Software Requirements Specification

for

ChillStudy

Version 1.1 approved

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Revision History

Name	Date	Reason For Changes	Version
Sheraz, Eman, Masood	3-1-2023		Version 1.0
Sheraz, Eman, Masood	5-1-2023	Update in few requirements	Version 1.1

1. Introduction

1.1 Purpose

The purpose of this document is to collect, analyze, and define high-level needs and features of an Online Tutoring Platform (ChillStudy). It focuses on the capabilities needed by the stakeholders, and the target users, and why these needs exist. The details of how the Online Tutoring Platform fulfils these needs are detailed in the use-case and supplementary specifications.

1.2 Document Conventions

1.2.1 Experts

These are the users who had passed the Expert test of this System and had been promoted to Level Experts. These are the users who will answer the question asked by users and can earn money.

1.2.2 Reviewers

These are the experts who had answered 300 Questions correctly, had passed Reviewer Test and had been promoted to Reviewer Level. They review the answers of experts and earn money.

1.2.3 Answer Bank

It is a Database of Answered Questions and every question ever answered will be stored here.

1.2.4 Question Queue

It is a Database of Questions to be answered. It will used be to display questions to experts on the basis of FIFO queue (First In First Out)

1.2.5 Review Queue

It is a Database of Questions to be Reviewed. It will used be to display answered questions to reviewers on the basis of FIFO queue (First In First Out)

1.2.6 ChatBot

It is an AI chatbot which answers simple study questions and also includes Frequently asked questions about the website.

1.3 Intended Audience and Reading Suggestions

The intended audience and their respective reading suggestions include:

Stakeholders	**Reading suggestions (Sections)**
Software Developers	2, 3, 4, 5, 6
Software Testers	2, 3, 4, 5, 6
Marketing Staff	1.4, 2.2
Project Managers	The entire document
Business Analyst	The entire document
User experience designers	2,3,5
Quality assurance engineers	4,5,6

1.4 Product Scope

This Vision Document applies to the Online Tutoring Platform (ChillStudy), which will be developed by the Bois Development team. The Bois team will develop this client-server system (ChillStudy) that will enable students to ask questions about all subjects and courses from qualified experts. Students can also have online tutoring sessions with teachers. This will enable students to unstuck from difficult and complex concepts and teachers can have good part-time earnings.

