Report on App Design COS30017

Goals & App Idea

Development of an app in Android Studio under implementation of given specifications.
The specifications include:

- CRUD-App
- SQLite Database
- Advanced Features
- Bug-free
- Good user experience
- Clean code & as dynamic as possible
- Storage of the app files on GitHub:
  https://github.com/sonjaknzl/CustomApp.git

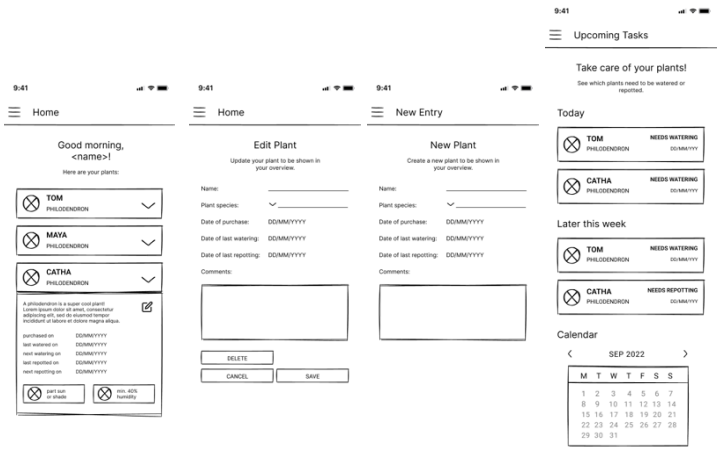
App Idea:
The general idea is to implement a digital plant encyclopedia/ diary. The user creates entries in the app for each of their houseplants. The entry includes information like the plant's name, the plant species, date of purchase, date of last irrigation, date of next proposed irrigation.

Tools and Resources Used

- Parcelize Plugin
- SQLite
- DB Browser for SQLite
- Android Studio
- GitHub
- Android Developers
- StackOverflow
- Swinburne Leaning Materials

Report

First UX Drafts



- some of the fields were dropped as they would've gone beyond the scope of this project
- important for orientation what to implement

Data Class Plant

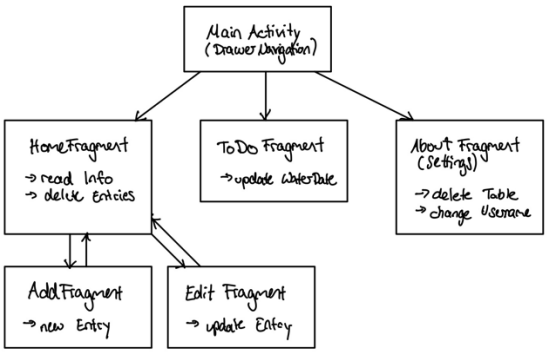
```
package com.example.customapp

import ...

@Parcelize
data class Plant(
    val name: String,
    val species: Int,
    val purchaseDate: String,
    var waterDate: String,
    var nextWaterDate: String,
    var infoText: String,
    var visibility: Boolean = false
) : Parcelable
```

- nextWaterDate calculated dynamically based on waterDate (last time user watered their plant) & species (value for the optimal number of days between watering the plants stored in external CSV file)
- infoText based on species and to be dynamically fetched from external CSV file
- name, species, purchaseDate, waterDate set when user fills out form of AddFragment

General Structure



- Main Activity controlling DrawerNavigation
- Based on click -> show corresponding Fragment

HomeFragment:
- Read Entries from DB and show them in RecyclerView (list is created)
- Delete entries through Swipe
- Add Entries through ‘add’-Button
  -> opens AddFragment to take in the data

ToDoFragment:
- List of Plants from Home Fragment are passed to AddFragment to be displayed
- Sort Entries in DB by the nextWaterDate and split them up in ‘today’ (nextWaterDate is today or earlier than today’s date) and ‘later’ (nextWaterDate later than today’s date)
- When Button ‘watered’ is clicked -> update waterDate of clicked item in DataBase

AboutFragment:
- Delete Data (drop Table)
- Change Username

Why the DrawerNavigation and Fragments?
-> more elegant solution than using activities (activities have to be restarted, loading new activity)
-> DrawerNavigation functionality should be available in every ‘subpage’

Why the ToDo Fragment?
-> Overview when it is time to water your plants
-> Functionality of sending notification can be implemented to remind you to water plants

