KIT305

Assignment2

ABSTRACT
Tutorial application

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Introduction

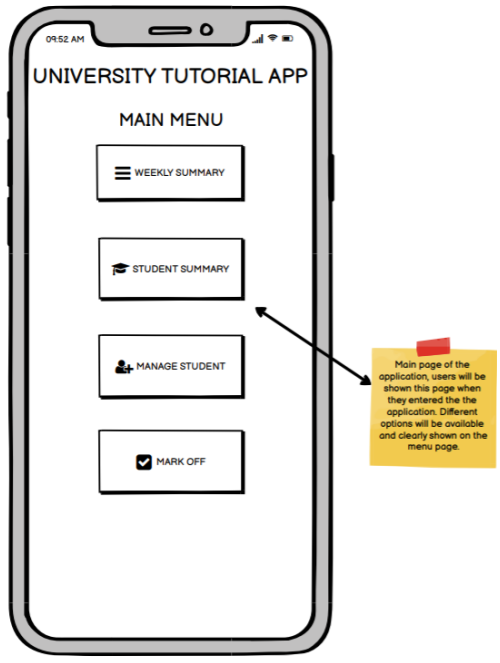
A tutorial is an utmost important element in university life. It helps us to make use of the knowledge we learned in the lecture and put them into practice. University encourages and monitors the attendance of the tutorial so the students will be able to consolidate their knowledge. In the ICT courses, tutorials include hands-on practical on the programming application, discussion among the students and small group consultation with the tutor. Tutorial attendance and marking are not united among the tutors, some of them are just using handwriting on a paper and some of them would have an excel recording all the information. Sometimes the tutors may even lose or forgot their attendance sheet or marking sheet that causes many troubles for the schools and students. To have a better working environment for the tutors and allow the school to record the marks that students attained in a tutorial, a united method of recording marks and tutorial attendance is necessary to reduce the possible mistake and potential problems happen in the tutorial.

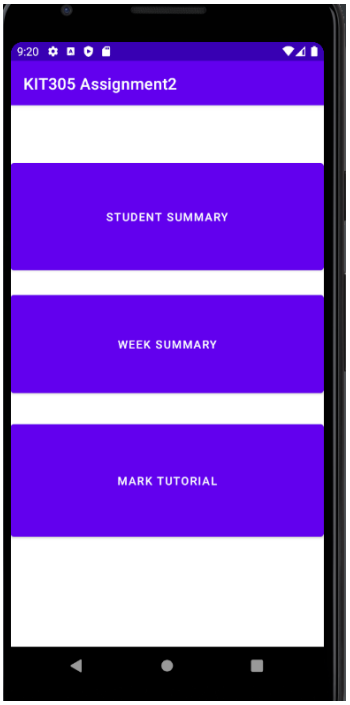
To improve the tutorial efficiency and accuracy on tutorial marking, a tutorial marking application is developed which include a few basic functions for the tutors to mark on the student's tutorial mark. Student summary, marking of tutorial and week summary functions are provided in this application. There are altogether 5 marking schemes used for the marking of the tutorial, including marks out of 100, checkpoints, attendance, grade level of (HD/DN/CR/PP/NN) and grade level of (A/B/C/D/F). The student summary allows the tutor to see the summary and edit the student details and the week summary shows the actual score and the average score of the students within the week.

Differences to Assignment 1 Prototype

In the assignment 1 prototype, the interface of the application was divided into four, which is a weekly summary, student summary, manage student and mark-off.

The main menu which is the starting page of the application has now changed from 4 buttons into three buttons. The mange student is now combined with the student summary to allow a simpler and easier layout.