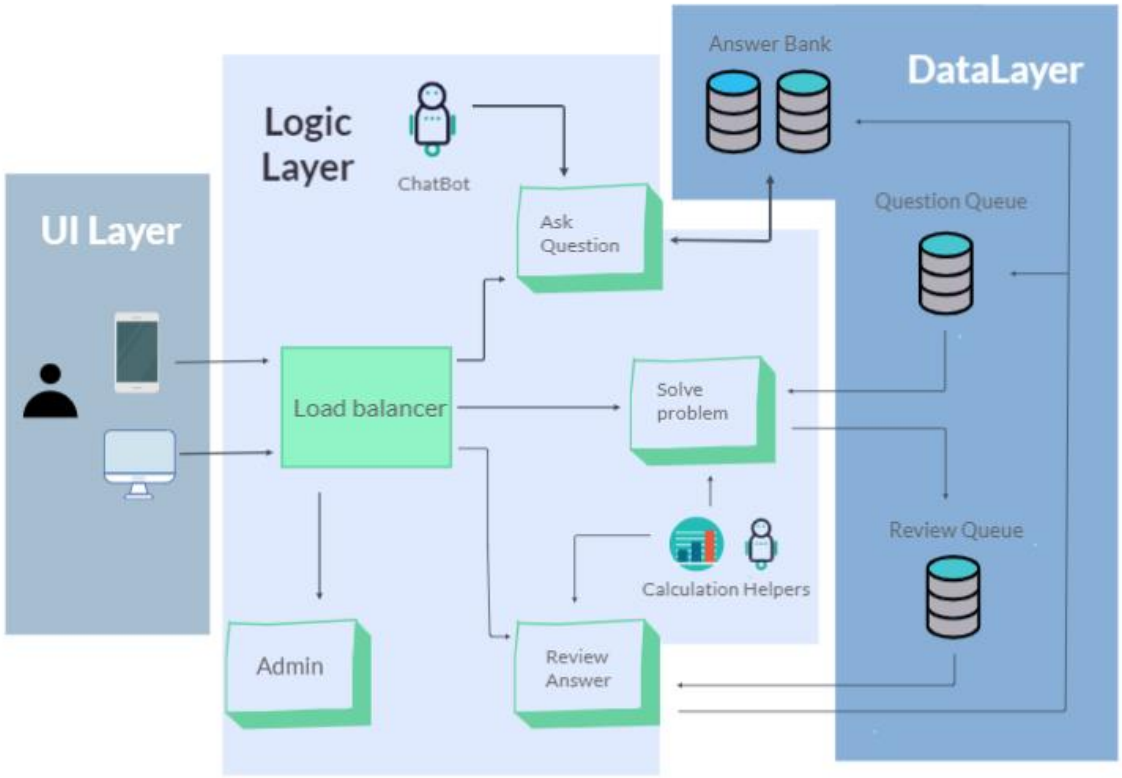
1.5 References

- i211198_Q_Vision_1.0.pdf
- SRE-Use Case Specifications

2. Overall Description

2.1 Product Perspective

This system Chillstudy will be a new website so will be made from scratch. Here is a diagram illustrating the overall components of the product:



2.2 Product Functions

1. Subscribed Users can ask questions about any topic of any subject by just typing or scanning a picture and selecting the category/subject of the question.
2. Experts can answer the questions and get paid if they are answered correctly.
3. Reviewers can review the answered question and get paid.
4. Online tests (automatically generated by the system) for becoming experts and reviewers.
5. Different types of graphs and other scientific and modern calculators to be used by experts and reviewers while answering the questions.
6. LaTex language for answering all questions.
7. Chatbot to answer simple questions and also the questions or issues related to the website.

8. Users can have online tutoring sessions with different experts.
9. Users can give feedback on answered questions.
10. An answer bank to store answers to every question.
11. Admin dashboard.
12. Email Promotions.

2.3 User Classes and Characteristics

Mainly there will be three types of users using this website.

- One will be the college and university students who are the main users and will generate revenue for this website. They want fast, understandable, and correct answers to their complex questions about studies. They can also use the online tutoring feature of the system. They are more familiar with using such kinds of websites.
- Secondly, there are teachers who will have to pass a test to get to the level of experts. They will answer the questions asked by the students/users. They should have knowledge about LaTex Language and basic tech familiarity. They can use different types of graphs and other scientific and modern calculators while answering questions.
- Lastly, reviewers, are basically experts who are up-levelled after passing the reviewer test of this website. Their main function is to review the answers of experts. They can also use calculators and other graph-making tools. And they are up-levelled experts so they already know LaTex Language and are familiar with the system.
  They all want a secure and viable payment system.

Administrators of this website can see overall system feedback, performance and information in the form of graphs and tabular views. They can add promotions and offers on subscriptions easily. They can warn or remove or suspend any account permanently or for some time.

2.4 Operating Environment

It will be a responsive website, which can be accessed on any smart device. This website will be compatible with Chrome, Microsoft Edge, Safari, Opera, and Firefox browsers. The System will peacefully coexist with the billing applications systems of Payoneer and Mastercard.

2.5 Design and Implementation Constraints

Time and Budget Constraints:

Being a startup, the project will have limited time and budget resources.

- The allocated time for the first release of the project is 4 months.
- The budget allocated for the project is 5.5 million rupees.

Therefore, it may be necessary to prioritise the requirements to achieve the intended goal or to make trade-offs between different designs and implementation approaches.

Usability:
- Navigation should be easy and have more remembrance.

Responsiveness:
- It should be a MERN application.
- It should be responsive for every media screen.
- Chatbot must answer any question within 1.5 seconds.
- AI problem solver and Graph generator should generate answers within 4 seconds.
- If there is an answer to a question already present in Answer Bank, it should display it within 2 seconds.

Capacity:
- This system should have the capability to respond to 20,000 users simultaneously.

Security:
- All the data should be stored in encrypted form.
- Data should be protected in accordance with GDPR regulations.

