 30.	I was not able to type more than 30 characters into the search bar, even if I copy and pasted them in.	Pass	This test did not pass the last time I tested it. I had this code: <pre>&lt;input type="text" name="search_term" placeholder="Search plants..." &gt;</pre>
	By entering 30 characters	The search bar should let me enter 30 characters	 <p>I was able to type 30 characters into the search bar and it searched as expected.</p>	Pass	To pass the test, I changed the code to this: <pre>&lt;input type="text" name="search_term" placeholder="Search plants..." maxlength="30"&gt;</pre>
I chose not to have a minimum character requirement for my search bar.	By entering nothing in the search bar and pressing the Search button	All the plants should display		Pass	No changes have been made to the program.

If nothing is entered and the search is pressed, then all the plants should display.			All the plants displayed		
--	--	--	--------------------------	--	--

### Data integrity testing:

#### Links to individual plant pages in all plants page

Link(hovering over)	Link URL	Database	After clicking link	Result matches database information?	Data matches source?
Hovering over Hebe plant card	 127.0.0.1:5000/plant/14	In Plant table in database:  The plant with the id 14 has the name Hebe  In the Planting_instruction table:  The plant with the id 14 has these		The name of the plant matches the id in both the url on the website and in the database.  The page shows that the plant is Hebe and displays its details. It shows the planting instructions(Plant in Spring or early Autumn on a well-drained soil terrain)  The family and scientific name also match the	The sources of this information are the DOC website and the NZPCN website. Both of these have been linked earlier in this document.  The information displayed on the page and in the database match the source information.

		instructions	<p>at a depth which is twice the root ball and at a distance of 1-2m from other plants.), and it shows the family(plantaginaceae) and scientific name(veronica amplexicaulis)</p>	database.	Snip from NZPCN website: 																													
 Hovering over Karaka plant card	 127.0.0.1:5000/plant/19	<p>In Plant table in database:</p> <table border="1"> <thead> <tr> <th>id</th> <th>name</th> <th>status</th> <th>family</th> <th>scientific_name</th> <th>image</th> </tr> </thead> <tbody> <tr> <td>17</td> <td>Mentha</td> <td>Threatened</td> <td>Mintaceae</td> <td>Leptopeltis squamaria</td> <td>/static/images/mentha.jpg</td> </tr> <tr> <td>18</td> <td>Karaka</td> <td>NT-Threatened</td> <td>Coryncarpaceae</td> <td>Corynocarpus laevigatus</td> <td>/static/images/karaka.jpg</td> </tr> </tbody> </table> <p>In bridge PlantRegion table in database:</p> <table border="1"> <thead> <tr> <th>plant_id</th> <th>region_id</th> </tr> </thead> <tbody> <tr> <td>36</td> <td>17</td> <td>15</td> </tr> <tr> <td>37</td> <td>19</td> <td>1</td> </tr> <tr> <td>38</td> <td>19</td> <td>2</td> </tr> </tbody> </table> <p>In Region table in database:</p>	id	name	status	family	scientific_name	image	17	Mentha	Threatened	Mintaceae	Leptopeltis squamaria	/static/images/mentha.jpg	18	Karaka	NT-Threatened	Coryncarpaceae	Corynocarpus laevigatus	/static/images/karaka.jpg	plant_id	region_id	36	17	15	37	19	1	38	19	2	 The page shows the Karaka plant, whose id is 19, with the regions Auckland and Wellington.	<p>The regions Auckland and Wellington are displayed on the</p>	<p>Yes. The information from the source, NZPCN, matches the data in the database and the data displayed on the page.</p> <p>Snip from NZPCN:</p>  <p>Snip from DOC website:</p>  <p>Information is provided about the distribution of karaka (<i>Corynocarpus laevigatus</i> J.R. ex G. Forst.) in the Wellington Conservancy of the Department of Conservation. Karaka is an evergreen tree with smooth, dark grey leaves. It grows up to 20 m tall. It is found in coastal and lowland forest in the North Island and northern South Island and is closely related to species found in the New Hebrides and New Caledonia. The species is known in other countries</p>
id	name	status	family	scientific_name	image																													
17	Mentha	Threatened	Mintaceae	Leptopeltis squamaria	/static/images/mentha.jpg																													
18	Karaka	NT-Threatened	Coryncarpaceae	Corynocarpus laevigatus	/static/images/karaka.jpg																													
plant_id	region_id																																	
36	17	15																																
37	19	1																																
38	19	2																																

		<table border="1"> <thead> <tr> <th><b>id</b></th><th><b>name</b></th></tr> </thead> <tbody> <tr> <td>1</td><td>Auckland</td></tr> <tr> <td>2</td><td>Wellington</td></tr> <tr> <td>...</td><td>...</td></tr> </tbody> </table>	<b>id</b>	<b>name</b>	1	Auckland	2	Wellington	...	...		
<b>id</b>	<b>name</b>											
1	Auckland											
2	Wellington											
...	...											

