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Submission II - Requirement Specification Document

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1. Preface

Our software engineering team decided to take this project as we believe it contains all the necessary requirements for us to improve our skills and develop ourselves. This project is a complete back-end and front-end project, allowing us to work hard on implementing a fully functional, time-efficient and secure website and a database which contains all the data that is being saved.

Furthermore, doing such a project would not only benefit us, as it is also of great importance to our client. Since all our lives today are based on technology, it is essential for any business to have a website or a mobile application to promote their business. After discussions with our client, we decided that it would be better to have a website developed at the beginning instead of a mobile application, as they could display all the content on one interface and it is easier to use than an application for the tutors, parents and children.

Our client is “Teachers”, a newly founded startup, aiming to link teachers and tutors with students from all over Lebanon, covering different fields of study in Academics, Art, Music, Athletics and others, either through online or in-person sessions. The project will be a website that is used to keep track of the data of the tutors and students and save it. In addition, it facilitates the procedure of booking classes, students choosing their tutors and receiving the forms of applicants applying to become tutors.

This project represents our biggest challenge since enrolling in Computer Science major, as a group and as individuals. However, we believe that it will be the most exciting experience and will give us a lot of experience to use in our future workplace. We could hopefully see our client’s business thriving as well, which might give us a chance to work on implementing a mobile application for them at a later stage as well.

2. Introduction

2.1 Client's Business Overview

“Teachers” is a newly founded startup, aiming to link teachers & tutors with students from all over Lebanon, covering different fields of study in Academics, Art, Music, Athletics & others, either through online or in-person sessions. What makes “Teachers” stand out is its diversity and inclusivity, as it provides tutoring for different topics, at different costs based on the student and tutor, ensuring the compatibility of both parties.

In order for this business to keep developing and growing, it needs an easier and more efficient way of organizing the data and the procedure of booking courses with certain and specific tutors.

2.2 Provided Solution

For “Teachers”, we will be implementing a website that will allow students to find a suitable tutor in the field, level, and price range of their choosing. The students can either select a tutor from the website directly or ask for a free consultation session with “Teachers” to find the perfect tutor tailored for their needs.

Some of the features that will be available on this website include:

- 1) A filtering system so that the students can filter the tutors based on expertise, availability, age, and gender.
- 3) Built-in productivity tools on the website that can assist a student while studying, such as a to-do list, a calendar and a timer to track progress in tasks.
- 4) A notification system that could notify a student or tutor of sign up confirmations, or notify the administrator of pending updates he needs to review.

The website is expected to work on most browsers both on desktop and mobile devices, and will consist of a web service linked to a database that will include tutors' and students' information, as well as current and past bookings. “Teachers” picked our team since it is still a startup that needs a website to boost its business, and having this done for free is an advantage, especially with a team whom they considered as skillful, motivated to work and dedicated.

2.3 Team Members

Our team members are Yara, Reem, Ali and Sarah. We are a group of passionate and hard-working computer science students with various different skills. These individual and group skills will allow us to implement and improve our project in the various aspects, and come up with a well designed, efficient and secure website. Yara and Reem are going to focus on the front-end part of the project while Ali and Sarah are going to focus on the back-end part of the project.

2.4 Programming Environment

The development team will complete the implementation of the website by working on Visual Studio Code on Windows 10 machines. The website will be designed with HTML, CSS, and JavaScript, as well as PHP and MySQL for server side code. Additional development tools or frameworks may be used. Once the website is deployed, it can be accessed and used from desktop computers, laptops, mobiles, and tablets using almost all commonly used modern web browsers and a stable internet connection.

3. Glossary

Here we define some of the words used in this document to mean the following:

1. **Admin:** our client, the founder of “Teachers”, and the administrator of the website. The admin is in charge of managing the business and meeting with students and tutors to organize bookings catering to their needs.
2. **Member:** a tutor or student with a registered account on “Teachers”.
3. **Productivity tools:** a set of tools (Calendar, To-Do List, Pomodoro Clock, Timer) aiming to facilitate students’ and tutors’ working process by enhancing time management, motivation, and concentration.
4. **Pomodoro technique:** a time management technique based on taking quick breaks between hard work intervals.
5. **Pomodoro clock:** a clock that helps its user work with the Pomodoro technique. It is a countdown timer that alternates between an initial time of 25 minutes (work) and an initial time of 5 minutes (break). After 4 rounds of work and break, the initial time is set to 30 minutes (break). The cycle repeats.