2.6 User Documentation

- Overview of the software: a high-level description of the purpose and features of the software, along with any relevant context.
- Getting started: instructions on how to access and login to the software, as well as any necessary setup steps such as configuring preferences or setting up account details.
- FAQs: information on common problems or issues that users may encounter, along with suggestions for how to resolve them.

2.7 Assumptions and Dependencies

- Google Auth API for Login and Sign Up.
- Mastercard and Payoneer Payment service/API.
- It is assumed that the users will be literate enough to understand basic English (In order to navigate through the app).
- This system will be dependent on the MEGA cloud storage service for data storage purposes.

3. External Interface Requirements

3.1 User Interfaces

3.1.1 Interface for Users/Students

- This interface shall include their profile page as their Home page after logging in.
- This page shall include their account personal information and the questions categorised in two sections (Answered questions and Answers in process).
- This page shall have the Ask Question Button on the right-hand side along with the View Online Session Catalog button.
- This section shall also have a floating ChatBot on the bottom right.
- Navbar on this page shall include a notifications tab along with the log-out button.

3.1.2 Interface for Experts and Reviewers

- This interface shall include their profile page as their Home page after logging in.
- For experts, this page shall include their account personal information and the questions categorised in three sections (Saved Questions, Answered questions and Answers in Review).
- For reviewers, this page shall include their account personal information and the questions that they have reviewed.
- This page shall have the Review/Answer Question button on the right-hand side along with the Add Online Session button.
- This section shall also have a floating ChatBot on the bottom right.
- Navbar on this page shall include a notifications tab along with the log-out button.

3.1.3 Review/Answer Question Page

- It shall include the tools like graphs and scientific calculators, Add Step button and other tools on the left side of the page.
- For experts, this shall include the Question selected to answer or review displayed and a text area beneath to answer the question.
- For reviewers, it shall have questions with answers done by experts which shall have add comments buttons on each step.
- For reviewers, it shall include approve, and reject buttons along with a report user button.
- Navbar on this page shall include a notifications tab along with the log-out button.

3.1.4 Admin Dashboard

- Administrators can see overall system feedback, performance and information in the form of graphs and tabular views.
- They can add promotions and offers on subscriptions easily by Add Offers and Promotions button on the right side of the screen.

- It should have a feedback section where administrators can see the feedback of reviewers and other users and can warn or remove or suspend any account permanently or for some time.

3.2 Hardware Interfaces

3.2.1 Input devices: the software will be needed to interface with various input devices, such as keyboards, mice, touchscreens, or voice input devices. It will be important to ensure that the software is compatible with these devices and that it can process input from them in a reliable and accurate way.
3.2.2 Output devices: the software may need to interface with various output devices, such as display screens, printers, or speakers. It will be important to ensure that the software is compatible with these devices and that it can output data or content to them in a consistent and reliable way.
3.2.3 Network interfaces: the software may need to interface with a network or the internet in
order to access or share data or functionality. It will be important to ensure that the software is compatible with the network infrastructure and protocols in use and that it can communicate with other systems and devices as needed.

3.3 Software Interfaces

- This application will be developed using MERN stack concepts.
- This application will also include Google Auth API for Login and Signup purposes.
- This application will store its encrypted data on the MEGA cloud storage.
- The application will have an interface with Payoneer and Mastercard payment gateway for payments using the protocols and APIs provided by the external systems.

3.4 Communications Interfaces

3.4.1 Client-server communication: the project involves a client-server system, with clients accessing the system through a web browser and the server hosting the web application and database. The communication interface for this system will involve the use of standard web protocols such as HTTP or HTTPS, which will allow the clients to send requests to the server and receive responses from the server.

3.4.2 Database communication: the software will need to communicate with the database in order to store and retrieve data. This communication will involve the use of SQL queries and commands, which will be used to execute operations on the database such as inserting, updating, or deleting records.

3.4.3 External APIs: the software may need to communicate with external APIs in order to access or integrate with other systems or services. For example, the software may need to use the Google Auth API to authenticate users or the Payoneer and Mastercard payment systems to process payments. The communication interface for these APIs will involve using the protocols and APIs provided by the external systems.