### User watchlist

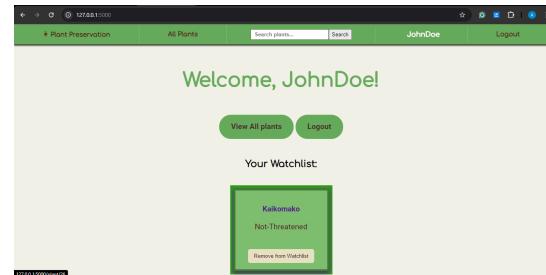
<b>What</b>	<b>Website</b>	<b>Database</b>	<b>Result matches database information?</b>																								
Check if the plants displayed in the user's watchlist are the same as the in the database	 <p>The website shows that JaneDoe's watched plants are the Horoeka and Puriri</p>	<p>In the User table:</p> <table border="1"> <thead> <tr> <th><b>id</b></th> <th><b>username</b></th> <th><b>password</b></th> </tr> </thead> <tbody> <tr> <td>17</td> <td>23</td> <td>JaneDoe script:...</td> </tr> </tbody> </table> <p>It shows that JaneDoe's id is 23</p> <p>In the Plant table:</p> <table border="1"> <thead> <tr> <th><b>id</b></th> <th><b>name</b></th> <th><b>status</b></th> <th><b>family</b></th> <th><b>scientific_name</b></th> <th><b>image</b></th> </tr> </thead> <tbody> <tr> <td>5</td> <td>Puriri</td> <td>Not-Threatened</td> <td>Lamiaceae</td> <td>Vitex lucens</td> <td>/static/images/puriri.jpg</td> </tr> <tr> <td>16</td> <td>Horoeka</td> <td>Not-Threatened</td> <td>Araliaceae</td> <td>Pseudopanax crassifolius</td> <td>/static/images/horoeka.jpg</td> </tr> </tbody> </table> <p>It shows that the plant Horoeka has the id 16, and that the plant Puriri has the id 5</p> <p>In the Watchlist bridge table:</p>	<b>id</b>	<b>username</b>	<b>password</b>	17	23	JaneDoe script:...	<b>id</b>	<b>name</b>	<b>status</b>	<b>family</b>	<b>scientific_name</b>	<b>image</b>	5	Puriri	Not-Threatened	Lamiaceae	Vitex lucens	/static/images/puriri.jpg	16	Horoeka	Not-Threatened	Araliaceae	Pseudopanax crassifolius	/static/images/horoeka.jpg	<p>Yes. The bridge table shows that the user with the id 23(which is JaneDoe) has the plants with id's of 16(which is the Horoeka) and 5(which is the Puriri) in their watchlist.</p> <p>So, the plants showing on JaneDoe's watchlist in the website match the plants showing on JaneDoe's watchlist in the database.</p>
<b>id</b>	<b>username</b>	<b>password</b>																									
17	23	JaneDoe script:...																									
<b>id</b>	<b>name</b>	<b>status</b>	<b>family</b>	<b>scientific_name</b>	<b>image</b>																						
5	Puriri	Not-Threatened	Lamiaceae	Vitex lucens	/static/images/puriri.jpg																						
16	Horoeka	Not-Threatened	Araliaceae	Pseudopanax crassifolius	/static/images/horoeka.jpg																						

 user_id	plant_id
16	23
17	23
	16
	5

It shows that the user with the id 23 has the plants with id's of 16 and 5 in their watchlist.

Check if links in the user's watchlist on the homepage go to their respective individual plant pages and match the database

JohnDoe's watchlist shows these plants. We are hovering over the Kaikomako plant:



This is the URL that displays, telling us that the plant id is 26:

127.0.0.1:5000/plant/26

When we click on the link we go to this page:

In the User table, JohnDoe has the id 34:

 id	username	password
25	34 JohnDoe	script:...

In the Plant table, the Kaikomako has the id 26:

 id	name	status	family	scientific_name	image
25	26 Kaikomako	Not-Threatened	Pennantiaceae	Pennantia corymbosa	/static/images/kaikomako.jpg

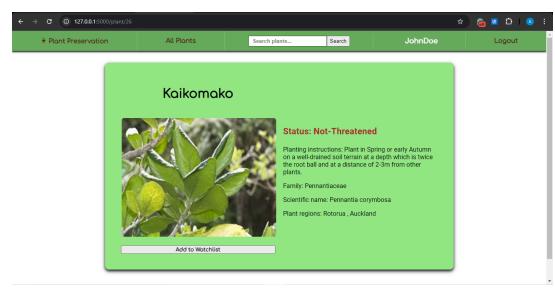
In the bridge Watchlist table, the user with the id 34 has the plant with the id 26 in their watchlist. So, JohnDoe, has the plant Kaikomako in their watchlist.

 user_id	plant_id
18	34
	26

Yes. The database shows that the plant Kaikomako is Not Threatened, that its family is Pennantiaceae, that its scientific name is Pennantia corymbosa, and that its id is 26. This matches the information in the Plant table of the database.