Databases & CSV Files

	_name	_species	_purchasedate	_wateringdate	_id
	Filter	Filter	Filter	Filter	Fi...
1	Plant1	0	10/11/2022	15/11/2022	1
2	Plant2	1	22/11/2022	09/11/2022	2
3	Plant3	2	05/10/2022	22/11/2022	3
4	Plant4	3	19/10/2022	19/10/2022	4

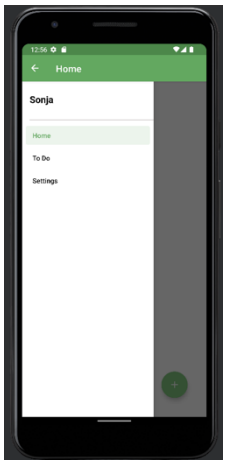
	A	B	C
2	_species	_infotext	_deltaWatering
3	**Monstera**	Monstera is an evergreen, vining plant that produces deeply lobed leaves, aerial roots, and a central flower stem that eventually develops into a cylindrical to oblong fruit. The fruits can grow up to 25 centimeters in length and average 3 to 5 centimeters in diameter, tapering slightly at both ends.	7
4	**Philodendron**	Philodendron is a large genus of flowering plants in the family Araceae. There are two types of philodendrons to choose from: vining and non-climbing. The vining varieties grow several feet, usually requiring some support structure to climb on, such as a trellis or around a basket. Non-climbing varieties grow upright and are excellent foliage plants for containers. In general, philodendrons have a fast growth rate.	10
5	**Alocasia**	Alocasia is a genus of rhizomatous or tuberous, broad-leaved, perennial, flowering plants from the family Araceae. There are about 90 accepted species native to tropical and subtropical Asia and eastern Australia. Around the world, many growers widely cultivate a range of hybrids and cultivars as ornamentals	7
6	**Yucca**	Yucca is a genus of perennial shrubs and trees in the family Asparagaceae, subfamily Agavoideae. Its 40–50 species are notable for their rosettes of evergreen, tough, sword-shaped leaves and large terminal panicles of white or whitish flowers.	10
7	**Snake Plant**	Snake plant, commonly referred to as mother-in-laws tongue, is a resilient succulent that can grow anywhere between 6 inches to several feet. In addition to providing a bit of ambiance, snake plants have a number of health benefits, including filter indoor air, remove toxic pollutants.	10
8			

	_species	_infoText	_deltaWater
	Filter	Filter	Filter
1	_species	_infotext	_deltaWatering
2	Monstera	Monstera is an evergreen,vining plant that produces ...	7
3	Philodendron	Philodendron is a large genus of flowering plants in th...	10
4	Alocasia	Alocasia is a genus of rhizomatous or tuberous,broad-...	7
5	Yucca	Yucca is a genus of perennial shrubs and trees in the ...	10
6	Snake Plant	Snake plant,commonly referred to as mother-in-laws ...	10

Why an external CSV file?
-> More dynamic (file can be adjusted without having to change code)
-> Gives opportunity to fetch data from the internet

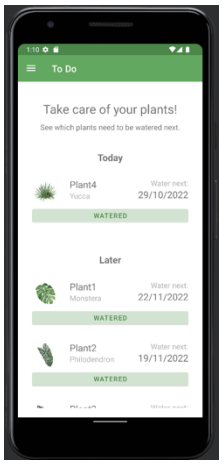
UX/UI Aspects

1. Drawer Navigation



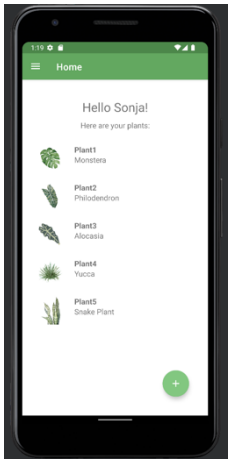
- User can easily identify navigation drawer
- Knows where he is at all times
- Can switch to other functionalities
- Keeps the app well organized

2. Visual Hierarchy



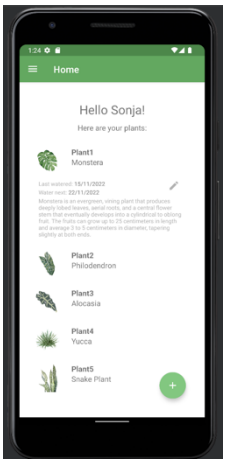
- Important information bigger (nextWaterDate & name)
- Only show information that is relevant
  (infoText or purchaseDate not relevant for this user context)

