UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

SECP1513-11 (TECHNOLOGY AND INFORMATION SYSTEM)

SEMESTER 2, SESSION 2020/2021

Group: ASK & LEARN

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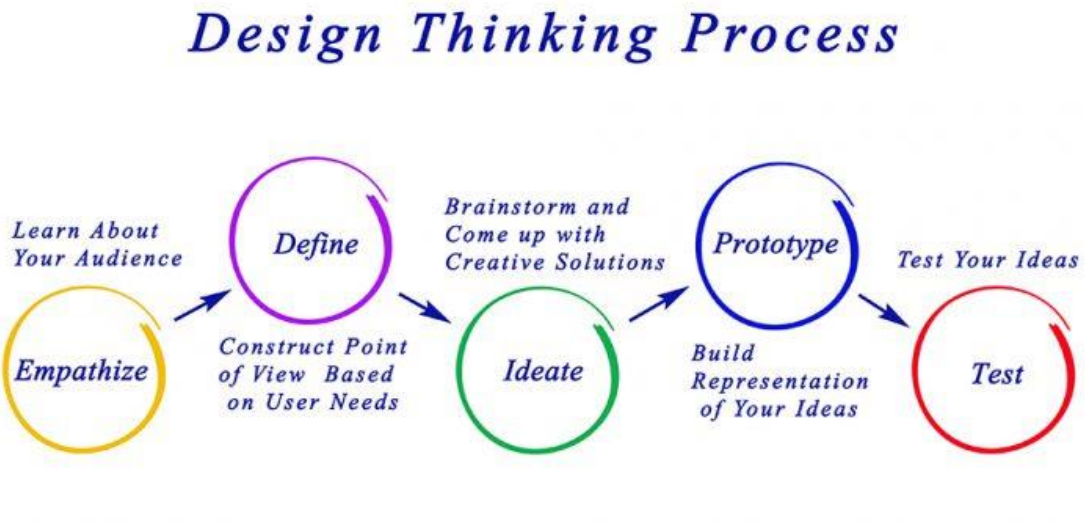
- **Introduction**

  Design thinking is a strategic and practical process that we use to tackle many complex issues undefined or unknown because the process reframes problems in a human-centric way. The process involves us approaching the user and understand their needs to identify the solutions to the issues. Also, it offers us to think outside of the box to find unique solutions. Using this process, we will make decisions based on what students want instead of only relying on assumptions and making risky bets.

  There are five phases of Design Thinking. The five stages are as follows:

  1. Emphasize: ask the users.
  2. Define state the user's needs and problems.
  3. Ideate: great ideas based on problem-solving.
  4. Prototype: adopting a hands-on approach.
  5. Testing: solutions



Stage 1 – Empathise

The first phase of Design Thinking is to empathize. It is where we are required to observe and engage ourselves with the users to uncover their needs and then try to understand their problems. Empathy is crucial in developing a human-centred process because it allows us to think logically and set aside our expectations.

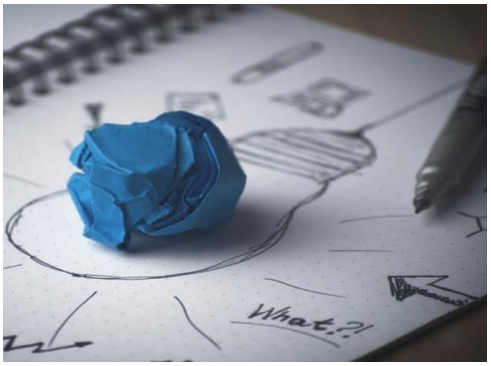
Stage 2 – Define

In the second phase, we will analyse the information and observations collected in the previous stage. We will then try to create all of them to define the core problems or, to be more precise, a human-centred problem statement. This defining phase will help us gather

fantastic ideas to solve the issues, or it allows the users to resolve the problems with minimum difficulty.

Stage 3 – Ideate

The third phase. We start generating ideas following the first and second stages. Moreover, we have already had a good background in developing brilliant ideas because we have grown to understand our user's needs in the empathize phase and created a problem statement in the define phase. There are many methods in ideation techniques such as Brainstorming. In this stage, we will need to come up with many ideas as possible to develop the solutions.