The database also shows that JohnDoe's id is 34, and that the Kaikomako's id is 26, which match the User and Plant tables in the database.

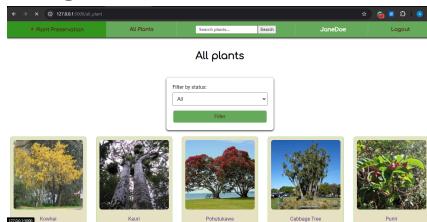
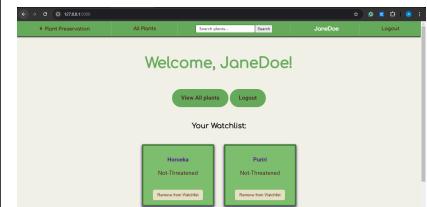
The Watchlist table in the database shows that JohnDoe has only the plant Kaikomako in their

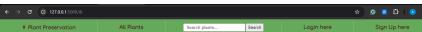
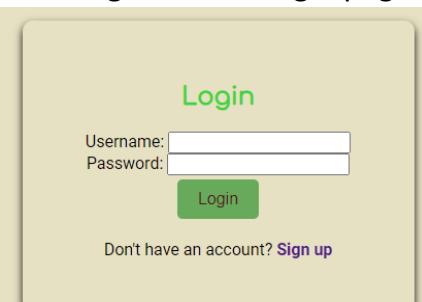


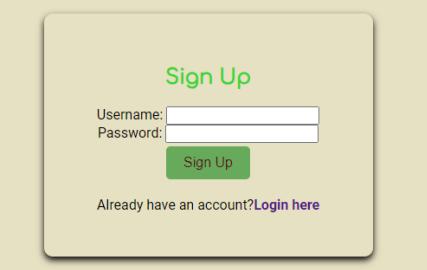
The URL of this page also matches the URL of the link shown in the corner earlier

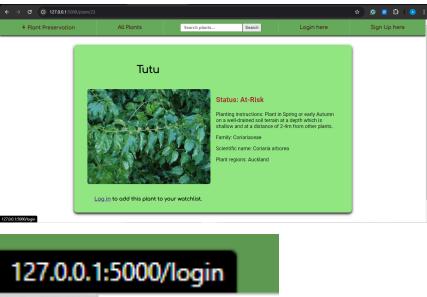
Watchlist, and that is what the website is showing on the homepage.

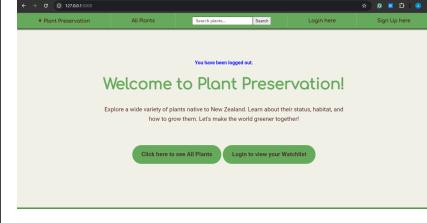
### Home, Signup, Login, and Logout links

What	How	Expected result	Actual Result	Pass/Fail/Other notes
Does the home page link on the navigation bar go to the home page	<p>We are hovering over the homepage link on the navigation bar:</p>  <p>It is showing this URL: 127.0.0.1:5000</p>	<p>Clicking on the link should take us back to the home page</p>	 <p>The link sent us to the homepage, which is currently showing JaneDoe's watchlist since they are logged in.</p>	Pass

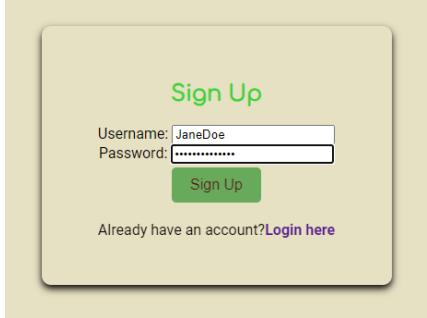
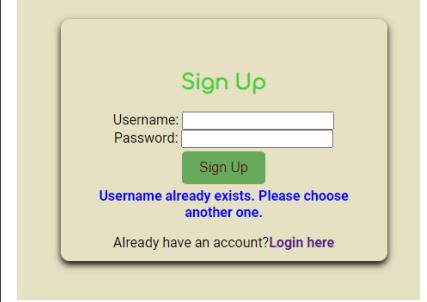
<p>Does the home page link on the custom 404 page go to the home page.</p>	<p>We are hovering over the homepage link on the custom 404 page:</p>  <p>404 Page not found</p> <p>Contact us at 21424@bennettsunited.ac</p> <p>It is showing this URL: <b>127.0.0.1:5000</b></p>	<p>The link should take us back to the home page</p>	 <p>Welcome to Plant Preservation! Explore a wide variety of plants native to New Zealand. Learn about their status, habitat, and how to grow them. Let's make the world greener together!</p> <p><a href="#">Click here to see All Plants</a> <a href="#">Login to view your Watchlist</a></p> <p>The link sent us back to the homepage.</p>	<p>Pass</p>
<p>Does the signup button on the navigation bar work</p>	<p>Hovering on button in nav bar:</p>  <p>127.0.0.1:5000/signup</p>	<p>Link should take us to the signup page</p>	 <p>Sign Up Username: _____ Password: _____ <a href="#">Sign Up</a> Already have an account? <a href="#">Login here</a></p>	<p>Pass</p>
<p>Does the signup link on the login page work</p>	<p>Hovering on link in login page:</p>  <p>Login Username: _____ Password: _____ <a href="#">Login</a> Don't have an account? <a href="#">Sign up</a></p>	<p>Link should take us to the signup page</p>	 <p>Sign Up Username: _____ Password: _____ <a href="#">Sign Up</a> Already have an account? <a href="#">Login here</a></p>	<p>Pass</p>