4. System Features

4.1 Asking a Question

4.1.1 Description and Priority

Registered and logged-in users can ask any question by simply writing or by scanning a picture of the question and selecting the respective field/subject of the question.
It is a medium-priority requirement as initially, no other requirements are dependent on this. The benefit of this feature will be 4, the penalty will be 4, the cost will be 4, and the risk will also be 4.

4.1.2 Stimulus/Response Sequences

- User gets stuck in a complex question and is unable to solve it.
- So he log-in to ChillStudy Website.
- User clicks the ask question button on his home screen.
- System displays him the ask question page having a form.
- He types the question in the question box of the form or alternatively scans/uploads a picture of the question by clicking the scan question button.
- User selects the type/subject of the question.
- And finally click submit button.
- System checks the answer to that question in the answer bank and if found system displays the answer to the user.
- If the answer is not found, the system sends it to the questions queue (question bank) and informs the user that this question is not found in our answer bank so it is sent to our experts to answer and we will inform you when it gets answered.

4.1.3 Functional Requirements

REQ-1: If the user is logged in System shall display the Ask Question button to the user on the main/home screen of users/students.
REQ-2: If the Ask Question button of REQ-1 is clicked then the System shall display a new page with an Ask Question form.

REQ-3: Ask Question form shall have a text input area, a button "Scan Question" button, a select Question subject/type dropdown menu, and a submit button.

REQ-4: "Scan Question" button

- The "Scan Question" button shall provide the ability for the user to upload a picture from the gallery/computer.
- The "Scan Question" button shall allow the user to take pictures of the question.
- After uploading or taking a picture of the question, the system shall automatically scan it and convert it to XML format in the background for later use.

REQ-5: The system must make the submit button of the Ask Question form disabled until all the form fields are filled.

REQ-6: When submit button is clicked the system shall find the answer to the question uploaded by the user in the Answer Bank of the system.

REQ-7: While finding the answer System shall inform the user and ask to wait.

REQ-8: If an Answer is found then the system shall display it on the screen.

REQ-9: The system shall provide the ability for the user to download the answer in .pdf format by a download button.

REQ-10: If the answer is not found in the answer bank then the system shall send it to the Questions Queue and tell that answer is not found in the answer bank and has been sent to experts to answer and we will inform you when this the question gets answered.

REQ-11: When the question is answered by an expert and reviewed by a reviewer then the system must inform the user by email, also by sending a notification and saving it to the notification tab in the user's profile.

REQ-12: The system shall allow the user to send feedback on that answer.

REQ-13: The system shall save all the questions asked by the user in the user's profile and their respective answers (if has been answered).

4.2 Answering a Question

4.2.1 Description and Priority

The experts can view and answer the questions asked by the students. On each question there is a time limit of 1 minute, the expert has to read that question within a minute and if he/she knows how to solve that question, the expert takes it. After the question has been taken, the expert has one hour to solve the question, moreover, he/she can increase the time limit upto 2 days. He/she can also use the system's built-in calculators and graph finders.

It is a medium-priority requirement as initially, no other requirements are dependent on this. The benefit of this feature will be 4, the penalty will be 4, the cost will be 4, and the risk will also be 4.

4.2.2 Stimulus/Response Sequences

- Expert log-in to ChillStudy Website.
- Expert clicks on the Answer Questions button on his home page.
- System displays a question from the Question Queue for 1 minute.
- If he/she cannot solve the problem, then clicks on the Next Question button and the system displays another question.
- Else select it by clicking on the Select Question button.
- System tags are selected in the Question Queue and display the Answer Question page with the respected Question.
- System shall give the expert an initial 1-hour solving time.
- Expert can increase the submission time or save it for solving later if he/she wants to increase its time or doesn't want to solve the problem at that time.
- Experts can use a system's built-in scientific calculator for the calculations or Graph calculators for generating graphs.
- Expert writes the answers in Latex language
- Experts can add steps by the Add Step button.
- System shows an error if the wrong Latex syntax is used by the expert while giving the answer
- System can be refreshed in case of any error
- Final answer would be submitted after clicking on the submit button.
- System sends this answer to Review Queue and pops it from Question Queue