4. Project Management

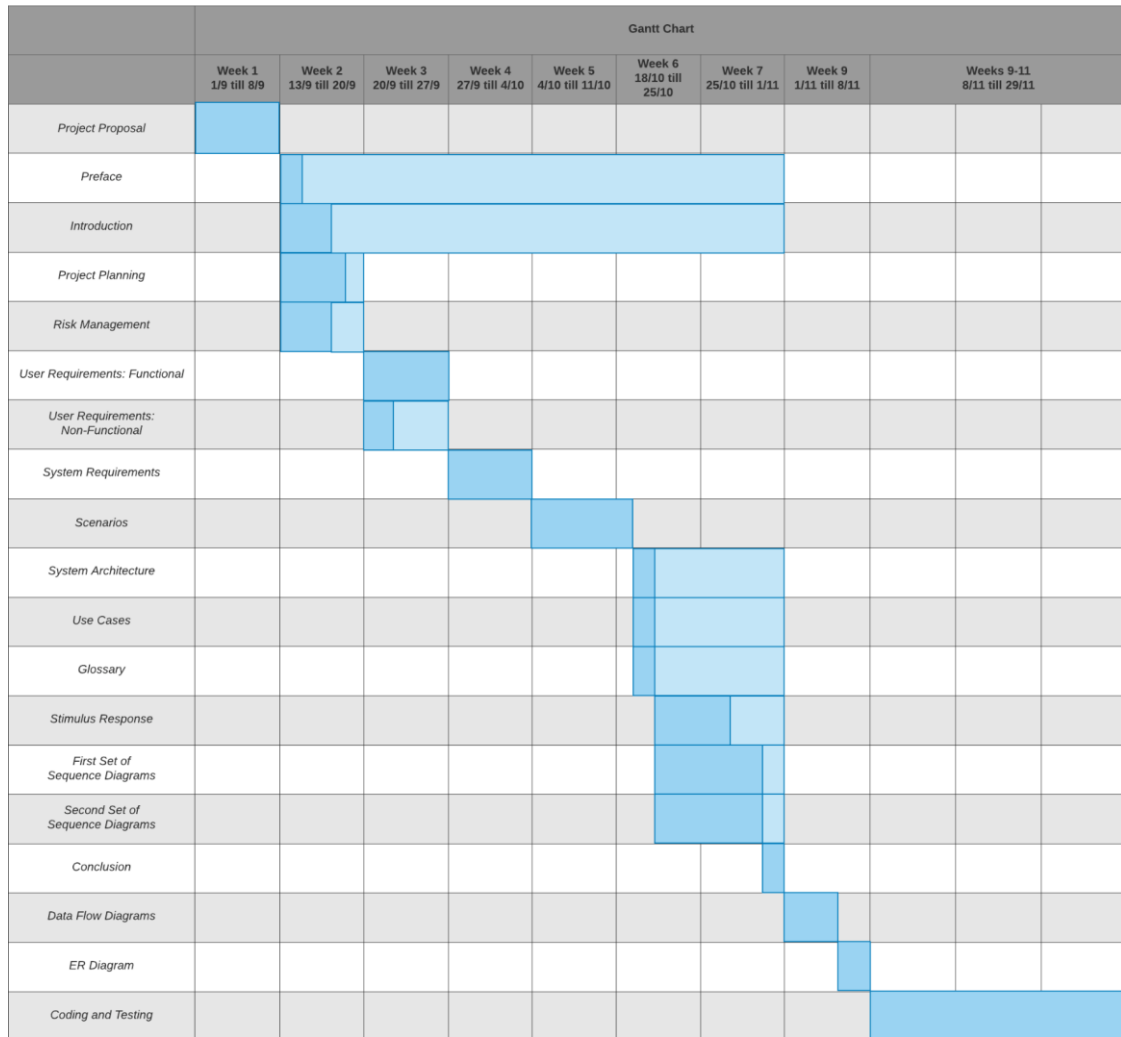
4.1 Project Planning

4.1.1 Tasks Distribution

Activity name	Duration (days)	Dependencies
Project Proposal	7	
Project Planning	6	Project Proposal
Risk Management	5	Project Proposal
Introduction	5	Project Proposal
Preface	2	Project Proposal
User Requirements: Functional	7	Project Planning/Risk Management
User Requirements: Non-Functional	4	User Requirements: Functional
System Requirements	7	User Requirements: Functional
Scenarios	9	System Requirements
Use Cases	2	Scenarios
System Architecture	2	Scenarios
First Set of Sequence Diagrams	9	Use Cases
Stimulus Response Diagrams	9	Use Cases
Second Set of Sequence Diagrams	9	Use Cases
Data Flow Diagrams	4	First Set of Sequence Diagrams/Stimulus Response Diagrams/Second Set of

