Homework…

By: Lai Yi Fang 2A1 (Leader) & Lai Wei Fang 2i2

Introduction

Description of ideas/issues/Thesis Statement

- The intention was to create an application, similar to iEMB, where the CMC of each class can upload the homework/assignments/projects (including the submission dates), visible only to the students of that particular class, for each subject such that the students of each class can check the website each day in the event that they forgot what homework there is on that day. This will help students remember their homework better so that class time can be better spent on going through the work rather than wasting time chasing for homework. The target audience of this project are lower secondary Hwa Chong students who may have problems remembering their homework, but we intend to reach out to the rest of the school when given a second chance.

Rationale of project

- Most HCI students have difficulty remembering all their homework for long periods of time, especially if the teachers have assigned multiple tasks, some of which may not be due immediately. This may lead to confusion and loss of productivity and lose precious time in school that could and should be spent on learning new topics and concepts.

Focus and significance of project

- Focus was placed on trying to get the system up so that the admins can modify the homework for the students. This project will hopefully help to increase efficiency so that the teachers can cover more topics with the students and waste less time chasing for homework.

Scope of the project

- Due to a lack of members and time, this project is aimed at designing our application as a proof of concept that can be expanded to include more classes & accounts.

For proof of concept, only the below fictitious accounts have been created (see appendix D), however, ideally there should be a student account for each student while each class should have 1 admin account.

Database content:

UserID	User type	Class	Database access (yes/no)	Password	Homework items (edited by admins)	Status (done/not done - to be edited by students)

Literature Review/Theoretical Framework/Reference Models

- Several similar apps have already been designed and published, such as **Homework Planner** by JCode. However, such apps usually require signup or cost money. Some apps that we have checked are **My Study Life-School planner**, **myHomework Student Planner**,

Furthermore, these apps require the users to key in their homework manually, and do not really help if they actually forget what homework there is. In contrast, the solution is for a few admins to edit the homework for each class, making the need for students to remember their own homework mostly redundant.

Study & Methodology

- Members' roles:
  Wei fang did most of the slides and report
  Yi fang mainly did coding and helping with the technical aspects of the slides and report

Coding format used:

- Appinventor2
  Is a programming method designed for coding working applications through block code. It was created by MIT, and can be tested on android through a downloadable emulator application, or on emulators downloaded on the computer.

Survey results (see appendix B)

A survey was conducted at the start of the year, to find out the opinion of fellow Hwa Chong friends and classmates, and showed that many found it hard to remember all their homework, and would want a system that could relieve them of the stress from having to do so. However, due to Covid 19, a user feedback survey was unable to be conducted within the given time frame. However, alpha testing of the project was conducted.

Outcomes, Analysis & Discussions

- Flowchart diagram of the system done using LucidChart: see appendix C

Appendix C shows a mostly accurate model of how the system is designed to work, and it details how information is sent, edited, and extracted from the main database. It is missing the database for the users, as Yi Fang and Wei Fang could not figure out how to add it in due to complications.

Implications and Recommendations

- Possible risks:
  - This may not work all the time as the CMC themselves may also forget homework
  - Inputted data may be inaccurate if the CMC inputted the wrong information
  - No passwords for the admin account → students may maliciously change the homework due for that day
  - No safeguards to prevent admins from clicking the "add homework" button multiple times → may result in many nameless homework added to the database
    - Admins themselves will have to be more mindful when adding homework

- Possible further development:
  - Such a system can be implemented more widely as a "reminder" system even in other schools or even some workplaces to improve efficiency of the students or workers.

Conclusion

- Reflections & learning points from the project development process

Wei fang

Wei Fang learnt that they should have started working on the project earlier and not left so much of the work to the last minute. He also realised that they should have worked together as a team so that they could cover each other's blind spots and compensate for the other's weaknesses. Furthermore, he also realised that communication was key as unclear communication had led to loss of precious time and productivity. Wei Fang will definitely try to improve on the above aspects and improve on his weaker aspects in the future.