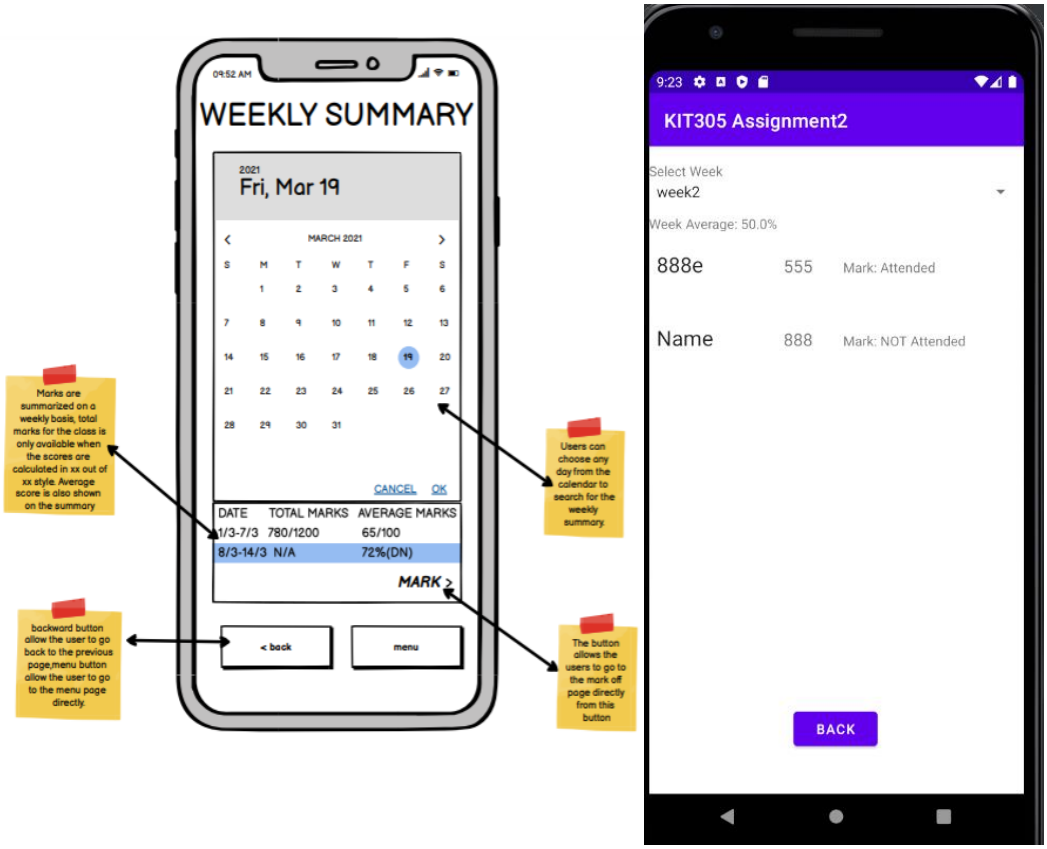




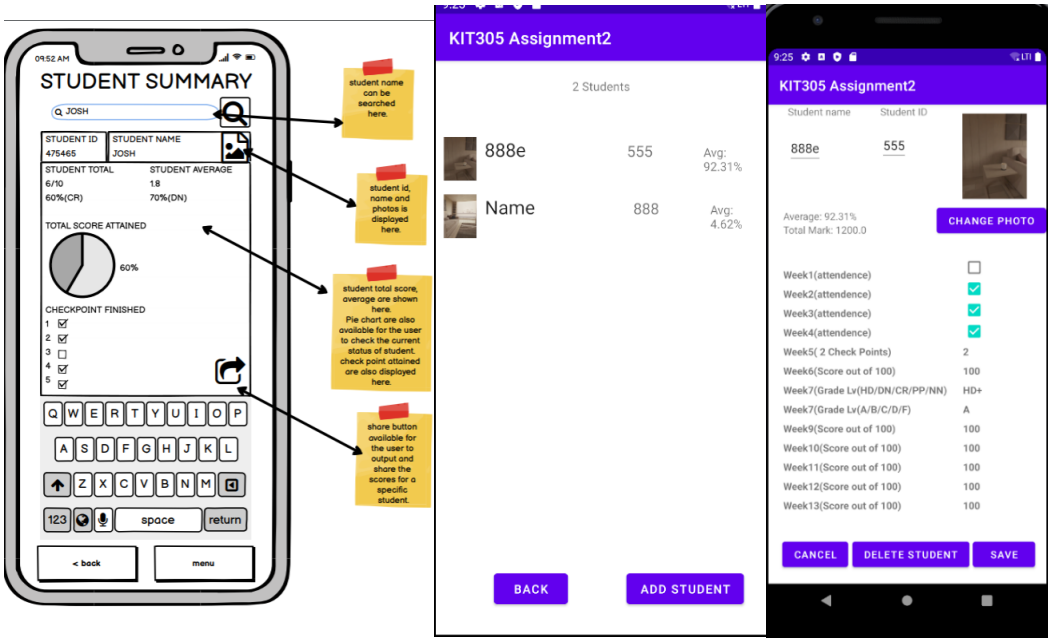
Prototype1 Prototype2

The weekly summary has been modified to use a spinner to select a week and show the average mark and list the mark of the students instead of using a calendar to choose the destinated week due to technical difficulties and unable to use the third-party plugins.