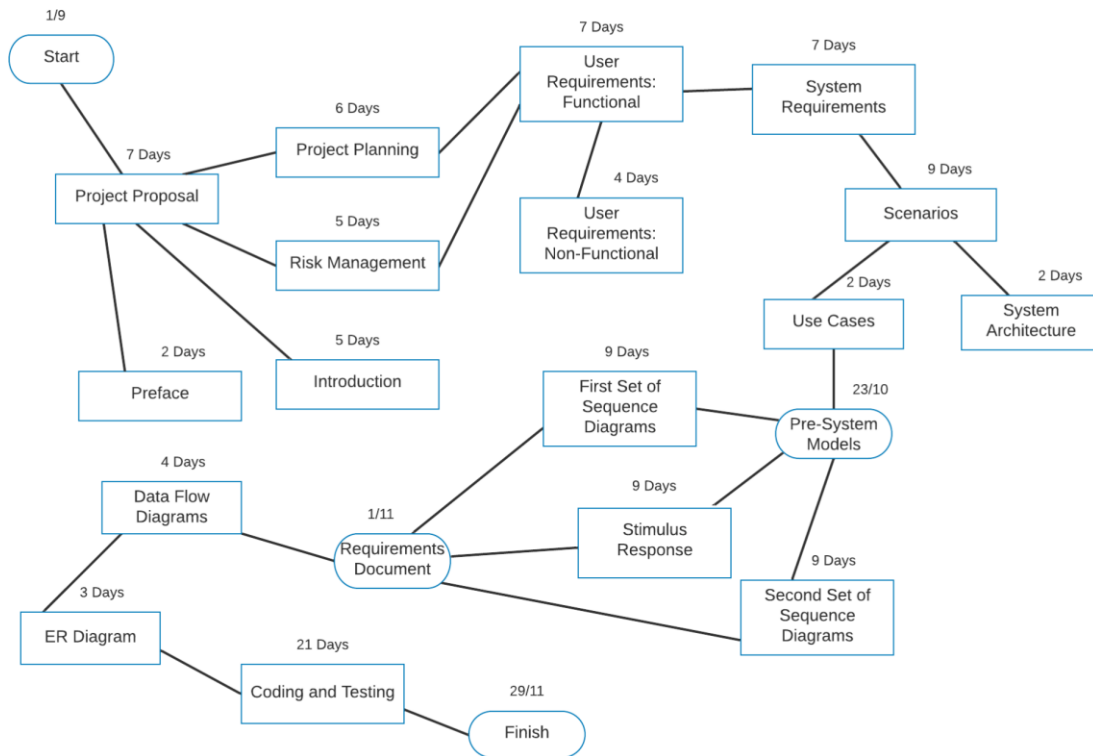
		Sequence Diagrams
ER Diagram	3	Data Flow Diagrams
Coding and Testing	21	ER Diagram

4.1.2 Gantt Chart



Legend: ■ Duration ■ Possible Extensions

4.1.3 Activity Network



4.1.4 Staff Allocation

Staff Allocation					
	Week 1 1/9 till 8/9	Week 2 13/9 till 20/9		Week 3 20/9 till 27/9	Week 4 27/9 till 4/10
<i>Yara Chahine</i>	Project Proposal	Introduction		User Requirements: Functional	System Requirements
<i>Reem Zubdeh</i>	Project Proposal	Project Planning		User Requirements: Functional	System Requirements
<i>Sarah Abdallah</i>	Project Proposal			User Requirements: Functional	System Requirements
<i>Ali Knayber</i>	Project Proposal	Risk Management		User Requirements: Functional	User Requirements: Non-Functional
					System Requirements

Staff Allocation					
	Week 5 4/10 till 11/10	Week 6 18/10 till 25/10		Week 7 25/10 till 1/11	
<i>Yara Chahine</i>	Scenarios	System Architecture	First Set of Sequence Diagrams	Second Set of Sequence Diagrams	
<i>Reem Zubdeh</i>	Scenarios	Glossary	Stimulus Response Diagram	First Set of Sequence Diagrams	Second Set of Sequence Diagrams
<i>Sarah Abdallah</i>	Scenarios	Use Cases	First Set of Sequence Diagrams	Second Set of Sequence Diagrams	
<i>Ali Knayber</i>	Scenarios	Preface	First Set of Sequence Diagrams	Second Set of Sequence Diagrams	Conclusion

Staff Allocation				
	Week 8 1/11 till 8/11		Weeks 9-11 8/11 till 29/11	
<i>Yara Chahine</i>	Data Flow Diagrams	ER Diagram	Coding and Testing	
<i>Reem Zubdeh</i>	Data Flow Diagrams	ER Diagram	Coding and Testing	
<i>Sarah Abdallah</i>	Data Flow Diagrams	ER Diagram	Coding and Testing	
<i>Ali Knayber</i>	Data Flow Diagrams	ER Diagram	Coding and Testing	

4.2 Risk Management

4.2.1 Possible Software Risks

<u>Risk</u>	<u>Affects</u>	<u>Description</u>
Students dropping course	Project	Members of the group might drop the course before the implementation.
Lockdown	Project	Lockdown in the country due to COVID-19 and thus no more live meetings by the team.
Illness	Project	One of the group members might contract COVID-19.
Electricity Cut Off	Project	Possible electricity cut off in the country makes it harder for the project to be completed.
Poor Management	Project	Poor management leading to many difficulties in project implementation and time constraints.
Requirements Change	Project and product	The client might request changes to the product or the addition of extra features.
Programming Skills	Project and product	The skills of the members are not good enough for the project to be completed as required.
Inaccurate Estimations	Project and product	The time needed for the project is underestimated.
Technology Change	Business	The technology on which the system is built on is changed by the client.