Stage 4 – Prototype

In the fourth phase, we turn the chosen ideas into a theoretical form of solutions. It is also known as the experimental phase. The idea is that we need to find the best possible solution to the problem that has been identified in the previous stages. The prototypes are investigated, improved, and re-examined. At the end of this stage, we should have a clearer view of the solution and how the users should interact with the result.

Stage 5 – Testing

In the last phase, we try to get feedback on the chosen solutions from the users. It is a crucial stage because it allows us as the thinker to identify as many flaws as possible and

improve the software application to make it better. On the other hand, it is essential to note that we can always return to the previous phases to refine and alternative solutions.

Emphasize:

As the first step, we had a meeting to ensure that everyone understood the problems we had and what we need to do to the project. Moreover, to make sure that we covered most of the points we made, we interviewed the Doctors.

We can define it in a few stages:

- Questions

We asked a few friends and gathered some information from the seniors and a few students about the problems they faced:

- What do you think should be developed at the university?
- How can you interact with them?
- Dr and how long does it take you to get the answer to your questions?

- Interview

We asked the Drs general, related, and detailed questions so that it can help us identify the problems and get more information about how we can solve it

- How often do the students ask about any topic?
- And if they have a question to ask out of the lectures time, how can he ask?

Define:

From all the information we gathered, we identified the obstacle that faced the students.

The problem:

- the understanding of the students.
- The difficulty of the users to identify the answer to his/her question from the slides.
- Sometimes it takes a lot for the Dr to respond to the messages.
- Hard to remember all the essential points that have been declared in the lecture.

Ideate:

We decided to make an application that will help the student study and ask questions to some Drs that are already chosen.

- Note: There will be a link on the university website to help the students if they are using the laptop.

Solution detailed:

1- To access the program, a student must give the email (@graduate.utm.my) a matric number and ask you to set a password to enter.

2- The application will then process the information that the user entered by sending an email to the university to check all the information and verify the username and get all the subjects the user is taking in the course.

3- After verification, an email sent to the doctor of the student who notifies him\her one of the students has joined.

4- After accessing the application, there will be three buttons that can be accessed by the user, and they are (Questions, Bot, and Contact a Dr):
    a. Many Doctors will write questions so it can cover a lot of points and many perspectives.

    b. The bot is to help the students find the questions and in which chapter they are existing in.

    c. The Doctors button is for the students to ask the complicated and hard questions, get a better explanation, and can have a private meeting with the Dr to have a better explanation; it is also allowed to send pictures and voice notes

        The doctor can pin any question and provide the video explanation to the questions list to prevent repeating questions.