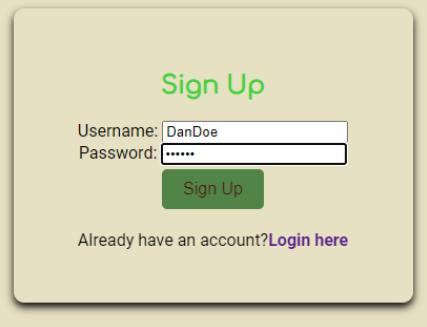
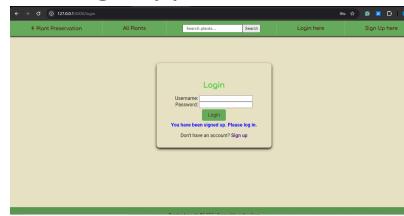
				
Does the login button on the navigation bar work	<p>Hovering on login button on nav bar:</p>  	Link should take us to the login page		Pass
Does the login link on the signup page work	<p>Hovering on login link in signup page:</p>  	Link should take us to the login page		Pass
Does the login link on the individual plant pages work	<p>Hovering over login link on an individual plant page:</p>	Link should take us to the login page		Pass

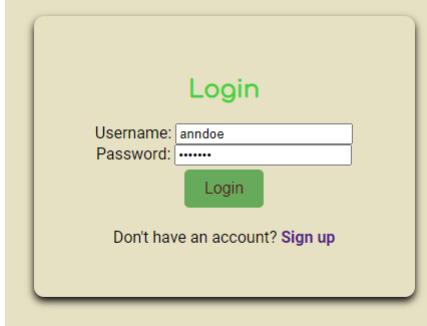
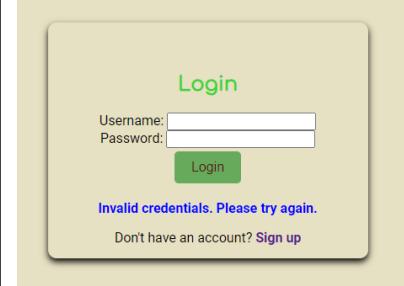
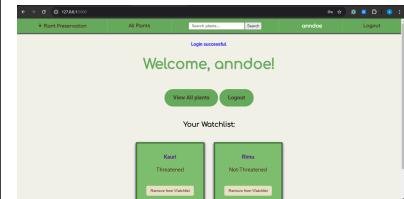
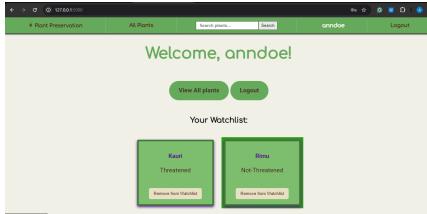
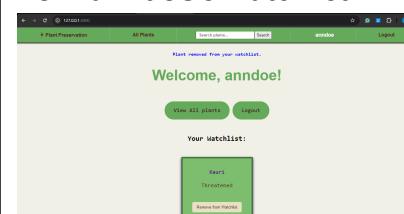
	 <b>127.0.0.1:5000/login</b>			
Does the login button on the home page work	<p>Hovering over login button on default homepage:</p>  <b>127.0.0.1:5000/login</b>	Link should take us to the login page		Pass
Does the logout button on the navigation bar work	<p>Hovering over logout button of navigation bar:</p>  <b>127.0.0.1:5000/logout</b>	Link should take us to the default home page		Pass