4.2.2 Risk Types and Analysis

<u>Risk</u>	<u>Type</u>	<u>Probability</u>	<u>Effects</u>
Students dropping course	People	Very low	Catastrophic
Lockdown	Operational	Moderate	Tolerable
Illness	People	Low	Catastrophic
Electricity Cut Off	Technology	High	Serious

Poor Management	People	Very low	Catastrophic
Requirements Change	Requirements	Moderate	Serious
Programming Skills	People	Low	Catastrophic
Inaccurate Estimations	Estimation	Low	Catastrophic
Technology Change	Technology	Low	Catastrophic

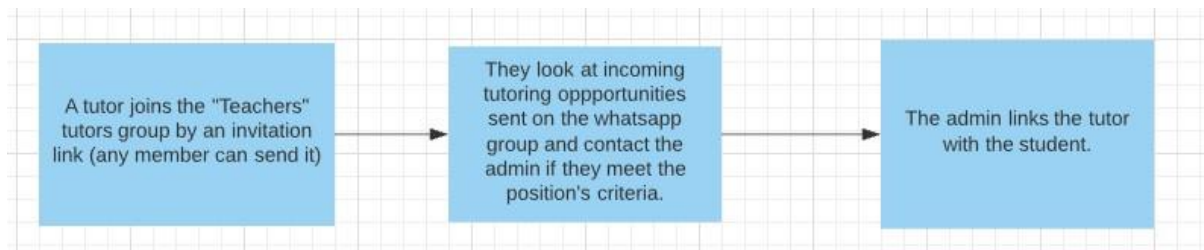
4.2.3 Risk Contingency Plan

<u>Risk</u>	<u>Type</u>	<u>Strategy</u>
Students dropping course	People	Redistribute the work on remaining members.
Lockdown	Operational	Hold more online meetings to cover for the work that is not done live.
Illness	People	Redistribute the work on the other team members until the ill member recovers.
Electricity Cut Off	Technology	Stay longer hours at the university to complete the needed work.
Poor Management	People	Decide along with the rest of the members on a new management system.
Requirements Change	Requirements	Do the research necessary to see if the new requirements can be applied with minimal changes to the system, and inform the client of it.
Programming Skills	People	Learn and improve the skills online to complete the project on time and as required.
Inaccurate Estimations	Estimation	Redistribute the work on the remaining days in the most suitable way.
Technology Change	Technology	Inform the client that this would need a whole new project and an extended deadline using a well-written document.

5. Client's Business

6.1 Our Client's Business Before the Website

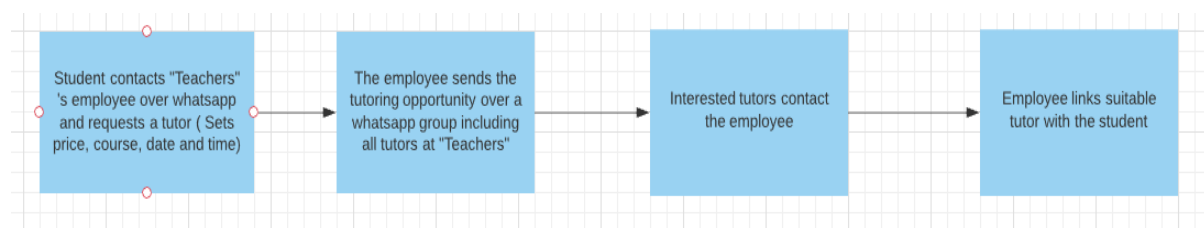
6.1.1 Tutors



The above model made the "Teachers" whatsapp group available for everyone to join; this allowed non-serious applicants to interfere with serious job seekers. Moreover, the abundance of available tutors means that a tutor selected has a higher chance of being under-qualified, this resulted in students requesting to change tutors multiple times till they found the right one.

Additionally, the previous "Teachers" business model worked as a first-come first-served basis. An opportunity would be sent on the common group, and the first tutor to reply would be selected (if he fulfills the requested criteria).

6.1.2 Students



This model allowed for incompatible tutors and students to work together. Many students request changing tutors since the tutor selected did not suit them for multiple reasons.

The students had no idea who the tutors were, and had to count on the "Teachers" employee to link them with a suitable tutor. Although the match usually turns out to be successful, having an option would increase the customer's satisfaction, in this case, the student's.