Yi Fang

Ever since starting this project, Yi Fang has understood even better just how hard it is for programmers to code even the simplest data-recording game. It surprises him how even the most simple project can take lots of effort to code, and debug. It has given him a new perspective and not to underestimate the challenges in programming. It's just as they say, "*easy to say, but hard to do*".

Bibliography

- APA format

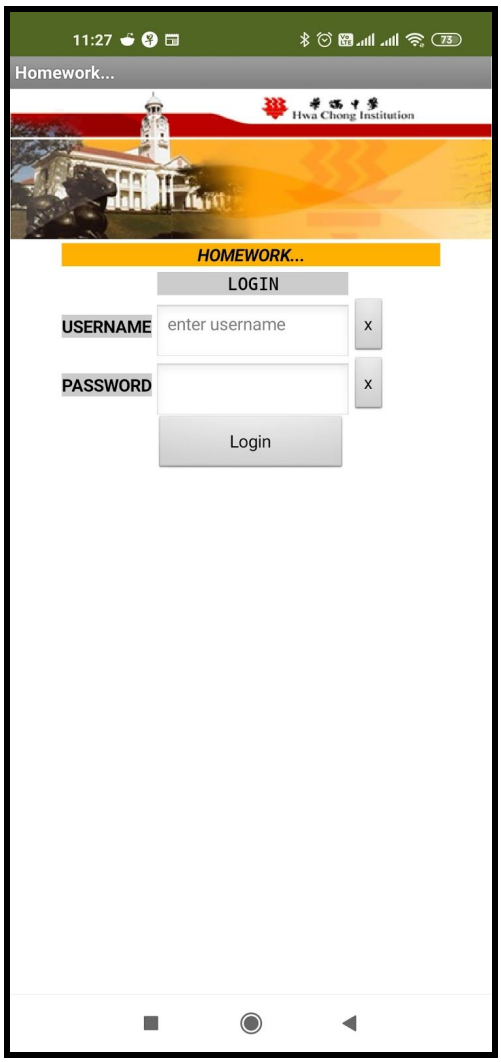
1) Appinventor.mit.edu. n.d. *MIT App Inventor | Explore MIT App Inventor*. [online] Available at: <https://appinventor.mit.edu/> [Accessed 19 August 2020].

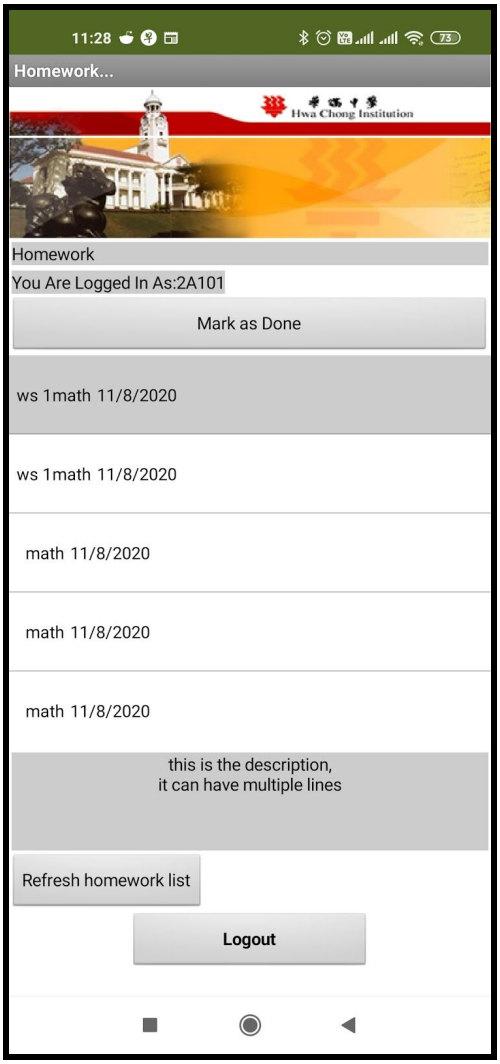
2) Appinventor.mit.edu. 2020. [online] Available at: <http://appinventor.mit.edu/explore/sites/all/files/hourofcode/AppInventorTutorials.pdf> [Accessed 19 August 2020].