4.2.3 Functional Requirements

REQ-14: The system shall display the question to the expert for one minute.
REQ-15: If the user wants to see the next question then the system shall allow the user to skip that question and the system shall display next question.
REQ-16: If the expert selects a question to answer, the system shall initially give him one hour to solve that particular question.
REQ-17: If the expert selects a question to answer, the system shall tag it as selected in the question queue.
REQ-18: When the time of one hour comes to an end the system shall ask the expert to extend the time for the particular question.
REQ-19: If the expert has made any mistake in the syntax of Latex language or any grammatical mistake the system shall show him the error.
REQ-20:The system shall not allow users to enter answers other than in LaTex Language.
REQ-21:The expert uses only one step to explain/solve the question, then the system shall ask the expert to create a new step column to answer the question.
REQ-22: The user shall the user to generate a graph by system's built-in graph generator.
REQ-23: The user shall the user to use the system's built-in scientific calculators to do complex mathematical calculations.

REQ-24: The system shall allow experts to increase the time upto 2 days for a certain question.
REQ-25: The system shall allow experts to save questions for later solving.
REQ-26: The system shall save each question answered or saved by an expert in his profile in their respective fields.
REQ-27: The system shall allow experts to change font styling.
REQ-28:The system shall allow the expert to delete the steps if he wants or in case of any mistake the expert can recreate the step.
REQ-29: The system shall allow experts to upload pictures of solved questions.
REQ-30: The system shall allow experts to upload pictures of size 1 MB.
REQ-31: The system shall allow experts to upload pictures in format .jpg only.
REQ-32: When an expert fully answers a question and clicks on the submit button, the system shall check for any syntax errors again.
REQ-33: If there is no error in REQ-32, the system shall send it to the Review Queue and pop it from the Question Queue.

4.3 Reviewing a Question

4.3.1: Description and Priority:

Reviewer can review the answered questions of experts. On each question there is a time limit of 1 minute, the reviewer has to read that question within a minute and if he/she knows how to review that question, the reviewer takes it. After the question has been taken, the reviewer has one hour to solve the question, moreover, he/she can increase the time limit upto 2 days. He/she can also use the system's built-in calculator and graph finders. Reviewer can approve, decline the answer or can report the expert.
It is a medium-priority requirement as initially, no other requirements are dependent on this. The benefit of this feature will be equal to 6,penalty being 4,cost being 5 and risk being 2.

4.3.2: Stimulus/Response Sequences:

- Reviewer log-in to ChillStudy Website.
- Reviewer click on the Review Questions button on his home page.
- System displays a question from the Review Queue for 1 minute.
- If he/she cannot solve the problem, then clicks on the Next Question button and the system displays another question.
- Else select it by clicking on the Select Question button.
- System tags it as selected in the Review Queue and display the Answer Question page with the respected Question.
- System shall give the Reviewer an initial 1-hour solving time.
- Reviewer can increase the submission time or save it for solving later if he/she wants to increase its time or doesn't want to Reviewer the problem at that time.

- Reviewer can use a system's built-in scientific calculator for the calculations or Graph calculators for generating graphs.
- Reviewer writes the Reviews in Latex language
- Reviewer can review steps by adding comments using add comment button on the step.
- System can be refreshed in case of any error
- Final Review would be submitted after clicking on the submit button.
- Reviewer can approve, or decline an answer.
- Reviewer can report an expert if the answer is fully wrong answered.
- If it is selected approved, the System sends this answer to Answer Bank and pops it from Review Queue.

4.3.3: Functional Requirements:

REQ-34: The system shall display the question to the Reviewer for one minute.
REQ-35: If the user wants to see the next question then the system shall allow the user to skip that question and the system shall display next question.
REQ-36: If the Reviewer selects a question to answer, the system shall initially give him one hour to review that particular question.
REQ-37: If the Reviewer selects a question to Review, the system shall tag it as selected in the Review queue.
REQ-38: When the time of one hour comes to an end the system shall ask the Reviewer to extend the time for the particular question.
REQ-39: If the Reviewer has made any mistake in the syntax of Latex language or any grammatical mistake the system shall show him the error.
REQ-40: The system shall not allow users to enter Reviews other than in LaTex Language.
REQ-41: The system shall allow the Reviewer to add comment on every step.
REQ-42: The system shall allow the Reviewer to add comment on overall answer.
REQ-43: The user shall the user to generate a graph by system's built-in graph generator.
REQ-44: The user shall the user to use the system's built-in scientific calculators to do complex mathematical calculations.
REQ-45: The system shall allow Reviewer to increase the time upto 2 days for a certain question.
REQ-46: The system shall allow Reviewer to save questions for later Reviewing.
REQ-47: The system shall save each question Reviewed or saved by an Reviewer in his profile in their respective fields.
REQ-48: The system shall allow Reviewer to approve or decline an answer.
REQ-49: The system shall allow the expert to delete the comments if he wants.
REQ-50: The system shall allow experts to upload pictures of solved questions.
REQ-51: When a Reviewer fully Reviews a question and clicks on Approve button, the system shall check for any syntax errors again.