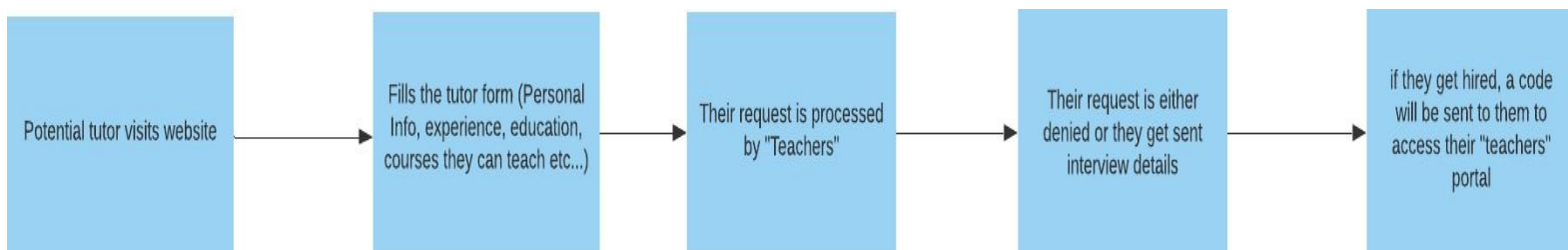
Additionally, students' requests for tutors were not organized in one place, as the "Teachers" employee had to look in their chats in order to retrieve them at a later time.

Although working through "Whatsapp" has made the access easy for both the students and the tutors, such a model can't work in the long run, especially if "Teachers" would like to expand their business

and attract more customers. Moreover, keeping track of current students is a difficult task on a whatsapp group, as a database is essential when the business starts growing.

5.2 Our Client's Business After the Website

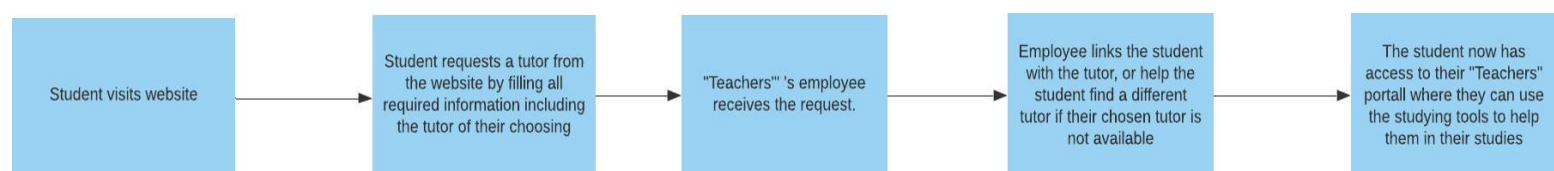
5.2.1 Tutors



When the website is launched and a potential tutor visits it, they will no longer see a shaky start-up, but rather a promising company providing them with job opportunities. They will undergo a process in which they fill a form with the information needed about them such as their personal information, contact details, education, experience and the courses they teach. Then, “teachers” receive this request, process it and either it gets rejected, or they request an interview with the tutor before they select them. If the tutor is hired, they will receive a username and a code to access the “teachers” portal, where they can use the studying tools to further organize their teaching and future sessions with students. This whole process will filter down all non-serious applicants, making sure only highly qualified tutors are selected.

It will also encourage more tutors to apply, since a website would showcase a business’s stability, professionalism, and reliability.

5.2.2 Students



The above model gives the student the advantage of looking at the tutors’ profiles on the website, so that they can see all of their available options and choosing what is best for them. Then they fill an application to request their tutor of choice, the application gets processed and then the student and tutor are linked.

In addition to the above option, a student can still choose to communicate over whatsapp if this suits them better. Moreover, they are able to request a free consultation session where “teachers” ‘ consultants will help them find a tutor tailored for their needs.

This start-up needs a website to attract traffic, and to prove its competence through a strong and professional online presence. Having a website will allow this business to be exposed to more opportunities and possible collaborations with other businesses. Moreover, a website will attract more students and tutors from around the world who are able to benefit from online sessions, since a whatsapp group is usually a local solution that counts on word-of-mouth customers.

In addition to the above, students and tutors will both be happy to utilize the studying tools available on the website designed just for them, increasing both customer loyalty and satisfaction, while showing them that “Teachers” has so much more to offer than other competitors in the market.

6. Software Requirements

6.1 User Requirements

6.1.1 Functional Requirements

A. Visitor Requirements

1. Landing Page:

A user (any website visitor) shall have access to the website's landing page and view an overview about "Teachers" and what they offer, with navigation links leading to other pages such as the "See tutors" page.

Rationale: The landing page introduces the user to "Teachers" and attracts new students and tutors, promoting the business. This is necessary to give students the chance to choose from the available tutors and to encourage website visitors to learn more about "Teachers", giving "Teachers" credibility and transparency.

Specification: Software Requirements/User Requirements/Functional Requirements/Visitor Requirements

Source: Ali Knayber

2. Browse tutors:

Any visitor shall be able to browse the tutors available on "Teachers".

Rationale: This allows all website visitors to get an idea of all the tutors available at "Teachers" before making any commitment.

Specification: Software Requirements/User Requirements/Functional Requirements/Visitor Requirements

Source: Ali Knayber

3. Tutor Filtering:

Any visitor shall be able to filter the tutors based on criteria of their choosing such as location, experience, gender, age, and courses.

Rationale: This allows students to choose a tutor more accurately according to their preferences, therefore encouraging and attracting more students to this business.