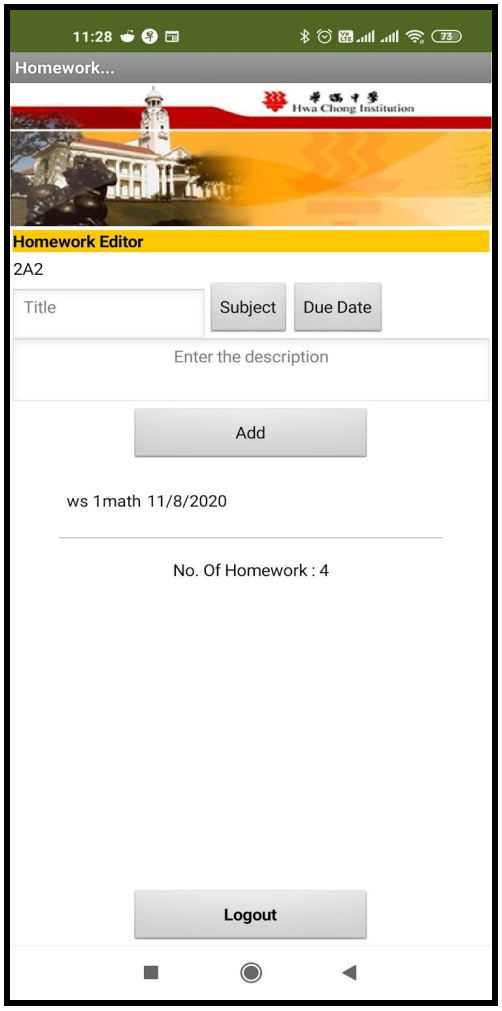
3) 2020. *Homework Planner*. JCode.