3. Icons



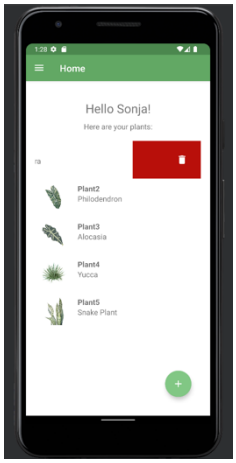
- Each plant has icon based on the species
- User can easily identify which plant the entry is about with name and icon
- Icon is set automatically based on species (no effort for user)

4. Expandable Information



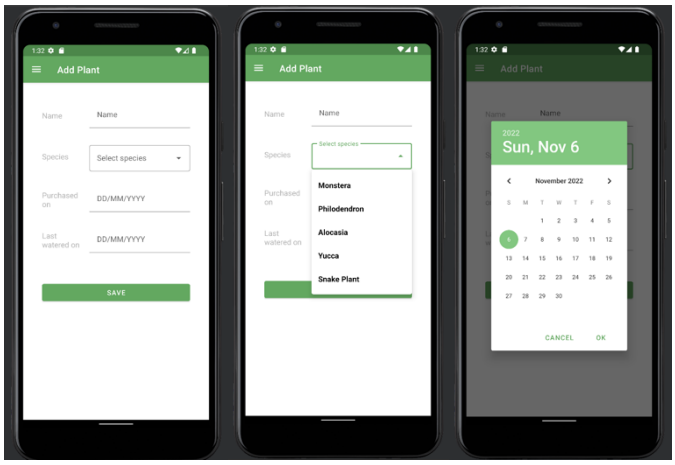
- With tap on plant in HomeFragment more information about entry is shown
- User can choose to see more information about specific entry if he wants to
- Easier for the user to navigate through list and find entry
- Hides not needed functionalities or information
- Edit button is also placed in expandable view

5. Swipe to Delete



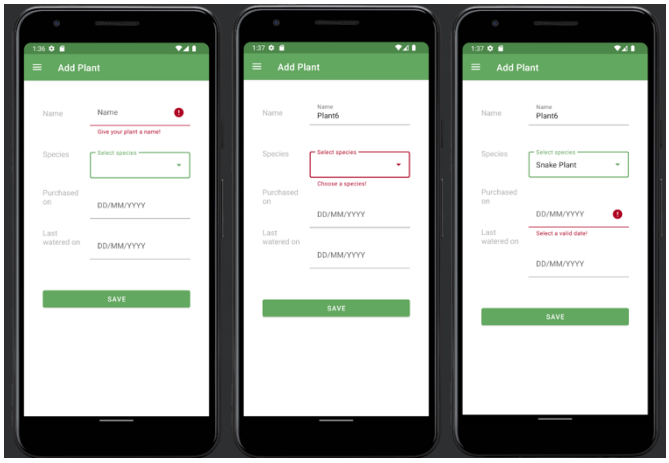
- Common pattern in apps nowadays
- Convenient way to prioritize content
- Good use of limited space on mobile phone

6. Error Prevention



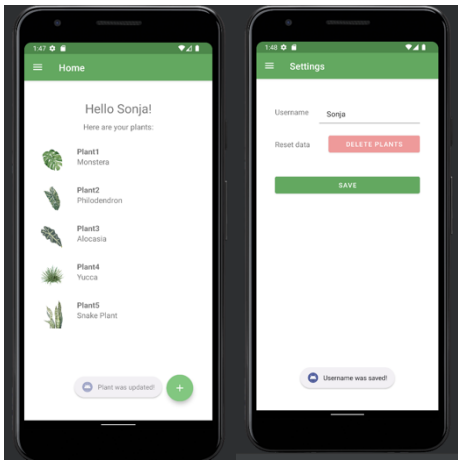
- Species field implemented as a dropdown
  ➔ Lets user choose from a given set of plants (no spelling errors possible)
- Date fields implemented as datepickers
  ➔ Automatically formats the chosen date (no formatting errors possible)