Specification: Software Requirements/User Requirements/Functional Requirements/Visitor Requirements

Source: Ali Knayber

4. Consultation Option:

A student may request a free consultation from the “Teachers” official consultant, without having an account, and providing minimal required information, along with optional information.

Rationale: All students have different needs and abilities therefore require different types of attention. Students with special needs or certain accommodations/preferences need a tutor who can cater to these needs and allow them to flourish. A free consultation will increase success rates by linking them with a tutor perfectly tailored for their needs.

Specification: Software Requirements/User Requirements/Functional Requirements/Visitor Requirements

Source: Ali Knayber

5. Login:

A student, tutor, or admin with a finalized account shall be able to log in to their account on the login page.

Rationale: It is necessary for a user to have access to their own account on “Teachers” to be able to use its member-only services. Student, tutor, and admin accounts have different privileges and available services suiting their needs.

Specification: Software Requirements/User Requirements/Functional Requirements/Visitor Requirements

Source: Ali Knayber

B. Student Requirements

6. Student Registration Form:

A student shall be able to submit a signup form to the admin containing their personal information, the tutor of their choosing, their price range, their preferred location, and their preferred date/time.

Rationale: Filling this form is necessary for “Teachers” to collect important information from the student in preparation for creating their new account.

Specification: Software Requirements/User Requirements/Functional Requirements/Student Requirements

*Source:*Yara Chahine

7. Student Edit Profile:

A student shall be able to edit their profile information and picture.

Rationale: Any student may need to update at any time the contact information, picture, or any other information provided on their profile.

Specification: Software Requirements/User Requirements/Functional Requirements/Student Requirements

*Source:*Yara Chahine

8. Student Add Tutor:

A logged in student shall be able to request a new tutor with the “Request a new tutor” form.

Rationale: A student already registered with “Teachers” may want to book a new tutor, whether it is to replace their current tutor or to seek help in a new subject.

Specification: Software Requirements/User Requirements/Functional Requirements/Student Requirements

*Source:*Yara Chahine

C. Tutor requirements

9. Tutor Application Form:

A tutor shall be able to submit their application including their personal information to the admin.

Rationale: A tutor needs to be able to provide some information about themselves before their interview, including years of experience, field of teaching, background, and their CV. This process is necessary to verify the authenticity of tutors applying for jobs.

Specification: Software Requirements/User Requirements/Functional Requirements/Tutor Requirements

Source: Yara Chahine

10. Tutor Edit Profile:

A tutor shall be able to submit a form requesting to edit their profile card, which will be displayed on the landing page of the website after admin approval, or will be rejected and an email will be sent to the tutor.

Rationale : This is to allow tutors to personalize and make necessary updates to the information displayed about them on the main website page. Since these updates will be publicly visible to any “Teachers” visitor, the admin needs to approve the form to ensure that every tutor’s information is accurate and free from any inappropriate content.

Specification: Software Requirements/User Requirements/Functional Requirements/Tutor Requirements

Source: Yara Chahine

D. Member Requirements

11. View Calendar:

A logged in member of the website (student or tutor) may be able to view the past events of their calendar when they visit it.

Rationale: The calendar is one of the productivity tools available for a website member to make use of, giving them an incentive to use the website and helping them organize their time. Being able to see previously added events to their calendar is essential for good time management and organization.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Yara Chahine

12. Calendar Event Add:

A member may be able to add events to their calendar with a time specification and flags. (normal, urgent, etc..)

Rationale: This feature is to help students and tutors stay on top of their upcoming work and be well organized and prepared for future events.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sara Abdallah

13. Calendar Event Remove:

A member may be able to remove past or future events from their calendar.

Rationale: This is necessary in case members want to tidy up their calendar from events that are cancelled or no longer relevant.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sara Abdallah

14. Timer and Pomodoro Clock:

A member shall be able to use, start ,restart, pause and stop their regular timer and pomodoro clock whenever they'd like.

Rationale : Both these features are essential to increase productivity and improve time management.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sara Abdallah

15. View To-do List:

A member shall be able to view recently added tasks on their to-do list (they are saved).

Rationale: The to-do list is another productivity tool for the members to benefit from. Seeing recent tasks is essential to see which tasks were finished and which are yet to be done.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Yara Chahine

16. To-do List Add:

A member shall be able to add tasks to their to-do list with flags such as top priority, urgent, normal, or can wait.

Rationale: The purpose of the to-do list is to help the student or tutor have a more concrete view of their ideas and to motivate them to finish these tasks. This will also help them categorize their tasks, thus making the to-do list more personalized.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sarah Abdallah

17. To-do List Tick:

A member shall be able to add a tick mark next to tasks on their to-do list.

Rationale: Tasks on a to-do list need to have an indicator of whether the student or tutor has completed the task or not, since the main reason behind a to do list is to keep track of finished and unfinished tasks.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sarah Abdallah

18. To-do List Remove:

A member shall be able to remove tasks from their to-do list.

Rationale: Once a task on the to-do list is completed or no longer relevant, the member needs to have the option to delete it from the list.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sarah Abdallah

19. Confirmation Email:

After a member's information is evaluated and approved by the admin, they shall be sent an email stating that they now have access to their account.