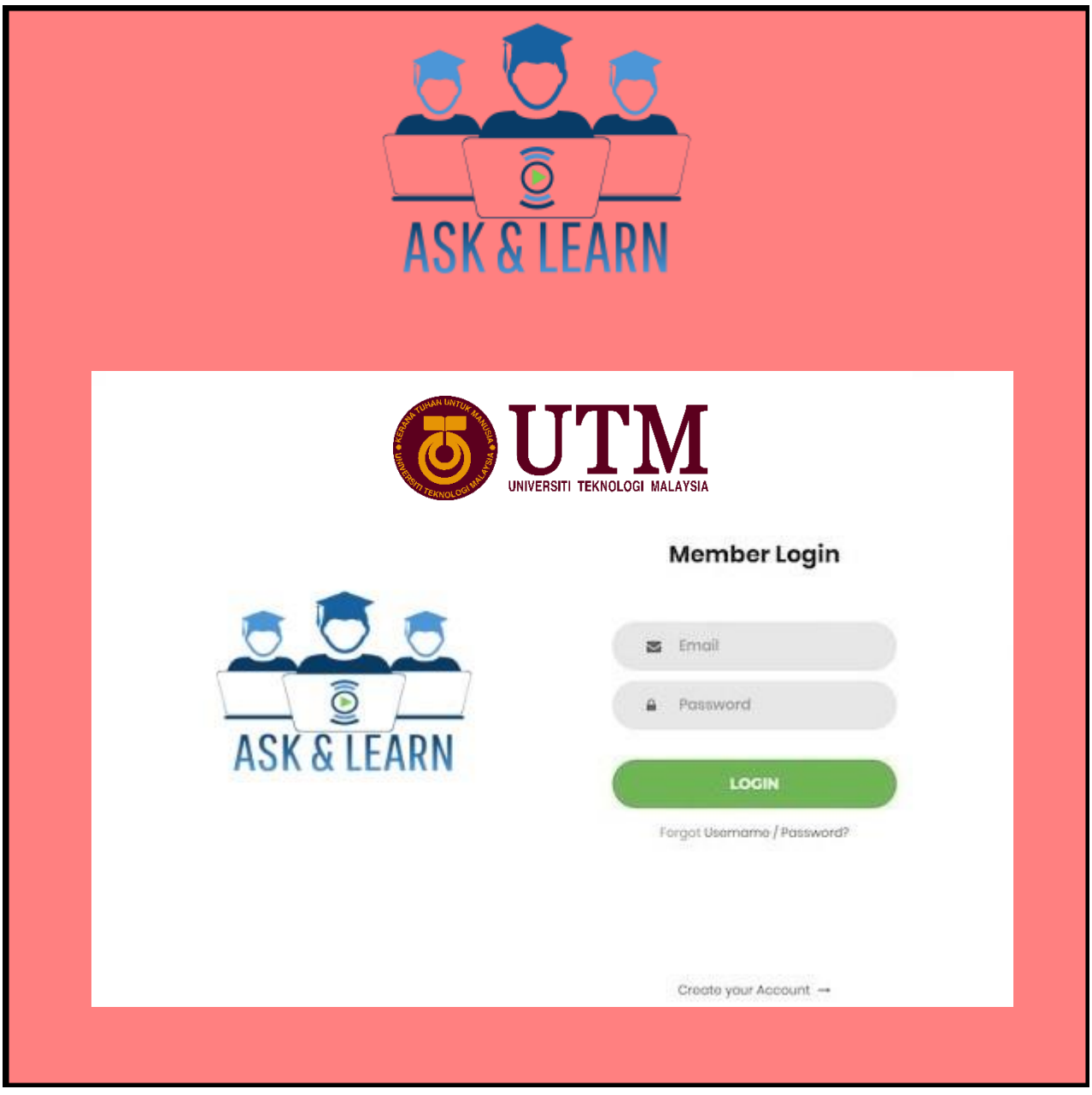
        - The main idea in this topic is to have a quick and online interaction with the Dr so that the students do not have to stop studying or have a final exam or a test they can ask the day before.

***The online interaction with the Dr will be from 3 to 5 hours after the studying day (at night-time) to have time to study and find the question they want to ask.**

Another feature of many features that the application provides is to prevent cheating or any misuse during tests and quizzes. The doctor was provided by students information so the doctor could have access to the app to lock the app on the students and set a time for it to get unlocked and monitor the student's access during the test.

Prototype:

The picture below is our main application interface. First of all, students need to create a new account.