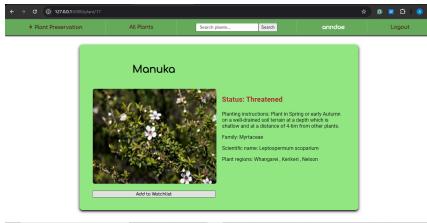
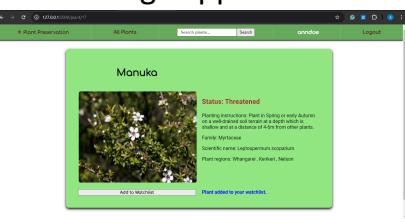
Does the logout button on the home page work	Hovering over logout button on user home page: 	Link should take us to the default home page		Pass
--	---	--	---	------

### Flash messages

What	How	Expected result	Actual Result	Pass/Fail/Other notes
Does a message display when you enter a username that already exists	We will enter a username, JaneDoe, that already exists:   We can see in the database in the User table that JaneDoe	A message that says "Username already exists. Please choose another one." should appear in blue on the page and the form should clear itself.	The form cleared and we were asked to enter a different username: 	Pass

	already exists: 			
Are we redirected to the login page after we have successfully signed up, does a message display, and do our username and password show up in the database.	We will sign up as DanDoe: 	We should be redirected to the login page. Here, a message that says "You have been signed up. Please log in." should appear, and our username and hashed password should now be in the database.	We have been redirected to the login page and the message appears:  In the database in the User table, we can now see that DanDoe is there, and his password has been hashed and is also there: 	Pass
Does a message display when you enter your login details incorrectly	We will enter anndoe's password wrong:	A message that says "Invalid credentials. Please try again." should appear on the page. The form should clear.	The form cleared and we were told that either the username or password was incorrect and asked to try again:	Pass

				
Does a message display when you successfully log in	We will enter the correct username and password for anndoe	The website should log us in as anndoe and a message that says “Login successful.” should appear	The message correctly appeared, and we were logged in correctly as anndoe: 	Pass
Does a message display when you remove a plant from your watchlist	We will remove the plant Rimu from anndoe’s watchlist: 	A message that says “Plant removed from your watchlist.” should appear and the Rimu plant should disappear from the watchlist.  In the database, we should see that anndoe now has	The message appears and the Rimu plant disappears from anndoe’s watchlist: 	Pass

	<p>We know that in the database in the User table anndoe's id is 6:</p> <table border="1"> <thead> <tr> <th>id</th> <th>username</th> <th>password</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>6 anndoe</td> <td>script:...</td> </tr> </tbody> </table> <p>And we know that in the Plant table Rimu's id is 10:</p> <table border="1"> <thead> <tr> <th>id</th> <th>name</th> <th>status</th> <th>family</th> <th>scientific_name</th> <th>image</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>Rimu</td> <td>Not-Threatened</td> <td>Podocarpaceae</td> <td>Dacrydium cupressinum</td> <td>/static/images/rimu.jpg</td> </tr> </tbody> </table> <p>And that in the Watchlist table anndoe has two plants in her Watchlist. The plants are Kauri(id 2) and Rimu(id 10):</p> <table border="1"> <thead> <tr> <th>user_id</th> <th>plant_id</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>6</td> </tr> <tr> <td>6</td> <td>2</td> </tr> <tr> <td>6</td> <td>10</td> </tr> </tbody> </table>	id	username	password	2	6 anndoe	script:...	id	name	status	family	scientific_name	image	10	Rimu	Not-Threatened	Podocarpaceae	Dacrydium cupressinum	/static/images/rimu.jpg	user_id	plant_id	5	6	6	2	6	10	<p>only one plant in her watchlist, Kauri.</p>	<p>In the database Watchlist table:</p> <table border="1"> <thead> <tr> <th>user_id</th> <th>plant_id</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>5</td> </tr> <tr> <td>3</td> <td>6</td> </tr> <tr> <td>4</td> <td>13</td> </tr> </tbody> </table> <p>anndoe now only has 1 plant in her watchlist, the Kauri</p>	user_id	plant_id	2	5	3	6	4	13	
id	username	password																																				
2	6 anndoe	script:...																																				
id	name	status	family	scientific_name	image																																	
10	Rimu	Not-Threatened	Podocarpaceae	Dacrydium cupressinum	/static/images/rimu.jpg																																	
user_id	plant_id																																					
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6	2																																					
6	10																																					
user_id	plant_id																																					
2	5																																					
3	6																																					
4	13																																					
Does a message display when you add a plant to your watchlist	<p>We will add the Manuka plant to anndoe's watchlist:</p>  <p>We know that in the database</p>	<p>A message that says "Plant added to your watchlist." should appear, and if we go back to the homepage the Manuka plant should be there.</p> <p>In the database, we should see that anndoe now has</p>	<p>The message appears:</p>  <p>And, if we go back to anndoe's homepage the Manuka plant is there:</p>	Pass																																		

in the User table anndoe's id is 6:

id	username	password
2	anndoe	script:...