Rationale: This is to inform the member that their account is ready and to ensure that only genuine students and tutors can log in and access member-only website features.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sarah Abdallah

20. Logout:

A logged in member shall be able to log out of their account.

Rationale: For security reasons, a member might no longer want to be logged in to their account on a certain device.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sarah Abdallah

21. Change Password Verification Email:

A member may be able to receive an email containing a verification code to change their account password.

Rationale: For any reason, such as a forgotten or stolen password, a member must have the ability to re-secure their account by changing their password.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sarah Abdallah

22. Change Password Page:

A member may use their verification code to change their password on the change password page.

Rationale: The verification code is necessary to prove the member's identity and to prevent member accounts from being stolen.

Specification: Software Requirements/User Requirements/Functional Requirements/Member Requirements

Source: Sarah Abdallah

E. Admin Requirements

23. Admin Page:

The admin shall have an interface on his own admin page where he can view students, tutors, and bookings.

Rationale: The admin needs to see all available information about his clients and staff in one convenient location.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Sarah Abdallah

24. Admin Bookings Page:

The admin shall be able to add, modify, or delete bookings.

Rationale: The admin is responsible for organizing bookings and may need to adjust the bookings according to the needs of clients and staff.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Yara Chahine

25. Admin Manually Add Student:

The admin may be able to view and manually add students to the system.

Rationale: When the admin is contacted by new students via a secondary contact method (such as WhatsApp) and these students have chosen not to use the website, he will still need to add them to the system to keep track of all his clients and employees, along with their necessary information.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Yara Chahine

26. Admin Remove:

The admin shall be able to remove both students and tutors from the system.

Rationale : Our client will need this in case a tutor leaves the company or a student permanently stops taking classes.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Yara Chahine

27. Admin Updates Page:

The admin shall have access to an updates page where he can view pending approvals, applications, and consultations.

Rationale: The admin needs to keep track of all the pending tasks

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Reem Zubdeh

28. Admin Updates Notification:

The admin shall receive email notifications whenever a new item is added to the updates page.

Rationale: The admin should know about new updates as soon as possible to provide a fast and reliable service to his clients and employees.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Reem Zubdeh

29. Admin Student Approval:

The admin shall be able to receive on his updates page the sign up forms of new students, which he can review and approve.

Rationale: The admin needs to confirm with both the student and the tutor the details of their meeting times before the actual booking is made and before the student has access to the website.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Reem Zubdeh

30. Admin Student Add Tutor:

The admin shall be able to receive on his updates page the forms of existing students requesting new tutors, which he can review and approve.

Rationale: Even though the student is already registered with “Teachers”, the admin still needs to confirm with both the student and the tutor the details of their meeting times before the actual booking is made with a different tutor.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Reem Zubdeh

31. Admin Consultation Acknowledgement:

The admin shall be able to receive on his updates page every submitted consultation form by a student, which he can review and remove after the consultation.

Rationale: In case of a consultation, the admin needs to meet with the student before their account is finalized, which is why the admin needs the student's required information from the consultation form. After the consultation is complete, the admin can remove the consultation from the updates page.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Reem Zubdeh

32. Admin Tutor Application Approval:

The admin shall be able to receive on his updates page the submitted tutor application forms to be accepted or rejected.

Rationale: The admin recruits new tutors through the tutor application form. Based on the form and the following interview, the admin should have a way to either hire the tutor or reject their application.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Reem Zubdeh

33. Admin Tutor Edit Approval:

The admin shall be able to receive on his updates page a tutor's request for editing their profile card; he either accepts it or refuses it.

Rationale : This is to regulate what a tutor displays about themselves on the main website page and to make sure what is written is correct and meets the company's regulations.

Specification: Software Requirements/User Requirements/Functional Requirements/Admin Requirements

Source: Reem Zubdeh

6.1.2 Non-Functional Requirements

1. Security:

The system shall only allow users who enter the correct email and password to access their accounts.

Rationale: If a user puts an email without a password, or an email with a wrong password, he should not be able to log in.

Specification: Software Requirements/User Requirements/Non-Functional Requirements

Source: Ali Knayber

2. Usability:

The website shall be easy to use within a limited amount of time.

Rationale: Most of the users will be parents registering their children, so they might have limited knowledge in technology. Thus, the website should be easy to use so they are able to register easily.

Specification: Software Requirements/User Requirements/Non-Functional Requirements

Source: Ali Knayber

3. Availability:

The system shall be available to use all the time.

Rationale: Parents and students should be able to check their accounts and register any time during the day.

Specification: Software Requirements/User Requirements/Non-Functional Requirements

Source: Ali Knayber

4. Scalability:

The system shall be able to hold many tutors and students.

Rationale: The system should not crash if the number of tutors and students registered increases.

Specification: Software Requirements/User Requirements/Non-Functional Requirements

Source: Ali Knayber

5. Performance:

The system shall not take a lot of time when loading.