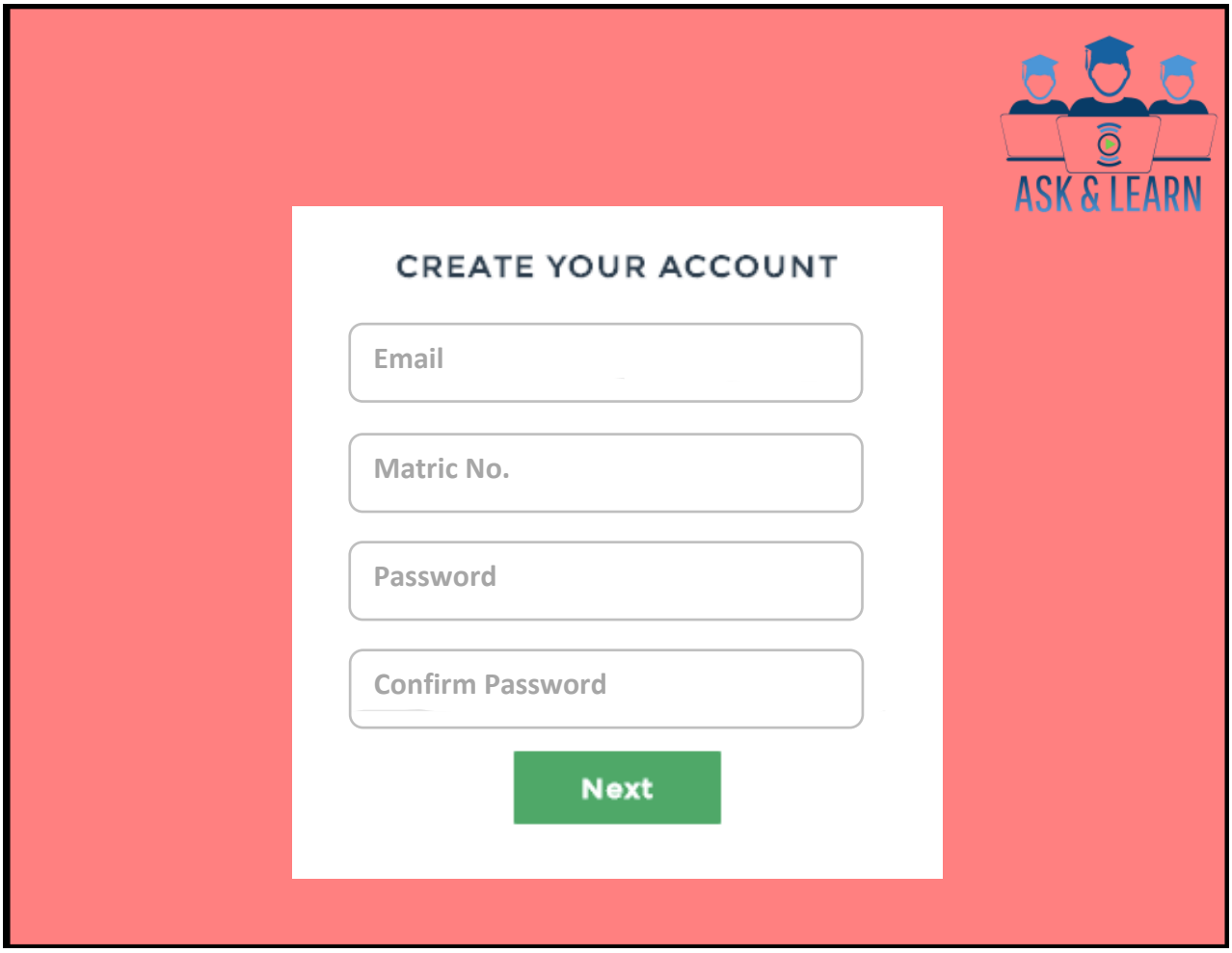


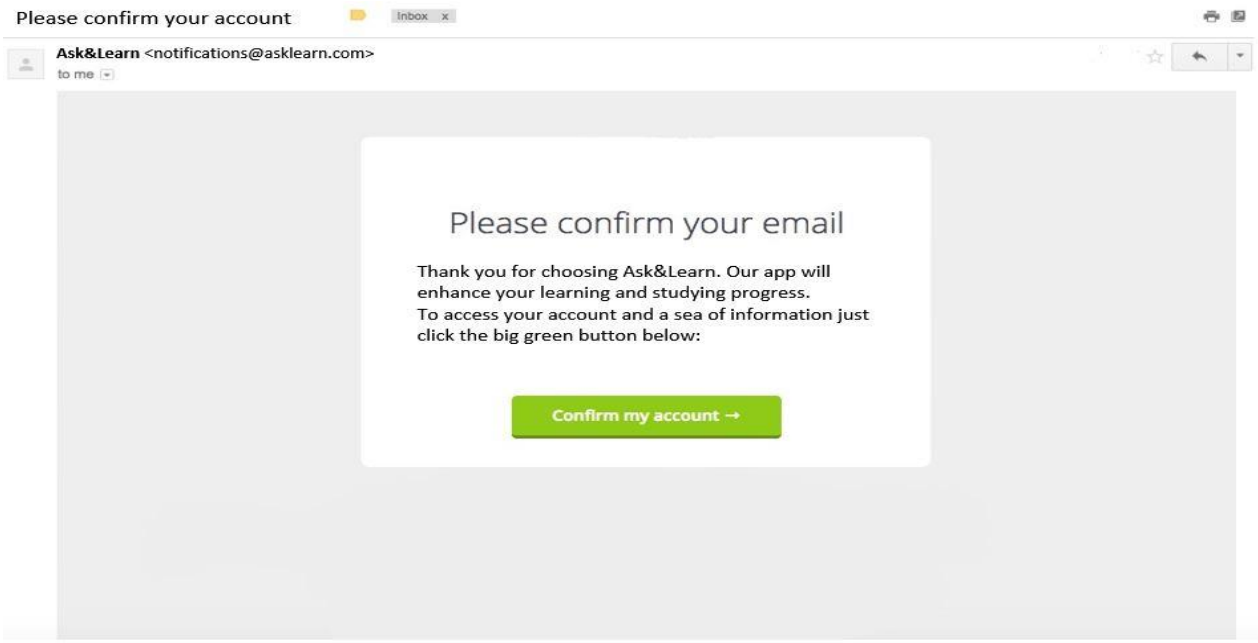
After students click on create a new account, they will do the following:

Entering student UTM email, Matric No. and a new