Semester	2023B
Course	COSC2659 - iOS Development
Course Coordinator	Tom Huynh
Assignment	Assignment 1 - Technical Report
Student	Nguyen Quang Duy - s3877991

"I declare that in submitting all work for this assessment I have read, understood and agreed to the content and expectations of the Assessment Declaration."

TABLE OF CONTENTS

I. Introduction **3**

II. Project description **3**

III. Implementation details **4**

1. Tools and technologies *4*

2. Implemented features *4*

a. Main features 4

b. Advanced features 6

3. Live demo *7*

4. Problem, known bugs *7*

IV. Conclusion **7**

V. References **8**

VI. Appendix **9**

I. Introduction

After a hustle and bustle hours of studying and working, the students and also the workers tend to eat out with their friends and colleagues at their favorite restaurants, where they can enjoy their favorite meal and chat with each other at the same time. However, there are many restaurants that are different from each other in terms of their kinds and tastes of cuisines, along with their atmospheres and locations. Therefore, it is fairly difficult for them to choose a restaurant that is suitable for their tastes, and atmosphere and near to their current location.

Therefore, this problem has motivated me to create an iOS application named “Foodie Hub", which displays detailed information about some of the most popular restaurants in Ho Chi Minh City. Through this application, people can search their restaurants effortlessly, allowing them to decide which restaurant is suitable for them so that they can smoothly enjoy their favorite meal in an ideal atmosphere.

II. Project description

Foodie Hub is an iOS application where users can view a list of most popular restaurants in Ho Chi Minh City as well as their detailed information, including name, description, location, business hours, and photo gallery.

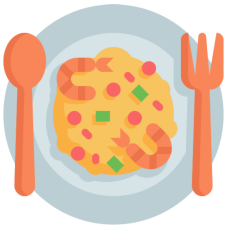


Figure 1. *“Foodie Hub” application icon*

To use Foodie Hub application, users have to tap the application icon in the home sceen of the iPhone, moving them to the welcome view first. In the welcome view, users can see the application information, including its logo, name, slogan, along with a small button at the bottom-right corner that displays the information about application author in pop-up view, and a big button to the navigation tist wiew. When tapping that big button, the navigation list view with a list of the most popular restaurants appears, where users can swipe up or down to view more restaurants. And each of the restaurant items in that list includes its name, slogan, and a circle image of its logo. If users want to find out more about their desired restaurant, they can simply tap the list item of that restaurant, which is the navigation link to the detail view. Moved to that view, users can see additional information about their desired restaurant such as address, business hours, phone number, description, and a button linked to its website. Besides, the detail view also consists of a map view with a map marker indicating the restaurant location, and a slider that shows some photos of interior, cuisine and customer experiences.

Furthermore, users can use the search box as well as the filter bar on the top of the application to look for their desired restaurants. In terms of the search box, the data whose name, slogan and description contains the keyword entered in it will be retrieved. The filter bar, on the other hand, is based on restaurant categories, including “Any” - the default option, “BBQ”, “Hotpot”, “Sushi”,

"Others". Especially, those operations can be performed at the same time, making the filtered data displayed automatically.

Moreover, the application also has a dark mode toggle button at the top-right corner of the navigation list view, allowing users to change the application appearance between dark mode and light mode depending on their preference.

III. Implementation details

1. *Tools and technologies*

In terms of the application design, I use Figma to design the UI of "Foodie Hub" application (You can view the prototype at the **Appendix**). Figma is an online tool that allows users to create, test and share their design of websites, web and mobile applications to their colleagues without wasting any attempts, which is free, easy to use and always available in any operating system.