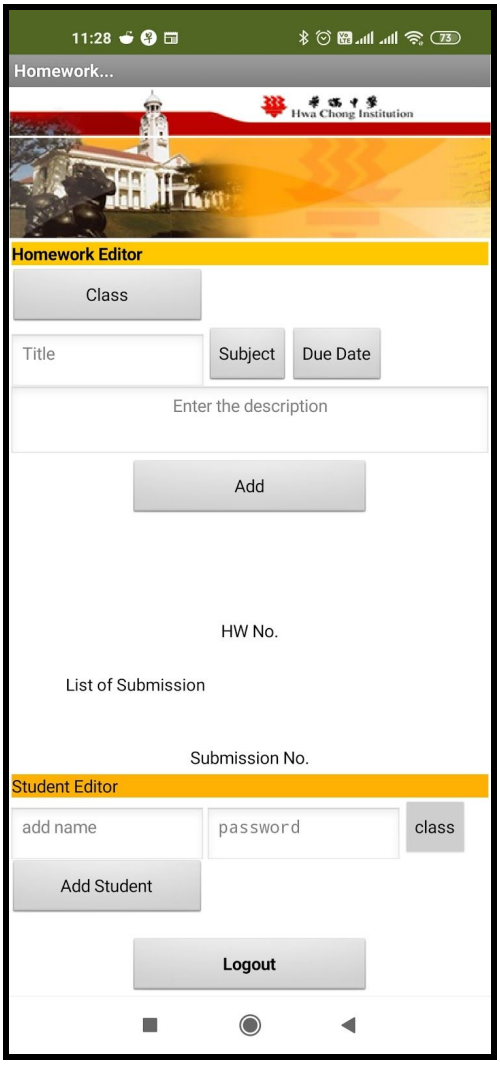
Appendixes

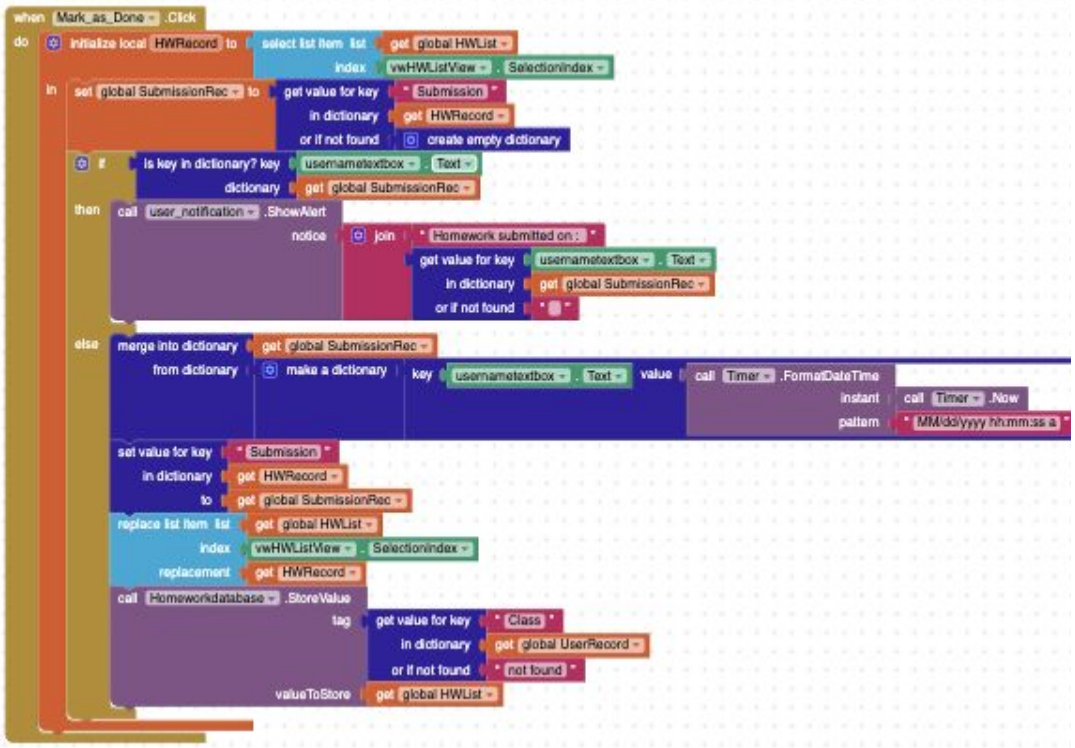
A (parts of our code and our screenshots)


11:27
Homework...
Hwa Chong Institution
HOMEWORK...
LOGIN
USERNAME
enter username
x
PASSWORD
x
Login


11:28
Homework...
Hwa Chong Institution
Homework
You Are Logged In As:2A101
Mark as Done
ws 1math 11/8/2020
ws 1math 11/8/2020
math 11/8/2020
math 11/8/2020
math 11/8/2020
this is the description,
it can have multiple lines
Refresh homework list
Logout


11:28
Homework...
Hwa Chong Institution
Homework Editor
2A2
Title
Subject
Due Date
Enter the description
Add
ws 1math 11/8/2020
No. Of Homework : 4
Logout