password, then confirm password.

Click on next; an account verification will be sent to the student email registered.

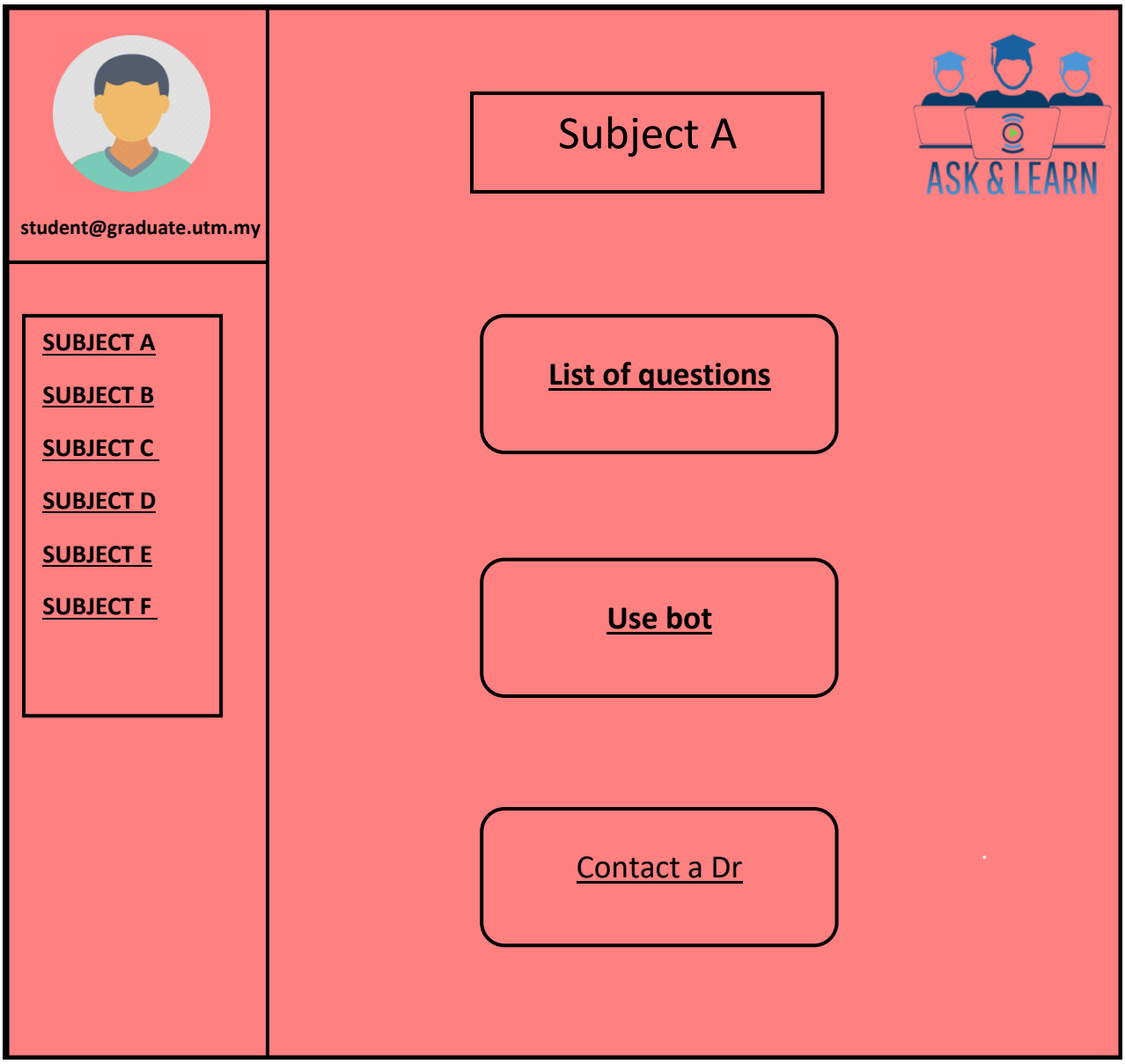
Open email and press confirm the account.