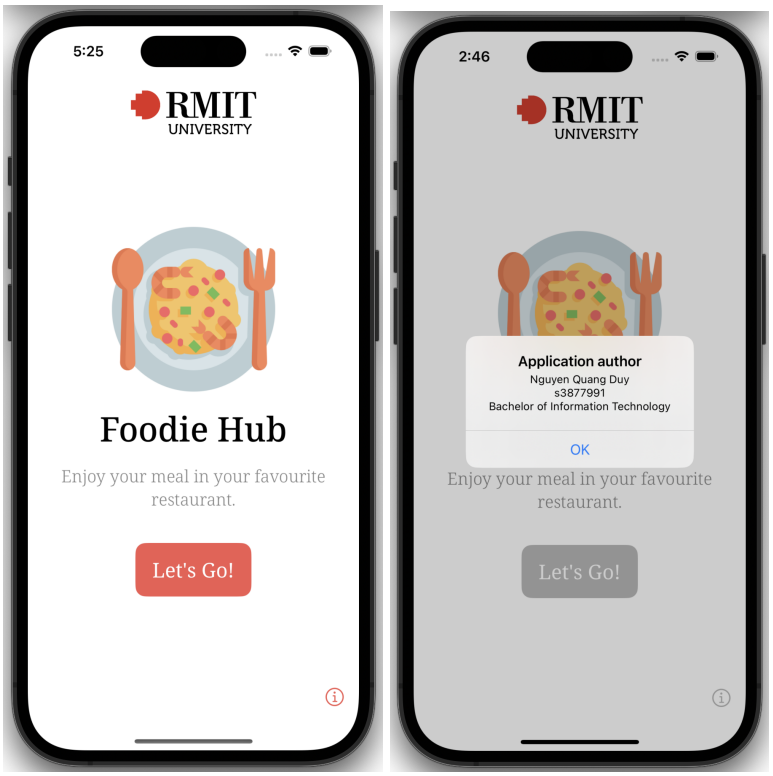
To implement the "Foodie Hub" application, I use Xcode as an IDE, Swift programming language to write the APIs for retrieving and filtering data from JSON file, and most importantly, SwiftUI framework to create UI components and views for the application.

2. *Implemented features*

a. Main features

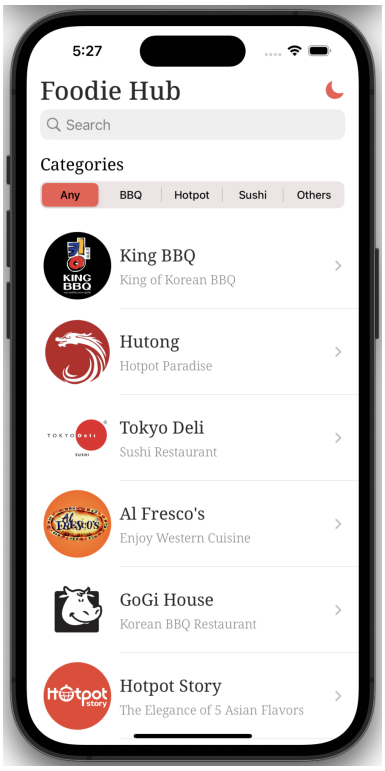
- Welcome view:

To show the information about application author in a pop-up view, I create a button component and then add the alert() modifier so that the pop-up information will be triggered via a tap. [3]