7. Error Checking



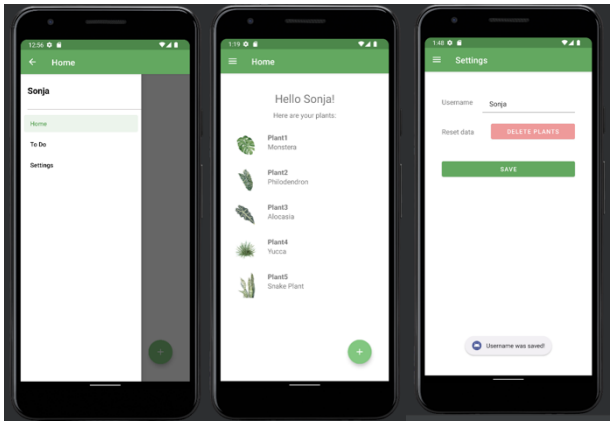
- Only allows correct data to be stored in entry and database
- Doesn't accept empty values
- Only when all fields filled, a new entry is created

8. Toasts for User Feedback



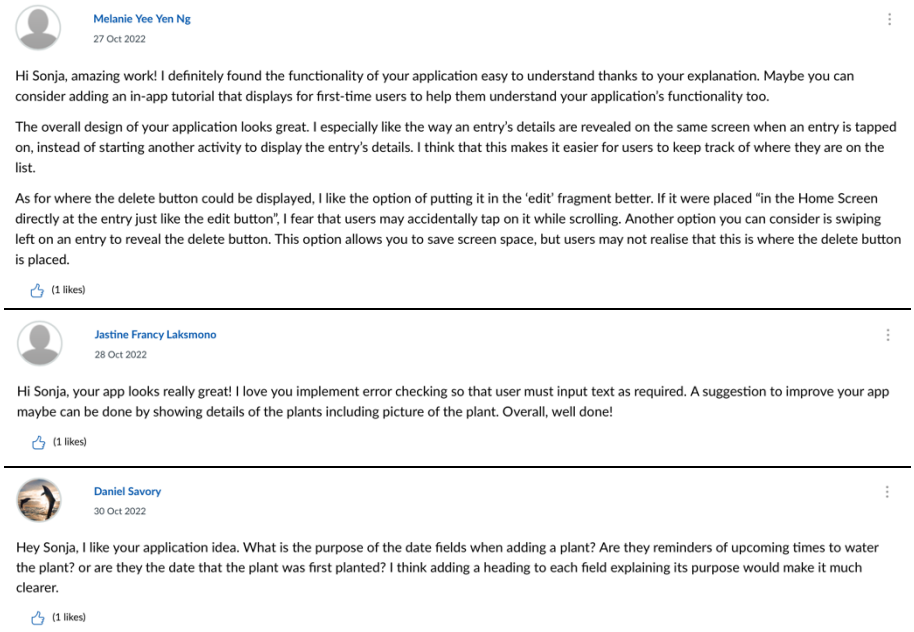
- Good interaction design requires feedback
- User wants to know state of app (what is happening at the moment, was the interaction successful?)
- Toasts implemented for Buttons to delete entries, create or update entries, set nextWaterDate of entries (water a plant) and delete all entries

9. Set username for individualisation stored in preferences



- Personalisation of app
- User feels specifically targeted
- User immediately knows that the plants belong to them

Feedback



Melanie Yee Yen Ng
27 Oct 2022

Hi Sonja, amazing work! I definitely found the functionality of your application easy to understand thanks to your explanation. Maybe you can consider adding an in-app tutorial that displays for first-time users to help them understand your application's functionality too.

The overall design of your application looks great. I especially like the way an entry's details are revealed on the same screen when an entry is tapped on, instead of starting another activity to display the entry's details. I think that this makes it easier for users to keep track of where they are on the list.

As for where the delete button could be displayed, I like the option of putting it in the 'edit' fragment better. If it were placed "in the Home Screen directly at the entry just like the edit button", I fear that users may accidentally tap on it while scrolling. Another option you can consider is swiping left on an entry to reveal the delete button. This option allows you to save screen space, but users may not realise that this is where the delete button is placed.

(1 likes)

Jastine Francy Laksmono
28 Oct 2022

Hi Sonja, your app looks really great! I love you implement error checking so that user must input text as required. A suggestion to improve your app maybe can be done by showing details of the plants including picture of the plant. Overall, well done!

