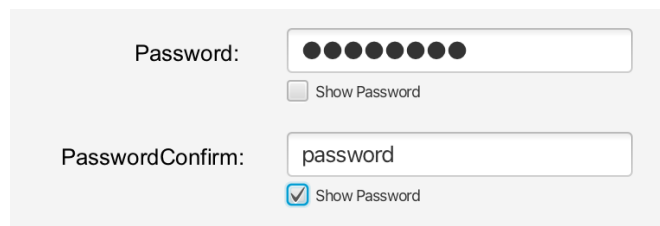# Supplementary Documents for HKUST Examination System
Group 20 - Curtis, Marco, Calvin

Design Assumptions:
1. A student can have multiple accounts
   (As we don't require unique credentials from students e.g. SID, our system cannot distinguish the real identity of the student, which in turn allows the same student to have different accounts.)
2. A student / teacher will not change their credentials by themselves, they can only seek help from manager
3. A question can be of zero points
4. An exam should have at least one question.
5. A published exam cannot be changed and each student can only take the same exam once.
6. Exam time is in Second.
7. Once the exam is started, the time starts and cannot be paused.
8. A student cannot continue the exam after closing the exam window
9. The correct answer of the exam will not be shown.
10. Manager credentials are non-changeable (username: *admin*, password: *calvin*).
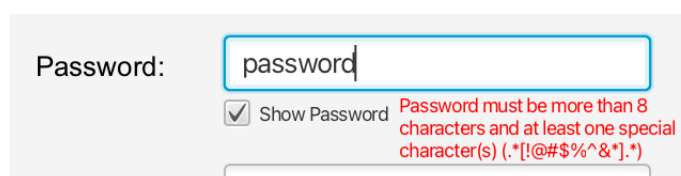11. Assumed departments are represented as the [HKUST course code standard](#).

Features different from / beyond requirements and justification:
1. Hide and View Password Button
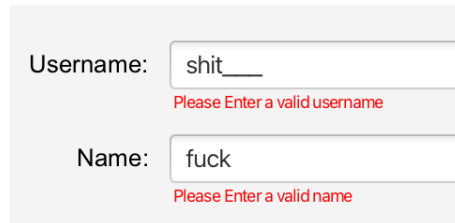   Referenced from the standard registration and login-in form, we decided to add a button to toggle viewing the password.

2. Password Security
   We reinforced basic password security rules in every user account to ensure the security of the software

3. NSFW Checking
   We implement foul language checking of username and name to ensure they are safe for the workplace.
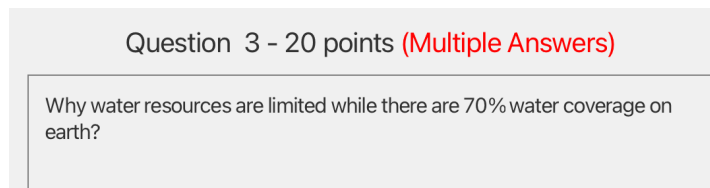
   Username: shit___
   Please Enter a valid username

   Name: fuck
   Please Enter a valid name
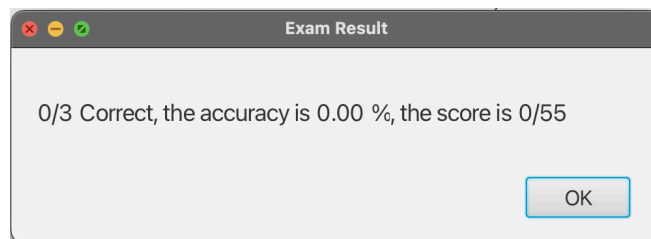
4. Multiple Answering Question Warning
   For questions requiring multiple answers, we added a label to the question to remind students; And to be distinguishable, students can only choose *one option* for single answering questions, no limit for multiple answering questions

   Question 3 - 20 points (Multiple Answers)

   Why water resources are limited while there are 70% water coverage on earth?