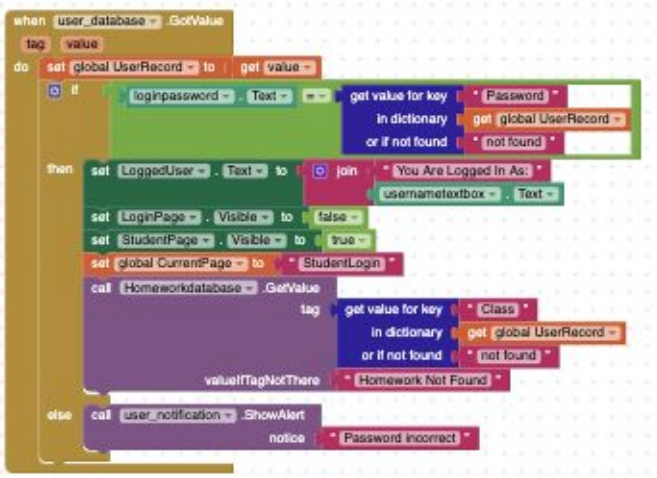

11:28
Homework...
Hwa Chong Institution
Homework Editor
Class
Title
Subject
Due Date
Enter the description
Add
HW No.
List of Submission
Submission No.
Student Editor
add name
password
class
Add Student
Logout

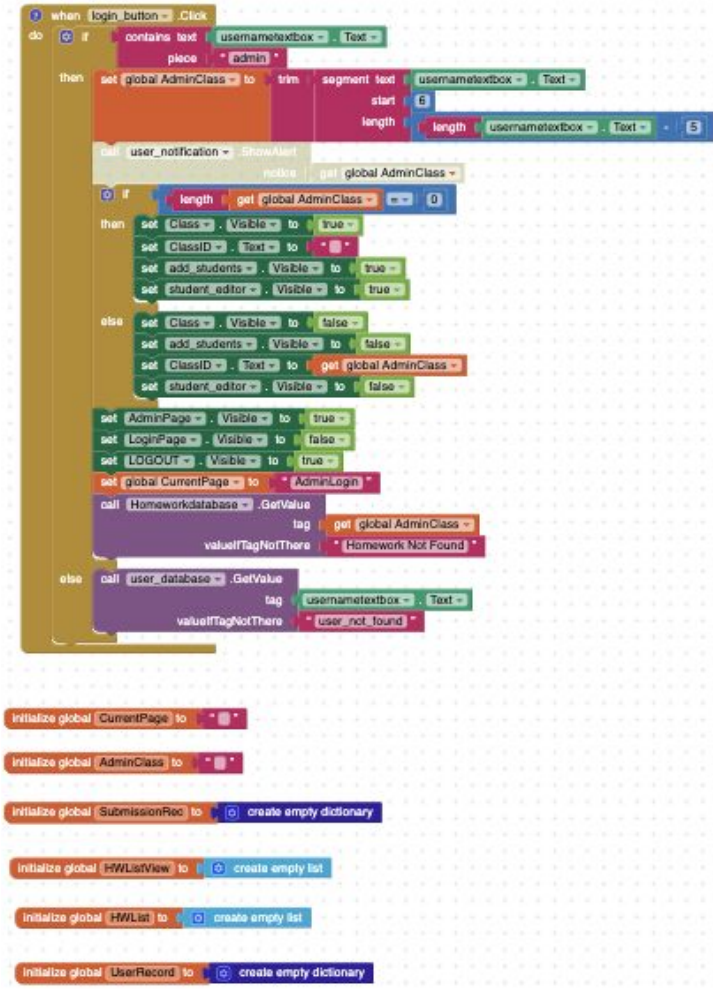

when Mark_as_Done .Click
do initialize local HWRecord to select list item list get global HWList
index vwHWListView . SelectionIndex
in set global SubmissionRec to get value for key " Submission "
in dictionary get HWRecord
or if not found create empty dictionary
if is key in dictionary? key usernametextbox . Text
dictionary get global SubmissionRec
then call user_notification .ShowAlert
notice join " Homework submitted on : "
get value for key usernametextbox . Text
in dictionary get global SubmissionRec
or if not found " "
else merge into dictionary get global SubmissionRec
from dictionary make a dictionary key usernametextbox . Text value call Timer .FormatDateTime
instant call Timer .Now
pattern " MM/dd/yyyy hh:mm:ss a "
set value for key " Submission "
in dictionary get HWRecord
to get global SubmissionRec
replace list item list get global HWList
index vwHWListView . SelectionIndex
replacement get HWRecord
call Homeworkdatabase .StoreValue
tag get value for key " Class "
in dictionary get global UserRecord
or if not found " not found "
valueToStore get global HWList