And we know that in the Plant table Kauri's id is 2:

id	name	status	family	scientific_name	image
1	Kowhai	Threatened	Fabaceae	Sophora microphylla	/static/images/kowhai.jpg
2	Kauri	Threatened	Araucariaceae	Agathis australis	/static/images/kauri.jpg

And that in the Watchlist table anndoe has one plant in her Watchlist. The Kauri, with the id 2:

	user_id	plant_id
2	5	6
3	6	2
4	13	26

two plants, the Kauri and the Manuka.

We can see in the database that she now has 2 plants in her watchlist:

user_id	plant_id
5	6
6	2
6	17
13	26

She has the Kauri(id 2), and the Manuka, whose id is 17, as we can see in the Plant table:

id	name	status	family	scientific_name	image
17	Manuka	Threatened	Myrtaceae	Leptospermum scoparium	/static/images/manuka.jpg

Does a message display when you try to add a plant which is already in your watchlist to your watchlist

We can see that the only plant in anndoe's watchlist is the Kauri:

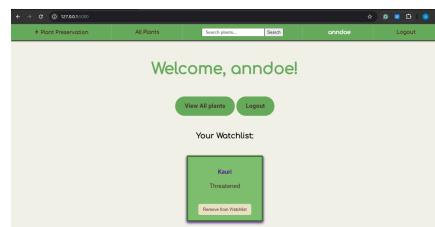
A message should appear that says "This plant is already in your watchlist." should appear.

There should be no changes to the database

The message appeared:

The homepage had no

Pass



We know that in the database in the User table anndoe's id is 6:

	id	username	password
2	6	anndoe	scrypt:...

And we know that in the Plant table Kauri's id is 2:

	id	name	status	family	scientific_name	image
1	Kowhai	Threatened	Fabaceae	Sophora microphylla	/static/images/kowhai.jpg	
2	Kauri	Threatened	Araucariaceae	Araucaria australis	/static/images/kaun.jpg	

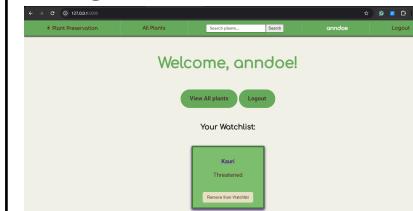
And that in the Watchlist table anndoe has the Kauri plant in her watchlist:

	user_id	plant_id
2	5	6
3	6	2
4	13	26

So, we will try to add the Kauri to anndoe's watchlist, even though it is already there.

or to the watchlist displayed in the homepage.

changes:



In the database, there were no duplicate entries of the Kauri plant in anndoe's watchlist:

user_id	plant_id
5	6
6	2
13	26

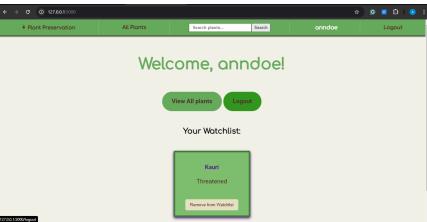
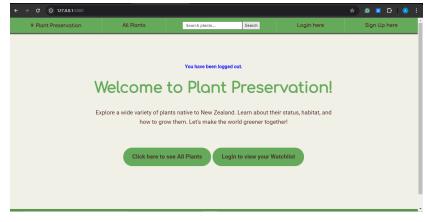
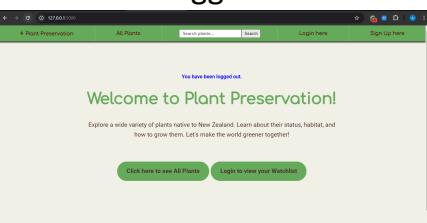
Does a message display when you log out

We will log out from anndoe's account:

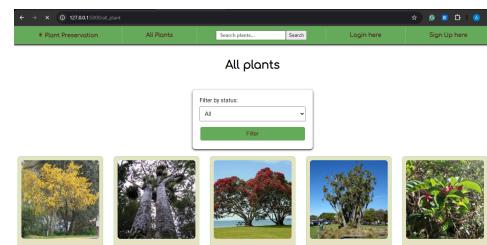
A message that says "You have been logged out."