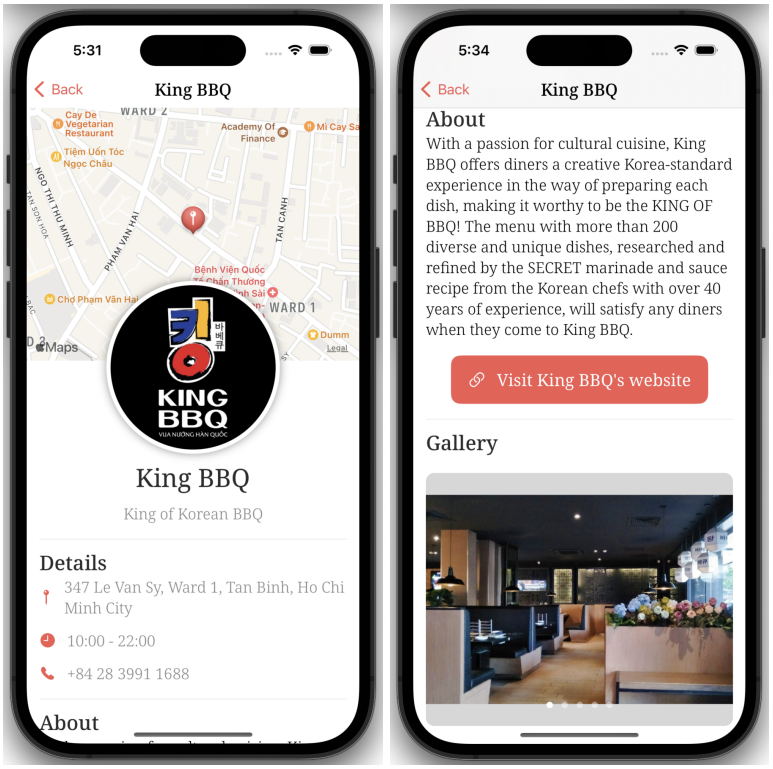


- Navigation list view:

To create a list of items that navigate to the detail view, I use NavigationView, List, and NavigationLink from SwiftUI framework.



- Detail view:
  - In terms of the map view, I use Map structure from MapKit library along with the coordinates of the location to create a map where that location is at the middle of it.
  - To create a photo slider in a simple way, I use TabView structure from SwiftUI framework. As the photos are stored in an array, I perform a loop through that array to assign the photo name from that array to Image structure. [1]