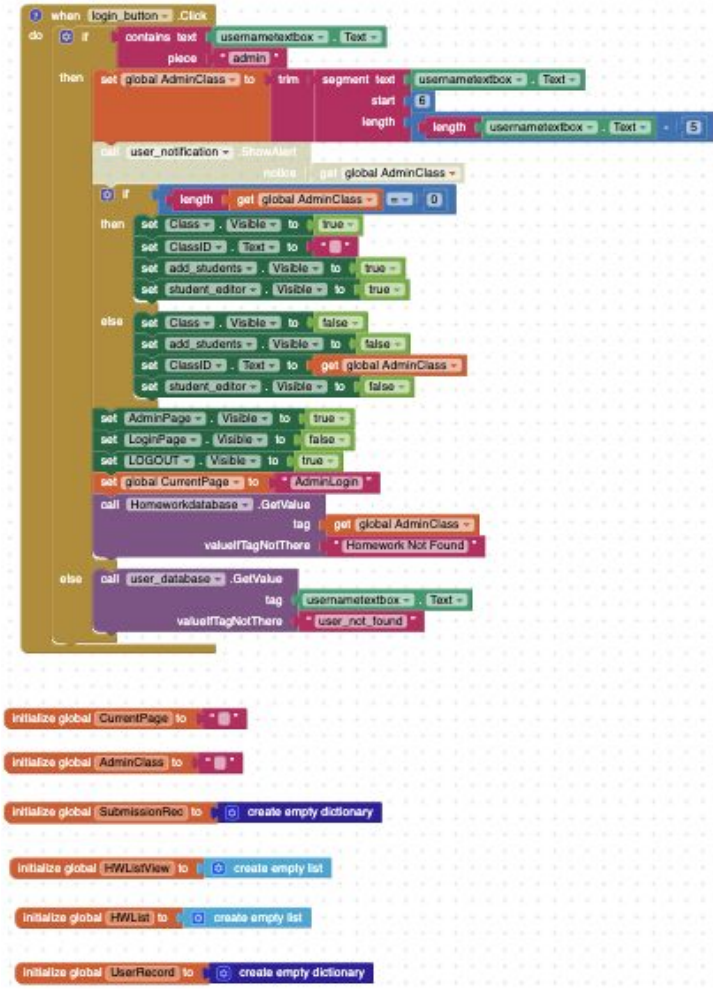

when clear_username .Click
do set usernametextbox . Text to " "


when clear_password .Click
do set loginpassword . Text to " "