Prototype1 Prototype2



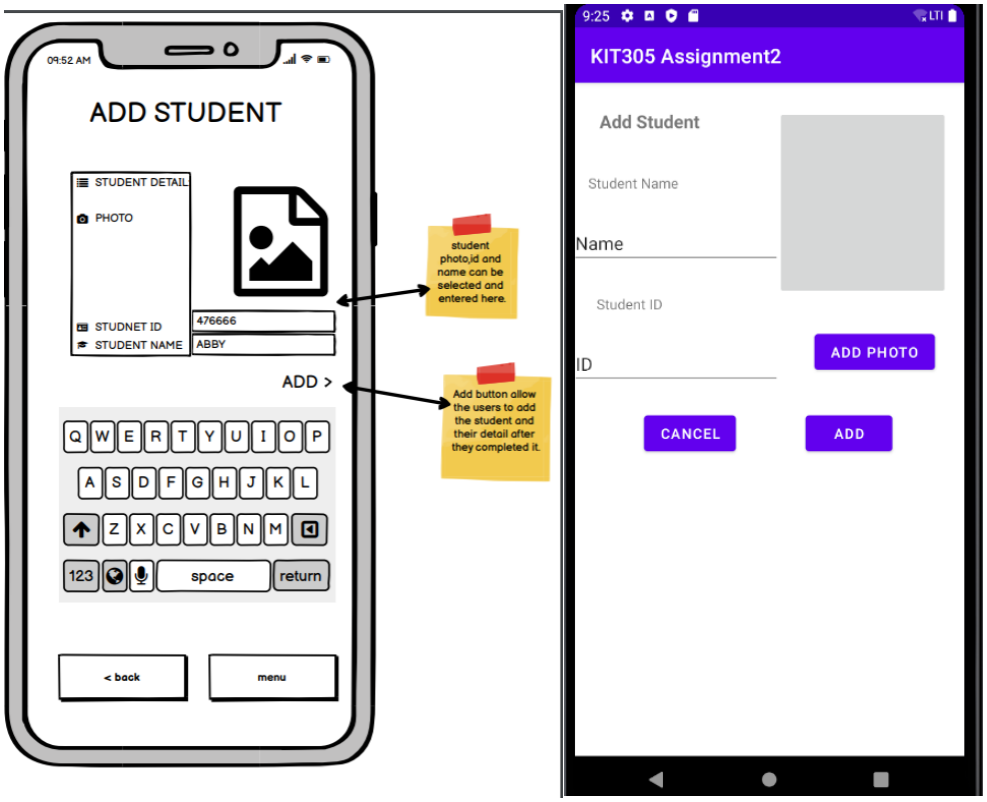
The student summary is more or less the same as the prototype one. However, due to the lack of time, search function, graph function and share function are not implemented into the application. The student summary of assignment 2 is provided with a student count, student name, id average, and photo on the list. When we clicked on the student the student detail page will show up, showing the total mark, the average mark, student name, ID, photo and their score. Edit of student id and student name, deletion of student can also be found on the student detail page.



Prototype1 Prototype2

The add student page of prototype 2 is the same as the prototype one. Users are required to enter the student id and student name on the page to add the student. Student icon/photo is also available for the add student page.