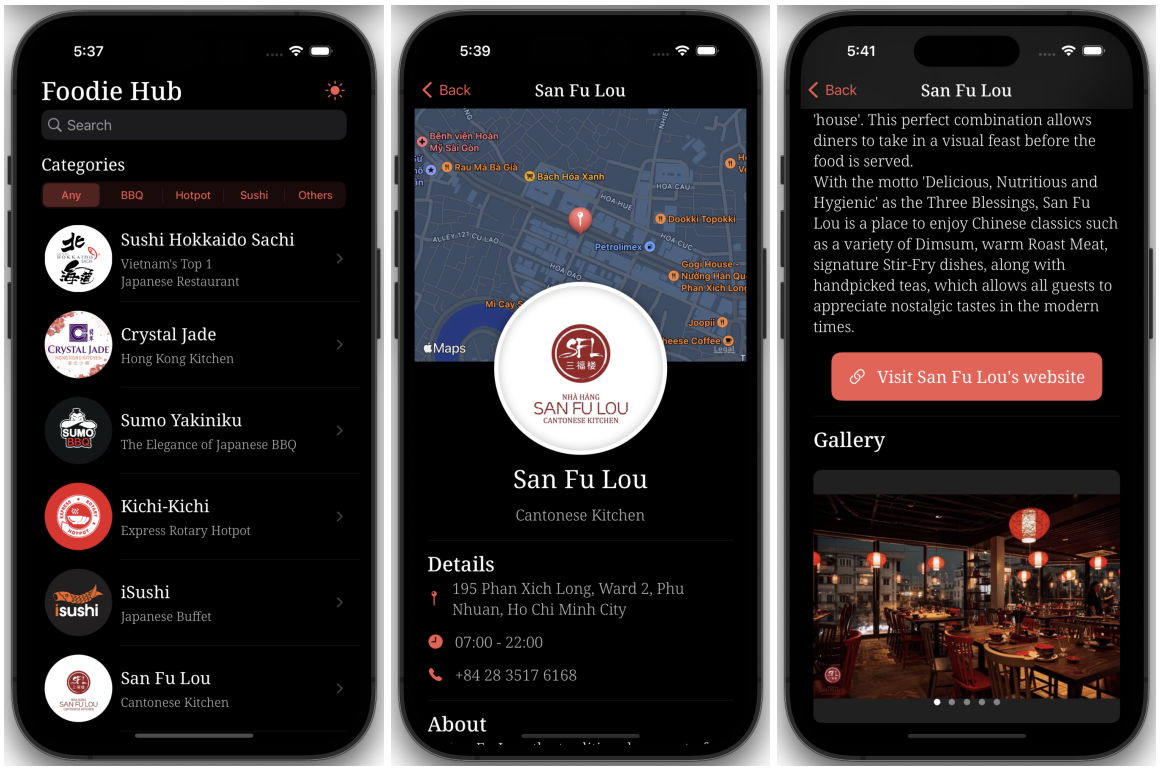


b. Advanced features

- Search box and filter bar:
  - To add a search box at the top of the application header, I add the “searchable” modifier from SwiftUI framework inside NavigationView. [4] In terms of the filter bar, I use Picker with segmented control style and assign a value as a tag for each option. [2]
  - To display the list of records automatically based on search keyword and option from the filter bar, I implement an API that filters the data based on those two parameters and call it at the navigation list view.

- Dark mode toggle button:

To switch the application appearance between light and dark mode, I declare the boolean variable named “isDarkMode” and assign it with AppStorage annotation, and then create a button component which toogles the value of isDarkMode variable, and finally add the preferredColorScheme() modifier that accepts the ColorScheme enumerator. Depending on the value of isDarkMode variable, the ColorScheme enumerator will change between “light” and “dark”, changing the application appearance as well. [6]



- Map pin:

Firstly, I implemented a MapLocation struct that contains location coordinates. Next, when initializing the MapView based on the location coordinate, that MapLocation struct will store that coordinate before being stored in an array of MapLocation. Finally, in Map struct, I use that array as annotation items attributes along with MapMarker struct from MapKit library to display the map pin in the map. [5]

3. *Live demo*

The live demonstration of the application is recorded and converted into GIF files, including one for main features and three for advanced features. To access those GIF files, go to the "Screenshots" folder or view on "README.md" file through the link my GitHub repository: https://github.com/shynkwanchi/FoodieHub

4. *Problems, known bugs*

Although the features in "Foodie Hub" work properly, there are a few bugs that are unable to be fixed due to lack of knowledge and time. The most notable one is the dark mode feature, when escaping the application or moving to other applications and then returning to the application, tapping the toggle button doesn't change application appearance from light to dark mode immediately and vice versa. However, not until tapping on any list item that navigates to the detail view does the feature work properly again.

IV. Conclusion

In the future, to make the application better, firstly, the database is the most important part of the application so that I can store the restaurant data in it securely instead of a JSON file. Next, to make this application more useful for users and specifically foodies, I will implement user account features, which means users can perform sign up, sign in operations in this application. When users are able to access their account, they can rate, write reviews as well as save restaurants to their favorites. Finally, as a restaurant has many branches in many different cities appart from Ho Chi Minh city, I will upgrade the map view features, which display the locations of restaurants dynamically based on the current location of users, so that they can find their desired restaurants at shortest distance. Once those features are successfully implemented, the search and filter feature will also be improved so that users can find restaurants that meet their needs.

V. References

[1] dbestech. (2023, February 12). *Swiftui Image Slider | Auto play*. YouTube. https://www.youtube.com/watch?v=VYxxzrlS8q0

[2] Hudson, P. (2022, December 1). *How to create a segmented control and read values from it*. Hacking with Swift. https://www.hackingwithswift.com/quick-start/swiftui/how-to-create-a-segmented-control-and-read-values-from-it