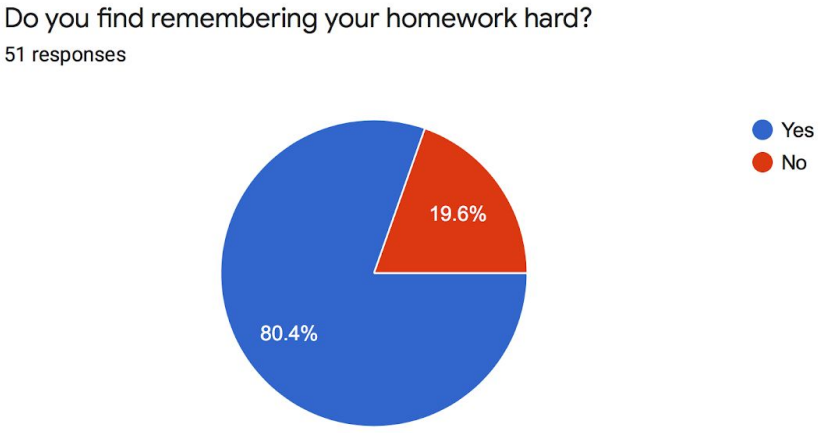

when vwHomeworkGiven .AfterPicking
do set global SubmissionRec to get value for key " Submission "
in dictionary select list item list get global HWList
index vwHomeworkGiven . SelectionIndex
or if not found create empty dictionary
set SubmissionList . Elements to dictionary to list of pairs dictionary get global SubmissionRec
set NumberOfSubmissions . Text to join " No. Of Submissions : "
size of dictionary dictionary get global SubmissionRec
set SubmissionList . Visible to true
set NumberOfSubmissions . Visible to true


when user_database .GotValue
tag value
do set global UserRecord to get value
if loginpassword . Text = get value for key " Password "
in dictionary get global UserRecord
or if not found " not found "
then set LoggedUser . Text to join " You Are Logged In As: "
usernametextbox . Text
set LoginPage . Visible to false
set StudentPage . Visible to true
set global CurrentPage to " StudentLogin "
call Homeworkdatabase .GetValue
tag get value for key " Class "
in dictionary get global UserRecord
or if not found " not found "
valueIfTagNotThere " Homework Not Found "
else call user_notification .ShowAlert
notice " Password incorrect "


when login_button .Click
do if contains text usernametextbox . Text
piece " admin "
then set global AdminClass to trim segment text usernametextbox . Text
start 6
length length usernametextbox . Text - 5
call user_notification .ShowAlert
notice get global AdminClass
if length get global AdminClass = 0
then set Class . Visible to true
set ClassID . Text to " "
set add_students . Visible to true
set student_editor . Visible to true
else set Class . Visible to false
set add_students . Visible to false
set ClassID . Text to get global AdminClass
set student_editor . Visible to false
set AdminPage . Visible to true
set LoginPage . Visible to false
set LOGOUT . Visible to true
set global CurrentPage to " AdminLogin "
call Homeworkdatabase .GetValue
tag get global AdminClass
valueIfTagNotThere " Homework Not Found "
else call user_database .GetValue
tag usernametextbox . Text
valueIfTagNotThere " user_not_found "
initialize global CurrentPage to " "
initialize global AdminClass to " "
initialize global SubmissionRec to create empty dictionary
initialize global HWListView to create empty list
initialize global HWList to create empty list
initialize global UserRecord to create empty dictionary

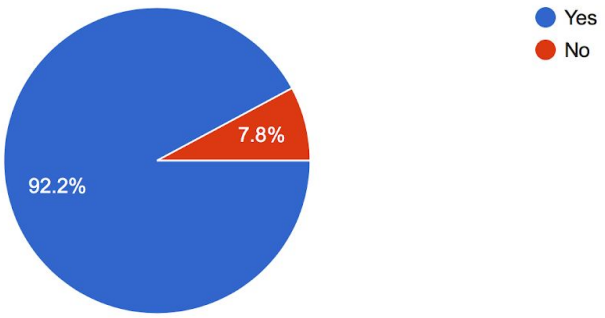


B (our survey's results)