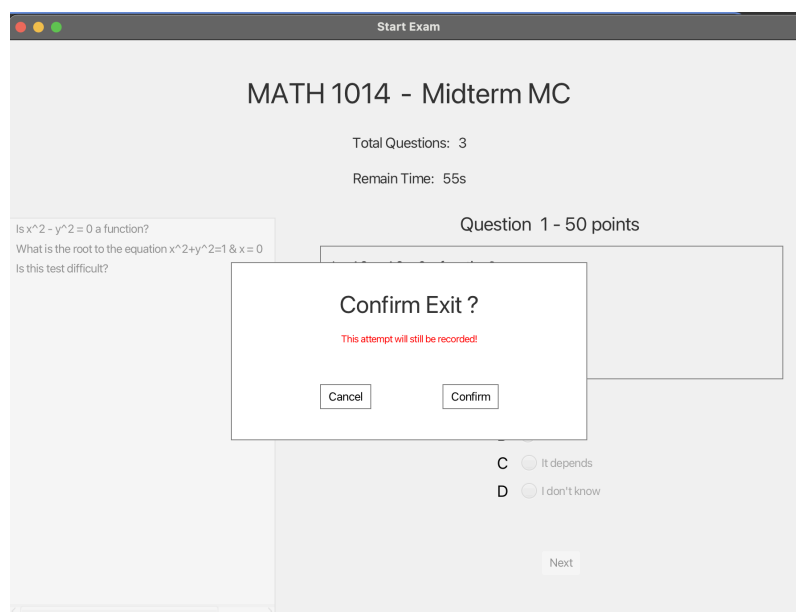5. Exam result metrics changed from Precision to Accuracy

   Exam Result

   0/3 Correct, the accuracy is 0.00 %, the score is 0/55

   OK

6. Accidental Exist Warning
   We model the possibility of accidentally closing the exam window, so we provided a pop-up warning to make sure the student wants to quit the exam early.
   The answers *will still be recorded* no matter whether he/she submitted or not.

   Start Exam

   MATH 1014 - Midterm MC

   Total Questions: 3

   Remain Time: 55s

   Is x^2 - y^2 = 0 a function?
   What is the root to the equation x^2+y^2=1 & x = 0
   Is this test difficult?

   Question 1 - 50 points

   Confirm Exit ?
   This attempt will still be recorded!

   Cancel   Confirm

   C ◯ It depends
   D ◯ I don't know

   Next

7. Redesigned UI for Question Bank Management
   The sample design has a large table showing all questions but a small question editing area.
   We want to emphasize the editing area to make user input more intuitive. We also want to accelerate the input process.
   1. The editing area is enlarged
   2. The editing area is moved to the left side
   3. A radio-button group is used for answer input
   4. An additional "clear" button to clear the input field

8. Redesigned UI for Exam Management
   The sample design didn't organize the 3 tables logically. The input area is subtle and small.

   Again, we want to emphasize the editing area and tidy up the flow of input to make user input more intuitive.
   1. The editing area is enlarged
   2. The editing area is moved to the left side
   3. The "Remove from left" and "Add to right" Buttons are redesigned and repositioned to make them more coherent to their corresponding table.
   4. An additional "clear" button to clear the input field

Limitations

1. Student cannot review their answers after the exam
   In this system, students can view grades after they take an exam, but cannot view which questions are wrong and which are correct.
   The reason behind maybe is to prevent copying between students to embrace fairness.
2. Questions from the published exam cannot be changed
3. An exam attempt cannot be regarded.
4. User credentials are not security stored, e.g. no hashing is presented, maybe vulnerable to attacks.

System Architecture

1. Database was implemented in form of JSON files

Changes from Original Use-case Specification

1. Student registration sanity check warning

   It was stated in the use-case specification that the entry text box will be enclosed by a red box when an input did not pass the validation. However, upon designing the UI, it was found that enclosing all entries with a red rectangle box reduces UX as it seems bulky. The representation is then changed to using red warning texts under the text field.