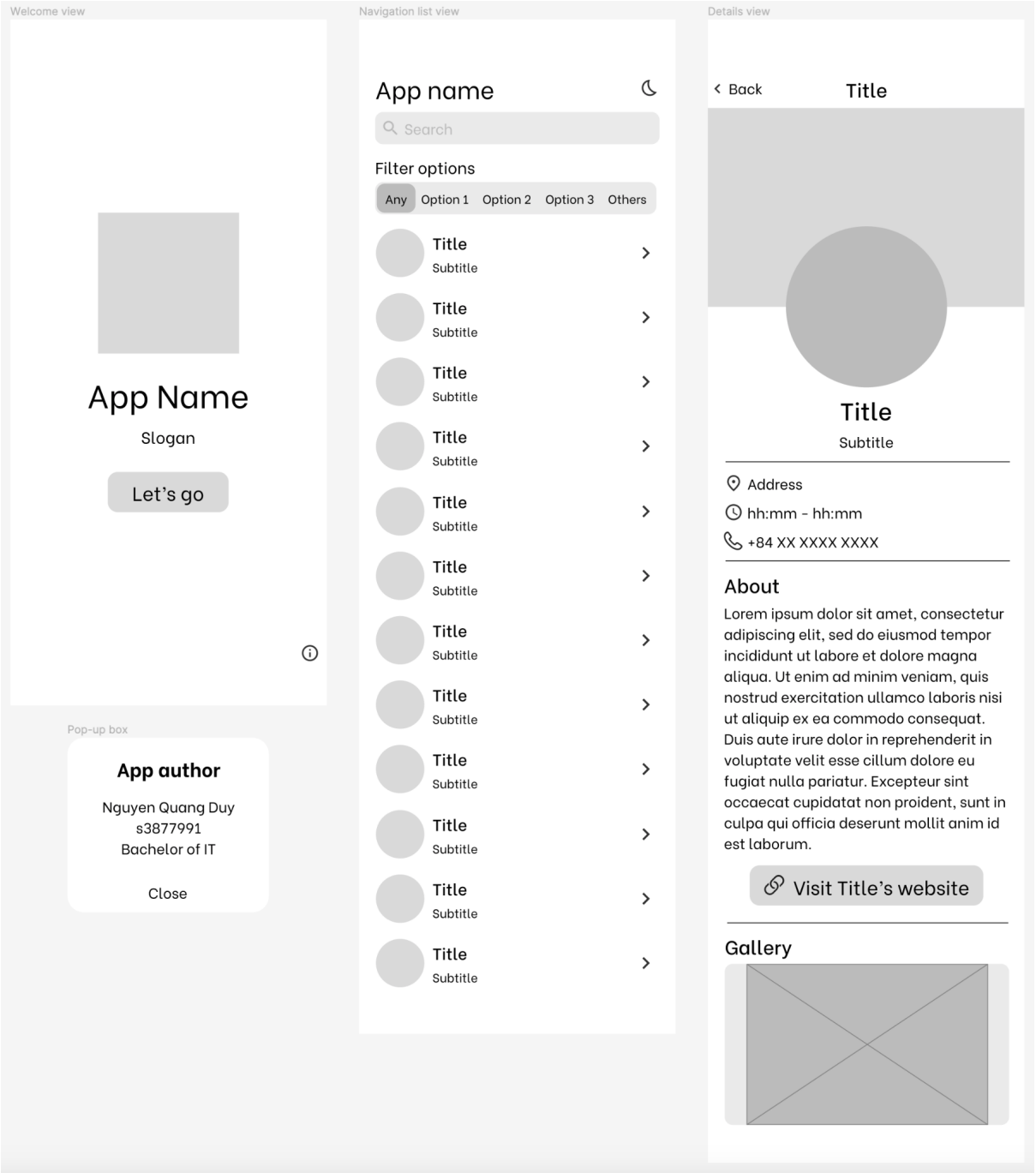
[3] Hudson, P. (2022, December 1). *How to show an alert*. Hacking with Swift. https://www.hackingwithswift.com/quick-start/swiftui/how-to-show-an-alert

[4] Hudson, P. (2023, June 16). *How to add a search bar to filter your data*. Hacking with Swift. https://www.hackingwithswift.com/quick-start/swiftui/how-to-add-a-search-bar-to-filter-your-data

[5] Le, A. T. V. (2020, December 15). *Su dung MapView Tren SwiftUI*. Viblo. https://viblo.asia/p/su-dung-mapview-tren-swiftui-4dbZNNqgZYM

[6] Recoding. (2021, December 9). *Dark / light mode in Swiftui*. YouTube. https://www.youtube.com/watch?v=b5KZqZYvKmg

VI. Appendix



Appendix 1. *The prototype of "Foodie Hub" application*