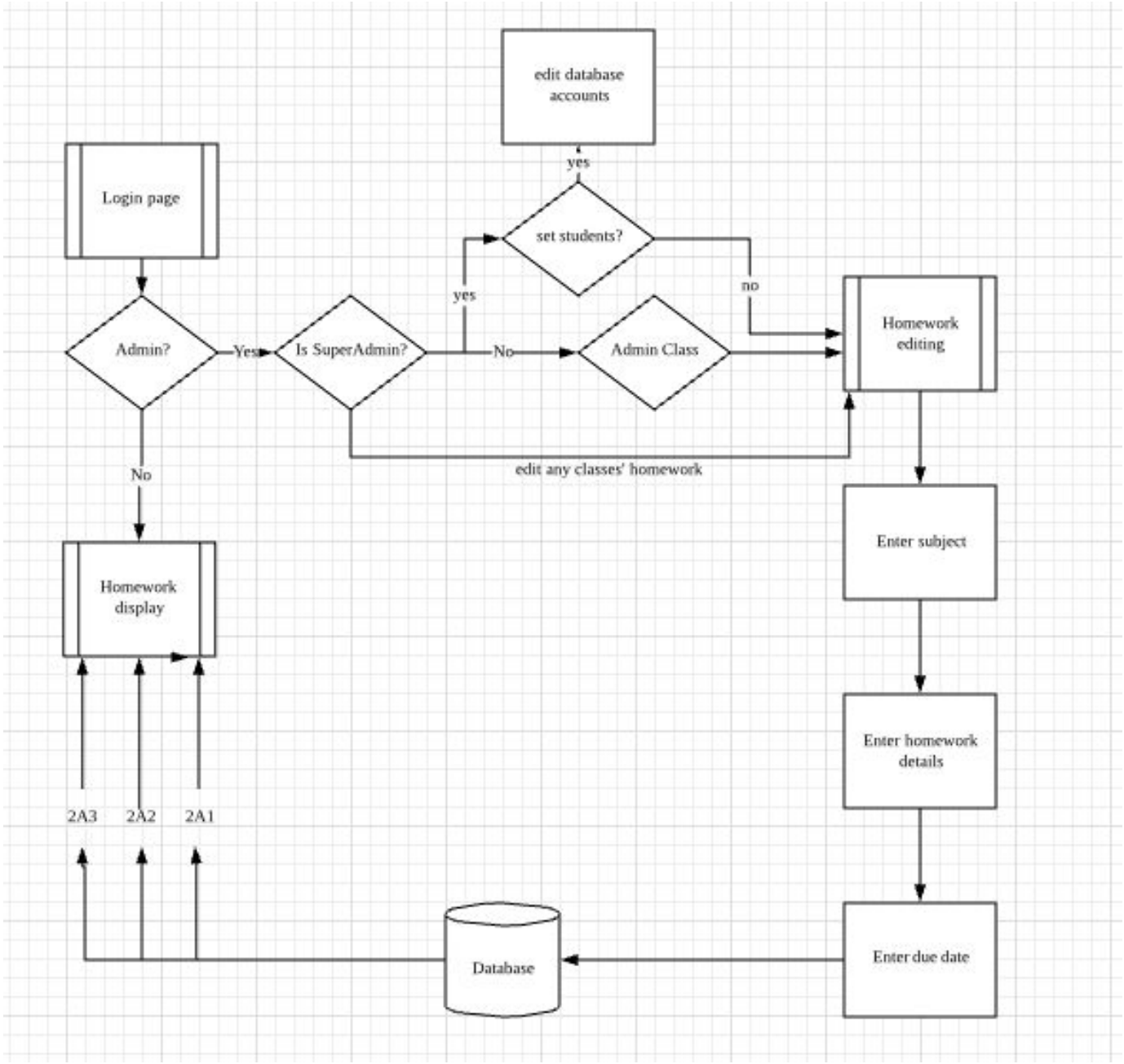


would you use a system similar to iEMB where an admin sends a list of your daily homework to you?

51 responses



C (our project work flow)



Appendix D

UserID	User type	Class	Database access	Why create this user?
2A101, 2A102, 2A103, 2A104 …	Student	2A1	View	To test whether the student account can retrieve data from the database
admin2A1	Admin	2A1	Edit	To test whether admin can edit the database
2A201,2A202, 2A203, 2A204, 2A205 ...	Student	2A2	View	To test whether students can view other classes' work
admin2A2	Admin	2A2	Edit	To test whether the admin can edit other classes' work
2A301,2A302, 2A303, 2A304, 2A305 ...	Student	2A3	View	To test whether students can view other classes' work
admin2A3	Admin	2A3	Edit	To test whether the admin can edit other classes' work