(1 likes)

Daniel Savory
30 Oct 2022

Hey Sonja, I like your application idea. What is the purpose of the date fields when adding a plant? Are they reminders of upcoming times to water the plant? or are they the date that the plant was first planted? I think adding a heading to each field explaining its purpose would make it much clearer.

(1 likes)

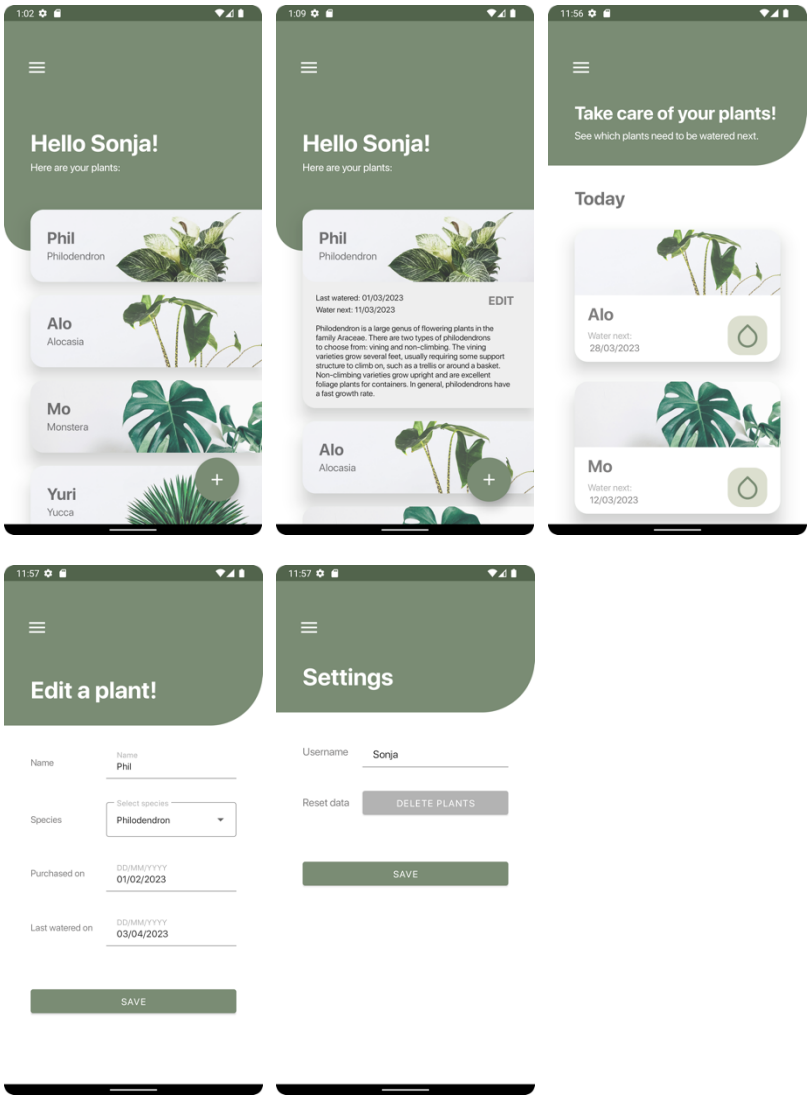
- as for the first comment, I followed the suggestion and placed the edit-button in the expandable information
- as for the second comment, showing more details like the image (icon) was implemented
- when the state of the app was presented, the AddFragment was missing the labels for the input fields
  -> misunderstandings of what the fields were, this has been fixed

Benjamin Dorevitch
27 Oct 2022

Hi Sonja, this is a really neat idea for an app! A cool feature to add would be notifications reminding you to take care of your plants.

- very good suggestion, sadly the time restrictions on the assignment didn't allow for me to implement that feature
- leaves potential for the future to be implemented

Redesign



- redesign of app to give it a more modern look and feel

Further development and Recommendations

Further features for the app could include:

- implementing notifications to remind the user when a plant needs watering
- instead of switching from ToDoFragment to HomeFragment after watering a plant, app could stay in ToDoFragment and push watered entry down to ‘Later’ list
- Watering in ToDoFragment updated the waterDate based on name -> this should be switched based on position as two entries could possibly have the same name
- When no preferences are set, there could be another fragment to ask user for username to initially set a name
- When there are no entries in the list, a TextView could be shown to say that the list of Plants is empty
- Wizard for first use could be helpful