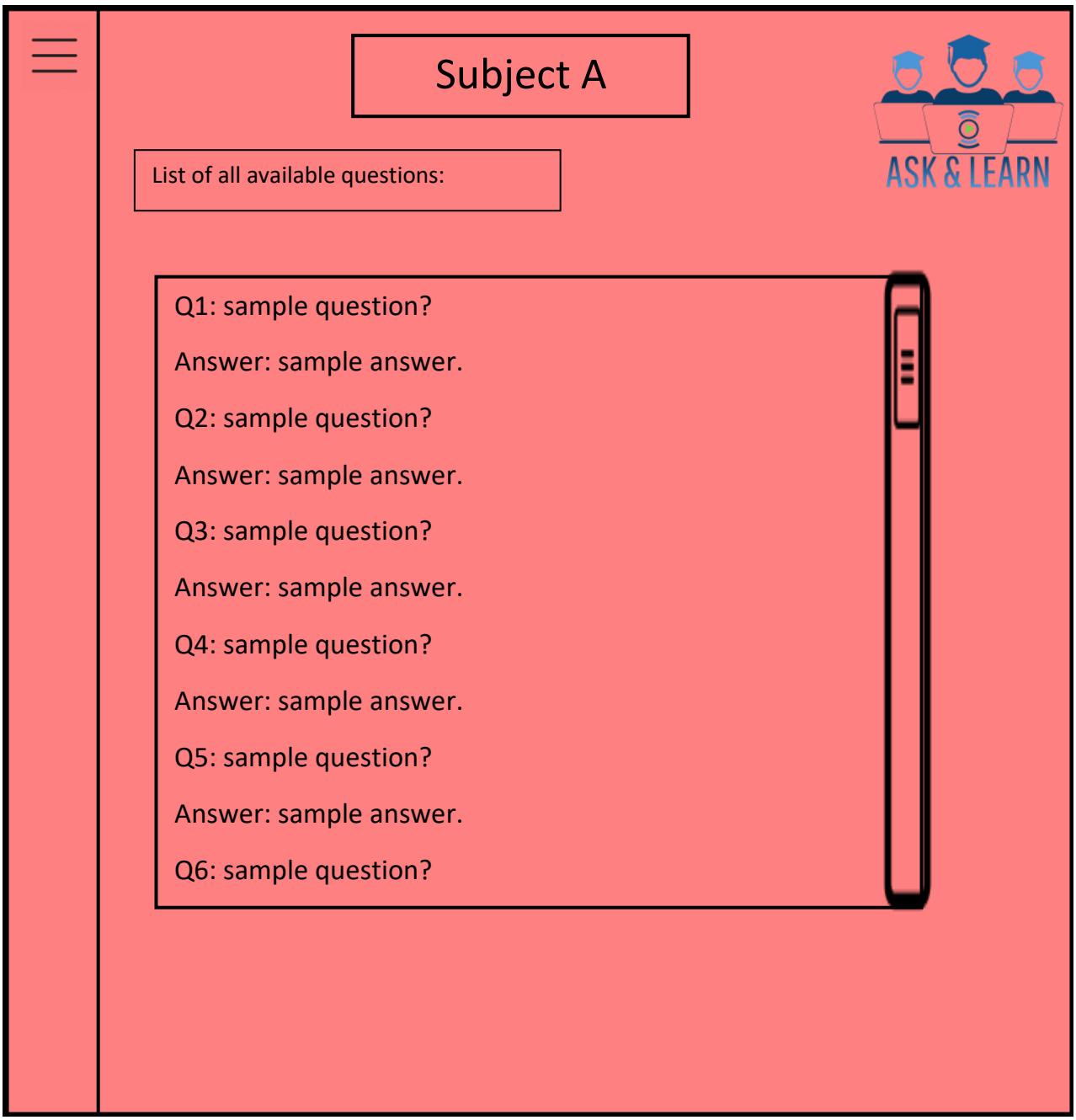
Now enter your student email and password, subjects will be synced automatically with the application.