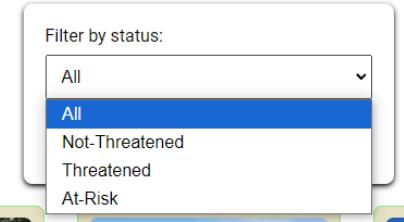
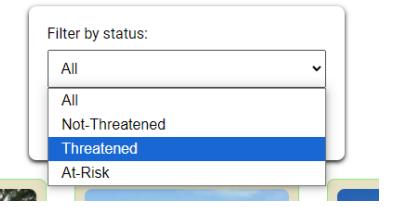
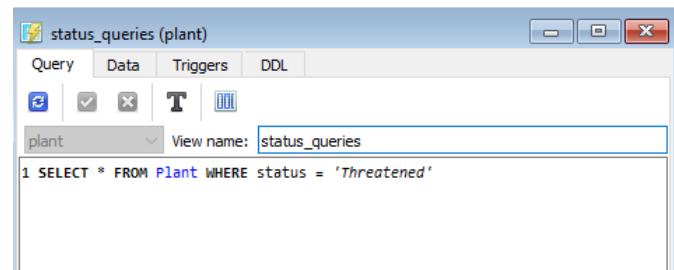
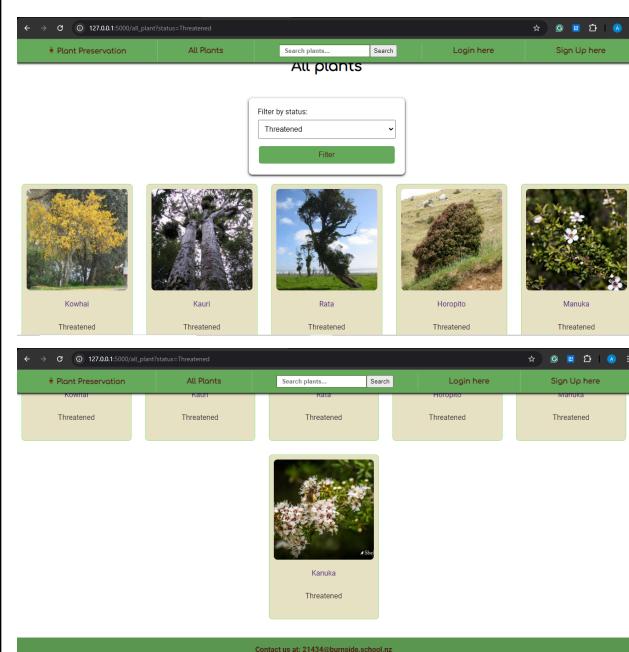
The message appeared and we can see the default

Pass

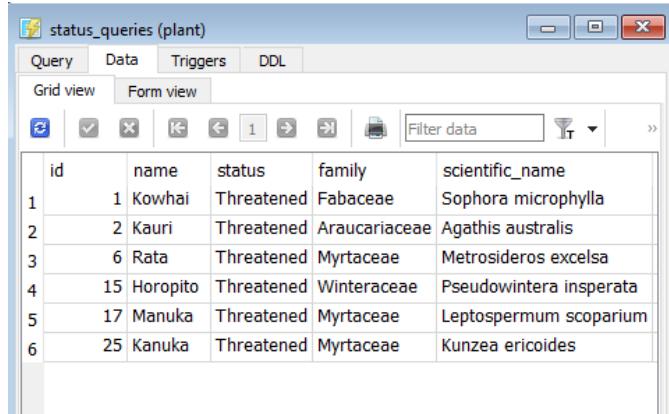
		should appear, and we should see the default home page for when a user isn't logged in.		
Does a message disappear when you reload the page	We will reload the page after anndoe has logged out: 	The message should disappear	The message disappeared: 	Pass

## Status filter

Action	Expected result	Actual Result	Pass/Fail
Nothing selected	The all plant page should automatically open with the filter on All	 <p>All plants</p> <p>Filter by status:</p> <p>All</p> <p>Filter</p> <p>Kowhai Kauri Pohutukawa Cabbage Tree Puiti</p> <p>All the plants are displaying when we open the page</p>	Pass

All selected	<h3>All plants</h3>  <p>All plants should display</p>	<p>All plants display on page</p>	<p>Pass.</p> <p>These results match the source data on the NZPCN website</p>
Threatened selected	<h3>All plants</h3>  <p>Only the Threatened plants should display</p> <p>When we create this view in the database:</p> 		<p>Pass.</p> <p>The results from the status filter match those in the database. These results also match the source data on the NZPCN website</p>

We get these results:



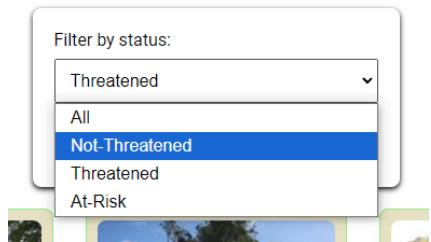
A screenshot of a database application window titled "status\_queries (plant)". The window has tabs for "Query", "Data", "Triggers", and "DDL". The "Data" tab is selected, showing a "Grid view" of plant information. The columns are "id", "name", "status", "family", and "scientific\_name". The data rows are:

id	name	status	family	scientific_name
1	Kowhai	Threatened	Fabaceae	Sophora microphylla
2	Kauri	Threatened	Araucariaceae	Agathis australis
3	Rata	Threatened	Myrtaceae	Metrosideros excelsa
4	Horopito	Threatened	Winteraceae	Pseudowintera insperata
5	Manuka	Threatened	Myrtaceae	Leptospermum scoparium
6	Kanuka	Threatened	Myrtaceae	Kunzea ericoides