REQ-52: If there is no error in REQ-51, the system shall send it to Answer Bank and pop it from Review Queue.
REQ-53: If there is no error in REQ-51, the system shall send a simple email notification regarding Question Successfully Answered to the receptive student.
REQ-54: When a Reviewer fully Reviews a question and clicks on the Decline button, the system shall check for any syntax errors again.
REQ-55: If there is no error in REQ-54, the system shall send it back to the Questions Queue.
REQ-56: If there is no error in REQ-54, the system shall notify to respective Expert that the Question was wrongly answered.
REQ-57: If a reviewer reports an expert, then the system shall send the report to the admin.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

5.1.1 Chatbot must answer any question within 1.5 seconds.
5.1.2 AI problem solver and Graph generator should generate answers within 4 seconds.
5.1.3 If there is an answer to a question already present in Answer Bank, it should display it within 2 seconds.
5.1.4 This system should have the capability to respond to 20,000 users simultaneously.

5.2 Safety Requirements

None

5.3 Security Requirements

5.3.1 Secure Signup and Login should be done using Google Authentication API
5.3.2 Secure payments by using two-factor authentication and email receipt.
5.3.3 All data should be stored in encrypted form.
5.3.4 Data Privacy should be ensured by using GDPR regulations.

5.4 Software Quality Attributes

5.4.1 Ease of use over learning.
5.4.2 Responsive to every media screen.
5.4.3 Availability 24/7.
5.4.4 Average downtime of the website of 3 Hours.
5.4.5 Compatible with Chrome, Microsoft Edge, Safari, Opera, and Firefox browsers.

5.5 Business Rules

Some potential requirements for our platform that are not discussed in the SRS earlier are as follows:

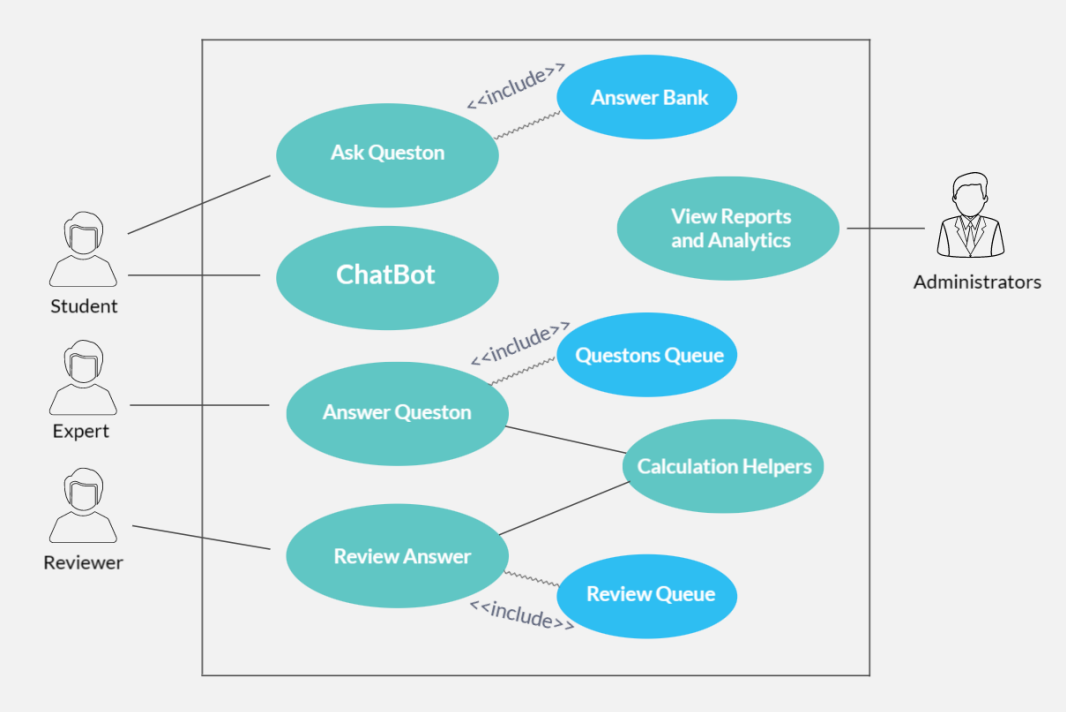
- **User information**: The app will likely need to store information about its users, such as their names, email addresses, and login credentials.
- **Payment information**: If the app handles payments between workers and employers, it will need to store financial information such as payment amounts and payment histories.
- **Data protection and privacy laws:** Depending on the nature of the app and the personal data that it processes, the app may be subject to data protection and privacy laws.

