CS5041 P2 Mobile Computing

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ABSTRACT
UPDATED—9 November 2018. This report describes an android application enabling users easily manage and share their ideas.

Key word: Android, volley

INTRODUCTION
Software programming in mobile platforms, such as Android and IOS, is taking a larger part of computing area. This report will introduce an Android app, which enables users easily manage and share their ideas.

DATA STORGAE
To save the data of users not only into their mobile phones, a spring boot project is established in the personal server of the University of St. Andrews *(hs99.host.cs.st-andrews.ac.uk)*. The server port is bound to a proxy, so that users could access the server from the off-campus network. All data would be saved in the MySQL database. There are 3 tables in this database: one for user, one for idea and the other one saves the link relation between ideas.

In Android project, activities send https request with Volley.

LOGIN
At the first time open the app, users would be asked to login, which is generally as same as the login functions of other apps. If users do not have accounts, they could press the button at the top-right corner to sign up.

To save space for the layout of horizontal orientation, the logo picture would not show in this layout.

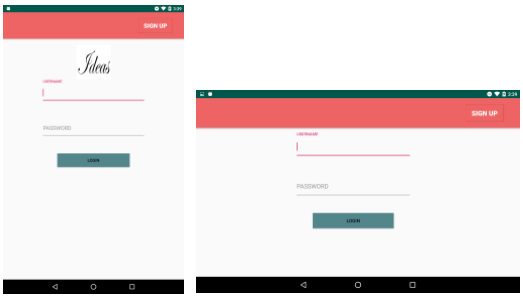

Figure 1. Vertical(left) and horizontal(right) login interface

SIGN UP
Because of the time limitation, users need to fill in the username, password and the confirmation of password. So currently there is no change-password service. However, there are several kinds of form validation, for example, the new username is supposed to be unique, and the length of both username and password are limited. The validation would be triggered when an input box loses the focus or the confirm button is pressed. The validation information would be displayed below the input box.

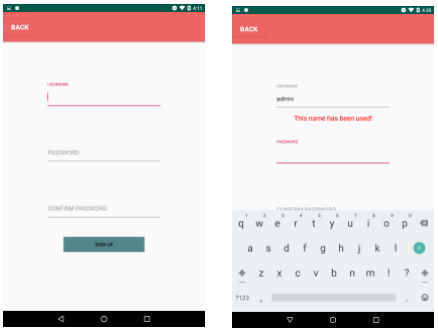

Figure 2. Sign-up interface (left) and validation information(right)

If users successfully get a new account, the app would return to the login interface and fill in the username and password automatically.

IDEA LIST
After user's login, or they have logged in before, the app comes to the idea list interface.

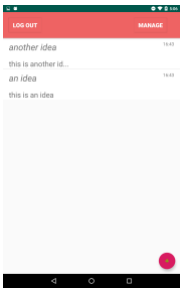

Figure 3. Idea list

As what Figure 3 shows, an idea contains a topic, contents, and the time that it is added or finally modified.

It could be noted that there are several buttons besides the main list: the one at the top-left corner is used to log out, the float button at the bottom-right is used to add an idea, the last

one at the top-right list is used to enter delete mode, which is one of three modes of the idea list.

Normal mode

Normal mode is the original mode of the list. Touching ideas, some buttons would show or hide, so that users could delete or edit the idea.

Figure 4. Idea with buttons

To link two ideas, users could touch them at the same time. If they touch more than two ideas, the first two would be detected. However, this operation could not cancel the link relation, which could be reached only in link model.

Users could also access the other two modes in this mode.

Delete mode

After pressing the button mentioned before, the list come into the delete mode. Users could touch ideas to select them, the selected ones would be deleted together when another button shown at the top is pressed down.

Link mode

If an idea is touched for long time, the list steps into link mode, which enables users link an idea to other ideas. The touched idea, linked ideas and other ideas would have different colours to help users identify them.

Figure 5. Not linked, linked, touched ideas

The link relation would be persisted by saving into the database.

ADD IDEAS

Pressing the float button, users could enter another interface to add ideas.

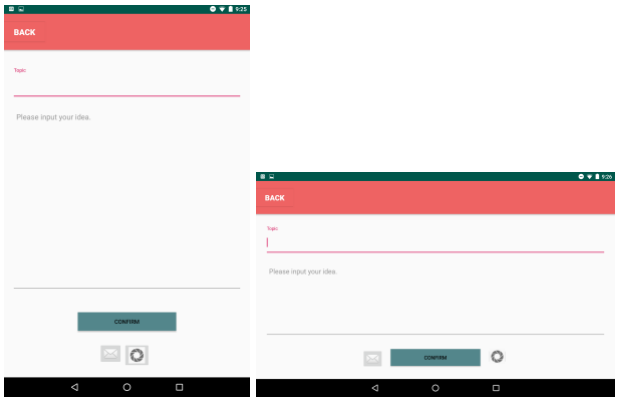

Figure 6. Interface for adding ideas

After input of the topic and content of the idea, the confirm button is supposed to be pressed down to confirm the new idea, then it would return to the idea list, as same as pressing back button at the top-left corner.

Share ideas

In interfaces for add and edit ideas, users could press two buttons around the confirm button to share their ideas. The mail button is used to put the data of idea into a mail of the mail app, while the other one is used to share it to WeChat (the applications for API of Facebook and Twitter are denied), a social media quite similar to Facebook.

MODIFY IDEAS

Users could touch the edit button in Figure 4 to modify an idea.

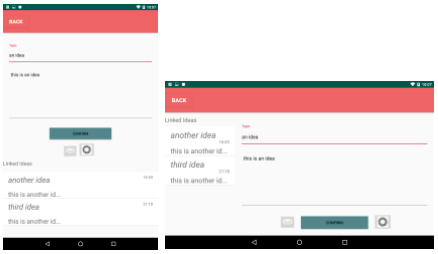

Figure 7. Interface for modifying ideas

It could be noted that the list of ideas linked to the one being edited is also displayed in the interface. Users could also enter another modify interface to modify ideas in this list by directly touch them. After modifying or pressing back button, the app would always return to the last modify interface.

CONCLUSION (COMMENT TO THE TECHNOLOGY)

Although Android provides wide range of editable attributes for every component and enables several kinds of layout, the connection between Java and Xml is still sometimes clumsy. For those very familiar to the programming model which combines design and coding, it may be easy to develop apps, but for others it may cost some time to make them learn the mechanism.

REFERENCE OF SOME TECHNOLOGIES

1. Volley. Git: https://github.com/google/volley
2. JPA. Official site: https://www.oracle.com/technetwork/java/javaee/tech/persistence-jsp-140049.html
3. WeChat API. Official site: https://open.weixin.qq.com (the page could be transferred to English version by the button at the very top-right corner)