These are the plants that should show up when the Threatened filter option is selected

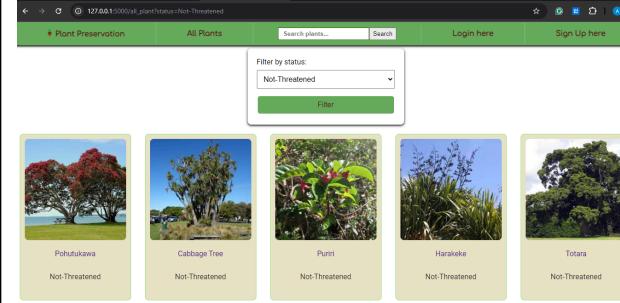
Not-Threatened selected

All plants



Only the Not-Threatened plants should display

When we create this view in the database:



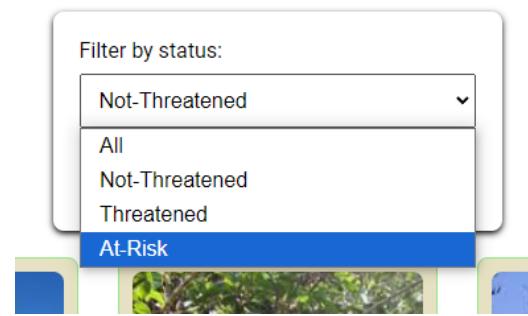
Pass

The results from the status filter match those in the database. These results also match the source data on the NZPCN website



At-Risk selected

## All plants



Only the At-Risk plants should display

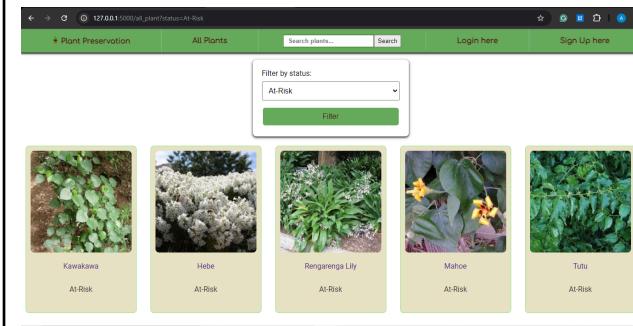
When we create this view in the database:

```
status_queries (plant)
Query Data Triggers DDL
Query View name: status_queries
1 SELECT * FROM Plant WHERE status = 'At-Risk'
```

We get these results:

id	name	status	family	scientific_name	image
1	Kawakawa	At-Risk	Piperaceae	Piper excelsum	/static/images/kawakawa.jpg
2	Hebe	At-Risk	Plantaginaceae	Veronica amplexicaulis	/static/images/hebe.jpg
3	Rengarenga Lily	At-Risk	Asparagaceae	Arthropodium bifurcatum	/static/images/rengarenga_lily.jpg
4	Mahoe	At-Risk	Violaceae	Melicytus crassifolius	/static/images/mahoe.jpg
5	Tutu	At-Risk	Coriariaceae	Coraria arborea	/static/images/tutu.jpg

These are the plants that should show up when the At-Risk filter option is selected



Pass

The results from the status filter match those in the database. These results also match the source data on the NZPCN website

## Custom 404 page

Action	Expected result	Actual Result	Pass/Fail	Changes made from the last time this was tested
Letters or symbols are typed into the url for the individual plant page	Custom 404 page appears	Custom 404 page appears	Pass	This test passed every time it was tested.
An id which does not exist is typed into the url for the individual plant page	Custom 404 page appears	Custom 404 page appears	Pass	<p>Previously, this had failed, with the individual plant page displaying without any data from the table. This was fixed by changing the code from this:</p> <pre>if not id:     abort(404)</pre> <p>To this:</p> <pre>if not plant:     abort(404)</pre>
The url for the individual plants page is left blank in the place of an id	Custom 404 page appears	Custom 404 page appears	Pass	This test passed every time it was tested.

## **Conclusion**

Overall, I am happy with the way that my ideas for the website changed over time. I wasn't going to have a login or signup page at all, let alone a watchlist. I liked these changes and I thought that the design of my website turned out to be much better than what I expected. I think that my website has become much more interactive for the users than I was expecting it to be at the start of this project, and I am quite happy about that.

If I had more time to work on the project I would have merged the add\_to\_watchlist and remove\_from\_watchlist routes to be a single route. I would also have added buttons that allow you to move back and forth between individual plant pages, as was suggested in the feedback. Additionally, I would have created a way for users to leave comments or reviews about the plants as I think that would have made my website more interactive. I would also create a password confirmation on my signup form.

[Link to GitHub](#)