Individual assignment by XUANHUI XU

DISCUSSION AND PREPARATION

In the first week of the project, we discussed the topic by brainstorming. Firstly, we made a decision about what types of app we were going to make. Then everyone came up with an idea about the topic, like what is the most wanted app in your mind. During this process, I took a speech about a powerful reminder that has the ability to remind specific events every period of time. And also, it had to motivate the user to continue their schedule with vivid subject. Finally, we accepted one of those ideas from our groupmate and roughly discussed about the features on it.

In the next week, we gathered together and discussed about the functions of our note app in detail. I came up with an idea that we can add reminder function into our application as I mentioned before. Then I searched some papers from the Internet to gather more information about the Android app.

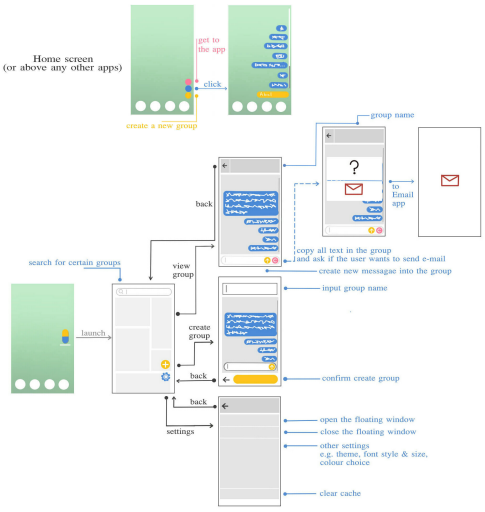
"An observational study of undergraduate students' adoption of (mobile) note-taking software" Astrid et al. [1] collected and analysed multiple data from undergraduate students who were trained in the use of multi-platform cloud-based note-taking software (Evernote) and study for couple of weeks independently. The result said the functions in app like gathering and managing information, organisation and planning, and the recording of ideas were adopted by majority of test subjects.

"Why We Share: A Study of Motivations for Mobile Media Sharing" Dion et al. [2] made a research about the type of sharing behavior among human and motivation behind this. In the part of motivation for media sharing, they mentioned one of motivations was reminder of individual and collective experience, which including personal memory, sharing key moments and daily activities.

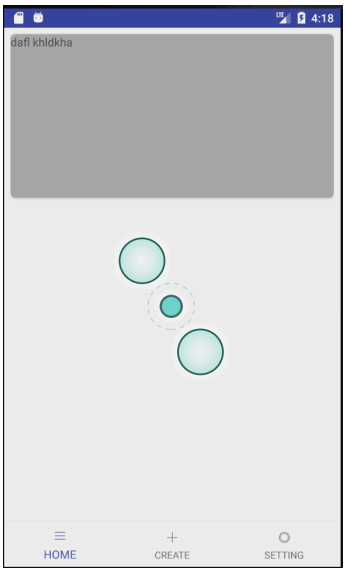
"Implementation of Location based Services in Android using GPS and Web Services" Manav et al. [3] proposed the implementation of Location based services through Google Web Services and Walk Score Transit APIs on Android Phones to give multiple services to the user based on their Location.

After searching the keywords like “Mobile note taking”, “Mobile location” … I gathered above three papers which might be useful to our application in theory.

Then in the following week, we took a conversation about the details we were going to add in our app. Our groupmate who handed out the idea made a prototyping of our project (1.1). And we separated the work packages. After that, I was in charge of UI of our application as I was good at image processing and layout making. Mainly taking care of layout and some basic algorithm behind those user interface. As we need to add more than 5 activities in our app, some activities were added extra. At the end of this week, our groupmate set up a program on GitHub and enrolled all the members of our group, in order to improve the efficiency of group work.



1.1 Prototyping practical image

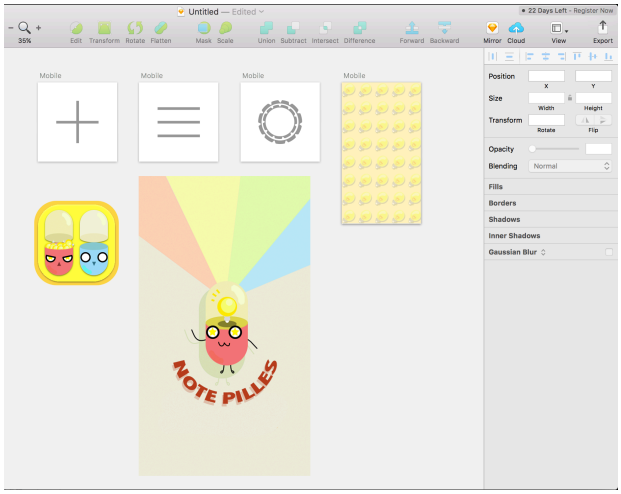


1.2 Bottom navigation

After the GitHub was created, I learnt Bottom navigation layout, thinking the navigation buttons (1.2) might be useful for our project, one linked to create interface and the other one linked to settings page. As the activity number has been asked to create more than five, I chose to add intents leading to other activities without using fragments. Unfortunately, we had a discussion with group members in later project development and then decided to use buttons not navigations as the transfer between activities caused detection. So, in the end, I changed the bottom navigation to two float buttons with the current function by using FloatActionButton package, which made the application clear and handy.