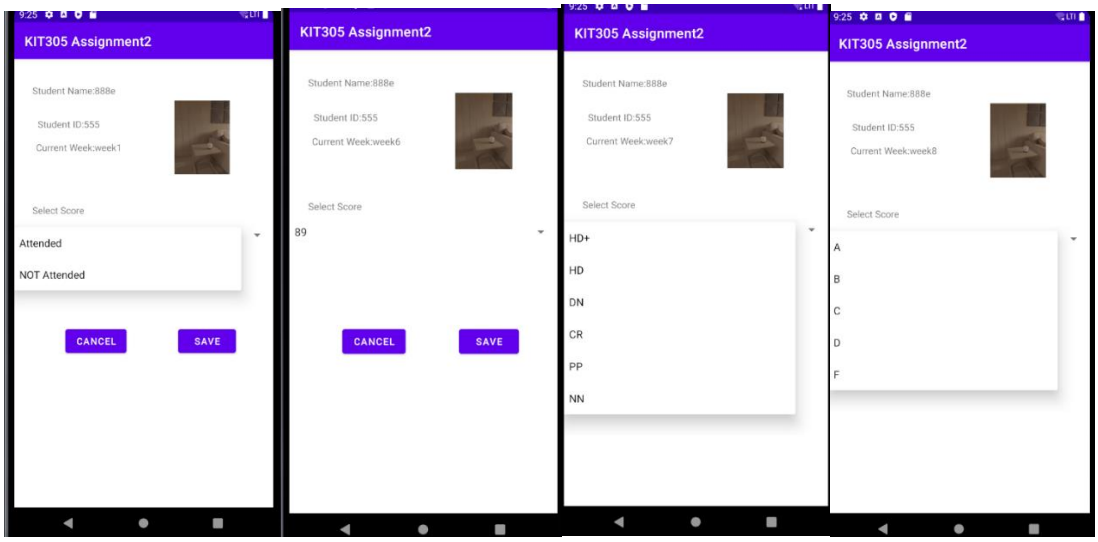
Prototype1 Prototype2



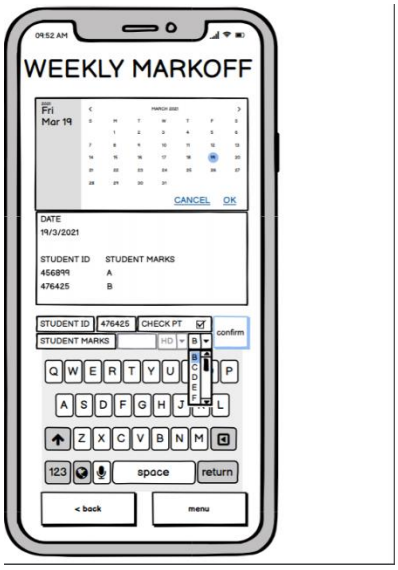
The weekly mark-off function has changed significantly due to the lack of knowledge of android studio and unable to use the third-party plugin. The current prototype uses a spinner for the tutor to select the specific week they want to mark instead of the use of a calendar. After they have chosen the week the

corresponding student name, id and their mark for that week will be shown to the user. When they tap on the student they will be able to see the week they are marking, the student name, id and photo and they can select the student's score using a spinner.

Prototype2



Prototype1



Usability Goals and Design Principles Self-Critique

According to the Kit305 week5 lecture, there are 6 key aspects to a usable system which is called usability goal. They are Learnable on first use, memorable on repeat uses, efficient, failure-resistant, forgiving and satisfying. Prototype 2 aims to provide a working and usable application ready for the tutor to use. So we are trying to fullfil all the six aspects of a usable system

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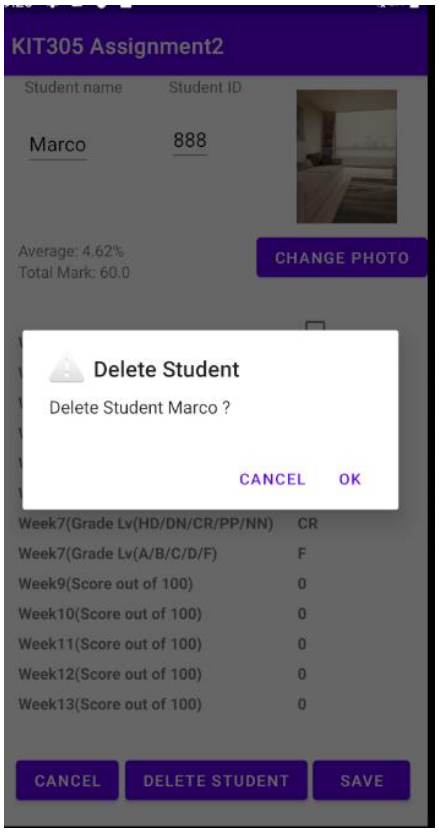
To make the system learnable on first use, each of the potential actions is displayed with a button with text marking on it, for example, student summary, week summary, add a photo, save and delete, etc. It allows the user to know what is the function of the button easily without trying, testing and hesitating.

To make the system memorable on repeat uses, the functions provided for the user it the most important function so we can keep the application as simple as possible. Few interactions required from the user so to make the application easier and more memorable.