Choose your desired subject. We chose subject A as an example.



Testing:

We opened the application, created a new account, logged in with it, and showed all the subjects listed under the student profile. The application is easy to navigate through when you click on the list of questions in subject A and you will find them organized.



We could not find a certain question on the list because it is too long, so we used the bot to find the question.


Subject A
ASK & LEARN
Ask & Learn BOT
Online
Hello, welcome to ChatBot Ask&Learn!
How can I help you?
Ask a question
Contact a Dr
Send a message...

- ## Reflections

a. What is your goal/dream about your course/program?

Our main goal regarding our course, which is software engineering, is become a booming field in engineer. We hope that in the future, we will become an engineer that possess necessaries values such as having excellent enterprise programming experience to develop and managing information system. In additions, we are looking forward to working in a team to provide a platform for creating innovative solutions to prevent the intrusion of computer programming. After all, our primary goal in studying software engineering is improvement of our country system which is education system and government system.

b. How does this design thinking impact on your goal/dream with regard to your program?

We finish the design thinking project, our aim regarding software engineering.

Course become more steadfast. It is not a doubt that the usage of online and system software technologies expands rapidly as the online services keep growing every day. The problems cannot be prevented, so we, as future software engineers, have to come up with a way to face issues. However, with knowledge and the effectiveness of design thinking, we know that it is the most suitable way to solve the incoming problems in our future. Design thinking that encompasses five steps which are empathy define, ideate, prototype and the test will make our plan efficiently because each process follows the organizing stage. By having a greater understanding in each of steps, we desire we can use our skilfully to help society by using the programming and developing services without getting worried about our coding.

c. What is the action/improvement/plan necessary for you to improve your potential in the industry?

We should improve our skills in various aspects, especially in dealing with problems. We also must have the mind-set that always hunger of information and not tried to keep learning. Besides, we must develop the qualities that what it takes to be a great engineer such as communication skill and the capability to work with a team. The most critical step is never giving up achieving our goal. We believe that if we keep improving our skills, we can know more hidden potential in the industry.

Name	Task
MOHAMMED RAGAB RAGAB ELSINOUSI ABDALHADY	Wrote introduction, Detail steps and descriptions in design thinking and reflection.
Osama Tarek Ghanem Eltokhy rezk	Wrote about the problem and the solution with details.
Ahmed Khairy Abdellatif Abdelsalam	Wrote About the prototype and testing.