6. Other Requirements

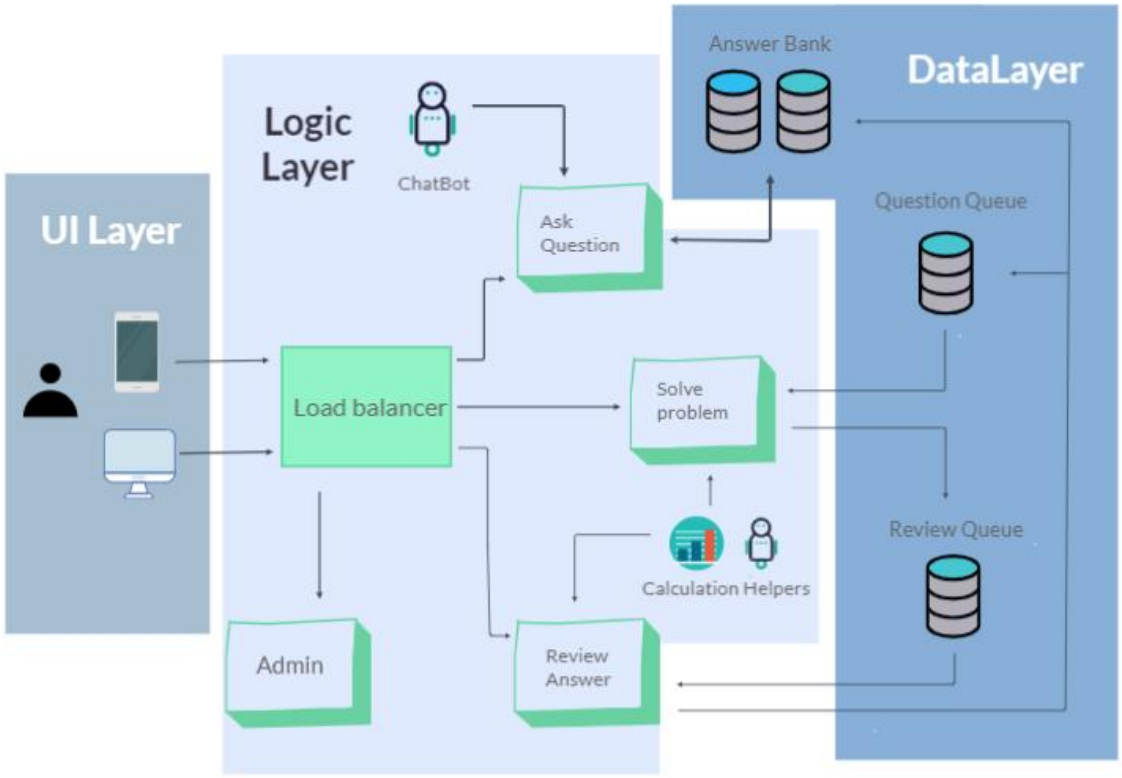
Appendix A: Glossary

Refer to section 1.2

Appendix B: Analysis Models



Use Case Diagram



Architecture Diagram

Appendix C: To Be Determined List

None