To make the system efficient, we have achieved the first two aspects of a usable system which is learnable on first use and memorable on repeat uses. With the two achievements, the system has reduced the operation required from the user and the simpler operation required. For example, on the Mark tutorial page, the tutor does not have to type in the mark one by one but to use the spinner to select the mark like HD/HD+.

To make the system failure-resistant, an alert dialogue will pop up before the user tries to delete the student. With the use of the alert dialogue, the user will have to confirm the second time before they delete the student. Hense the failure-resistant aspect is fullfiled.



To make the system forgiving, failure-resistant is used to prevent the user from improper use. Also, every single page of the system is providing a cancel or back button except the main page so that the user can go back to the previous page whenever they want so to prevent improper use.

For Don Norman's Design Principles, there are also six main aspects for designing an application, including visibility, feedback, affordance, mapping, constraints and consistency. To improve the usability of the application, the application is designed to achieve most of the principles.

To improve visibility, the system is designed in a way that all the possible actions are shown on the screen including the buttons and add photos. For those operations that cannot be shown on the screen like a tap on the student to edit detail or enter a mark, a text view function will also be there to instruct the user.

To improve the feedback performance, after the user added the photo to the student, a photo will appear directly next to the student name. When the user changes the selected week in week summary and Mark tutorial using the spinner, an update will automatically appear with the week number together with the student list so the user will know what action has been done.

To improve affordance, we made our function the same as the perceived image of an object. For example, the button under the photo would be the add photo button. The Confirm button will always on the right, these tiny perceived image of an application will improve the affordance.

To improve the constraints, the user is using a spinner to mark the student instead of typing in the mark

so to reduce typo from the user. Editing of the mark is only available for the users on the mark tutorial page only but not the student detail page so we can reduce the chance of improper.

To improve the consistency of the program, the layout and the recycler list function are reused for different pages so to maintain the same kind of interface.

Code Documentation

In the assignment 2 prototypes, there are 8 class in total to combine and make the application as a whole.

1:MainActivity ->the main interface of the application directing the user to go to the Student Summary, Week Summary and Mark tutorial page.

2:StudentSummary-> the class showing the users the list of students and their average score with the use of firestore and recycler view adapter.

3:AddStudent-> the class can be accessed when the user taps on the button on the bottom right corner of the student summary interface. It allows the user to add a student with a photo, name and student id.

4:StudentDetail-> The class from student summary, showing the details of the students when the user taps on the student list on a specific student. It provides a save and delete function for the user. The delete function deletes the corresponding student record and the save function to allow the user to edit the student name, id and photo and save them on the database.

5:WeekSummary-> The summary of week scores with the use of spinner for the user to select the week they want to check and display the corresponding student mark with the use of the recycler list view. The user can still tap on the student and they will be directed to the Student Detail page.

6:MarkTutorail->The class allows the user to use the spinner to check the student score on a different week, tap on the students to choose and mark.

7:StudentTutorial ->The class pops out when the user tap on a student in MarkTutorial. It shows the student name, id, photo of the current week that the user is marking and allow the user to make use of the spinner to select the score for the student.

8:Student-> The collection class made for the whole application to interact with the database.

Most of the codes in this prototype are from the KIT305 tutorial and android.com which is the first party. The alert dialogue is from a StackOverflow answer which has also been commented on in the application (Android?, 2021) The firebase storage are coded from the firebase which is the first party. The Glide code is from a blog from Egemen Hamutçu (Hamutçu, 2019)

Conclusion

In the progress of working on assignment 2, the android studio has raised my interest in working with the database. I feel excited and pleased when I successfully worked on the application and made it interact with the database. The basic function of an application such as button, spinner, alert dialogue, picture capture, storage and display are meaningful, and I am sure They will be useful for my future career. Looking forward to working on more applications on different platforms to make my design better for the user.

Reference

Android?, H., 2021. *How do I display an alert dialog on Android?*. [online] Stack Overflow. Available at: <https://stackoverflow.com/questions/2115758/how-do-i-display-an-alert-dialog-on-android> [Accessed 23 April 2021].

Hamutçu, E., 2019. *Displaying images from Firebase Storage using Glide for Kotlin projects*. [online] Medium. Available at: <https://medium.com/@egemenhamutcu/displaying-images-from-firebase-

storage-using-glide-for-kotlin-projects-3e4950f6c103> [Accessed 23 April 2021].