IMPLEMENTATION

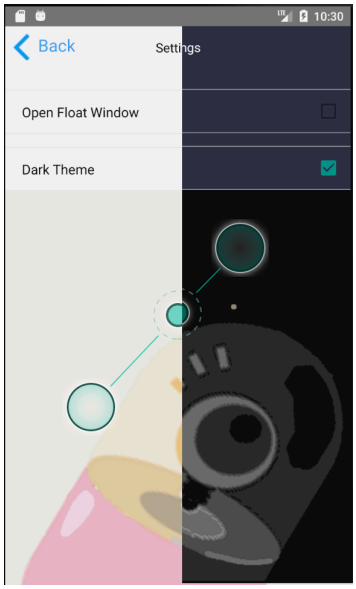
I added welcome interface for our app to make the app more complete and unique. Firstly, I drew the welcome image by using a software called Sketch (1.3). Sketch is a software for UI design in mobile device that is really handy and powerful, by using which I also created bunch of icons. Then I created loading layout, attaching the picture to the xml file and writing the pair activity, Splash Activity. It' s a normal activity that set view as loading layout, while I set a delay timer to use the function of intent. The usage of animation made the transfer between activities smoother.



1.3 Sketch, welcome page & icons

Then I decided to learn how to use card view for our main interface. After learning on the Internet, I created a card view based on list view and wrote an adapter to load the data into each card, which was related to the **practical classes**. However, the **problems** appeared, the majority of the group made group list interface at the same time because of lacking of communication. Meanwhile, the usage of GitHub was not as smooth as we imagined. The merge function always caused trouble of the project and delayed everyone' s process. The reason why such problem appeared was, as my point of view, the impropriate operations caused the majority of trouble.

The function of evening pattern (1.4) is quite important in the application, which user might spend long time to look at screen. In order to achieve this function in a clear and functional way, the usage of themes was quite useful. In style.xml file, two new themes are created for theme changing. To attach the changes into specific background component, I created attr.xml file in value folder. Those customized item tags are given different values in different themes. Whenever I want to change the background, I just used ?attr/<item name> to attach the layout. In activity, a protected static Boolean value was set up, listening to the state of themes. And based on them, changing the themes of the app. The main **problem** I met here is the logic



between style.xml and other xml file was always complex and always caused a lot of troubles. Then I figured out, the style tag extend by different theme could also change the result of the function. What' s more, there' s still some problems about using back button. If the button just finished the current activity, Settings activity, it would not re-create the previous activity. However, the principle of my changing themes function is to re-open the activity by sending intent, so the theme would not change when user type back button. In order to solve this problem, I changed the button' s action listener from finishing the activity to sending start intent, which temporary solve the problem but not perfect.

1.4 Bright & Dark theme

WRITING REPORT

In the final report, I provided three references for the paper as I mentioned before. Then, I also did research on other similar applications under the choice of my group mate, for instance, Floating memos and Clipper: Floating Clipboard, and wrote the draft comment edited by groupmate later. I also did the research of the following apps, which did not show on our paper:

Toolbox

Toolbox is a shortcut application similar to Samsung Galaxy S5 Toolbox, giving user access to their apps from anywhere by pressing the Floating button. User can change the outlooking of the floating button as they want in the aspects like size and transparency. What' s more, user can also change the apps or native functions attached to the float button.

Zone AssistiveTouch

AssistiveTouch is an float window user can use to control their device without main app interface. It comes from IOS assistive function, which is aiming at helping user reduce the usage times of physic buttons to extend the their lives. Meanwhile, it has the ability to control other native function of the device, for instance, screenshot, lock screen, turn on/off those settings with one tap: Wi-fi, bluetooth··· User can also attach all their application on device to the Assistive Touch for a shortcut.

Mini Apps

Mini Apps Multitasking is a light application designed for multitasking. Mini Apps through floating Apps can be open from the menu and appears in front of the display. It provides 9 different float apps including calculator, flashlight, timer and so on, all contained in one extensible float button. Although it is not that powerful, the user interface is quite clean and low Ram taken up.

C-Floating

C-floating is an app designed for multitasking, allowing user to assign any widgets (third party widgets included) they want to a float windowpane. User can alter the size of those shortcuts, making the float windowpane match their workflow. What' s more, the main interface is designed as a launch station, using icons to present different floating services that users can choose from. However, it may take up lots of space of screen when user assign too many widgets into the windowpane, while shrinking the size of icons may make interaction terrible as it is hard to be pointed.

Floating Apps

Just like C-floating, floating apps is also for multitasking. Which is different from the previous app, it does not provide a float windowpane. The floating window it can created is limited to certain apps and some tools and games, which makes the interface clean and easier to use but a little bit difficult to access. More than 41 float apps are included in this app, e.g. browser, notes, document viewer, Youtube, Twitter··· User can maximize the floating window to utilize the whole screen or minimize it if it is not currently needed (it can be restored later). Remove the functions borders to create a better experience of multitasking.

As I concluded some reference and similar apps, I wrote the motivation and inspiration of our project and then finished the reference. After all of these, I helped my groupmate with other part of the paper and did a little work on the structure of the paper.

OVERALL ROLE

I' m mainly in charge of majority of UI in our app including the layout, images design and some basic algorithms between layout and activity. I created a function of changing the theme of the app. In the paper, I took care of the background research with one of my groupmate, searching the topic online and gathered, organized the information, concluding them as our motivations.