Rationale: The system should load as fast as possible to improve its performance.

Specification: Software Requirements/User Requirements/Non-Functional Requirements

Source: Ali Knayber

6. Data integrity:

The system shall take the correct data types when filling information.

Rationale: The system should maintain the data and its consistency in order not to cause errors in the database.

Specification: Software Requirements/User Requirements/Non-Functional Requirements

Source: Ali Knayber

7. Portability:

The system shall be able to run on different web browsers.

Rationale: The system should be working on different web browsers, and not restricted to only certain ones..

Specification: Software Requirements/User Requirements/Non-Functional Requirements

Source: Ali Knayber

6.2 System Requirements

A. Visitor Requirements

Software Requirements/User Requirements/Functional Requirements/6.1.1.1

1. Landing Page:

Function Displays the main page to give an overview of “Teachers” and allows the user to navigate the website.

Description The page shows information about the “Teachers”, including the “Become a student”, “Become a tutor”, “Login”, “Get a free consultation” and “Browse our tutors” links. In addition, it contains information about the tutors currently working at “Teachers”, as well as contact information of the admin so that the visitors can contact the admin by WhatsApp if they have any inquiries.

Inputs The visitor clicking on a button or link, tutor account information from the database.

Source Mouse, database.

Outputs Displays the selected feature or redirects to another website page.

Destination Screen

Action An onclick event will be triggered upon pressing on the available buttons or links. This event will take the user to the required website page or display the selected feature.

Requires Internet connection, server is running, mouse, screen

Pre-condition Visitor is currently viewing the landing page.

Post-condition Visitor is sent to another website page.

Side-effects None

Software Requirements/User Requirements/Functional Requirements/6.1.1.2

2. Browse tutors:

Function Shows all the tutors.

Description Allows the user to browse all the available tutors.

Inputs Clicking on the “browse our tutors” link.

Source Mouse.

Outputs All available tutors.

Destination Screen

Action A query will select all the available tutors from the database. These tutors will be displayed on the screen.

Requires Internet connection, server is running, mouse, screen

Pre-condition Visitor clicked on the “browse our tutors” link.

Post-condition All tutors are displayed.

Side-effects None.

3. Tutor Filtering:

Function Filters the tutors based on several possible criteria

Description Allows the user to filter the tutors according to criteria such as location, experience, gender, age and courses in order to give the visitor his/her preferred specifications.

Inputs Options from the visitor.

Source Mouse.

Outputs Available tutors with the required criteria.

Destination Screen

Action A query will take the criteria chosen by the visitor. The visitor will click on the filtering button in order to show the preferred options only.

Requires Internet connection, server is running, mouse, screen

Pre-condition Visitor chose at least one option and clicked on a filtering button.

Post-condition Available tutors updated.

Side-effects None.

4. Consultation Option:

Function Allows the visitor to request a free consultation.

Description The visitor is able to request a free consultation. The visitor can do that by providing limited required information. The visitor can also include some extra optional information.

Inputs Information from the visitor

Source Keyboard

Outputs Consultation form sent to server

Destination Database, admin's updates page

Action A query will take the added information and insert them in the database after pressing on the "Submit" button. The form will not be submitted unless the visitor fills the required information.

Requires Internet connection, server is running, keyboard, screen

Pre-condition Visitor is viewing the landing page and has pressed the "Get a Free Consultation" button from the Landing page.

Post-condition Visitor's form is sent to the admin.

Side-effects None.

5. Login:

Function Allows a student, tutor, or admin to log in to their profile.

Description The member or admin inputs their credentials on the login page and is redirected to their profile if those credentials are correct; otherwise, an incorrect email/password error message is displayed.

Inputs Email and password.

Source Keyboard.

Outputs Access to account/profile page.

Destination Screen.

Action A query will check the username and password that were added as input from the member or admin and compare them to the data in the database. If they were correct, the user will be given access to their account.

Requires Internet connection, server is running, keyboard, screen, registered student, tutor, or admin account.

Pre-condition User clicked on the login link.

Post-condition User can access their account and the available features.

Side-effects None

B. Student Requirements

Software Requirements/User Requirements/Functional Requirements/6.1.1.6

6. Student Registration Form:

Function Collects information about the student in a form to process their tutor request.

Description Allows the student to enter their personal information, the name of the tutor they picked, the course in which they need tutoring, location, date, price range, etc... So that the admin can process the request and link the student with the tutor.

Inputs Information from the student.

Source Keyboard.

Outputs Registration form sent to the server.

Destination Database, admin's updates page

Action A query will collect the information and add it to a temporary database.

Requires Internet connection, server is running, keyboard, screen

Pre-condition A visitor clicking on the "Request a tutor button" and currently viewing the signup form.

Post-condition The form is sent to the admin awaiting approval.

Side-effects None.

Software Requirements/User Requirements/Functional Requirements/6.1.1.7

7. Student Edit Profile:

Function Allows students to edit their profiles.

Description Allows students to edit information on their profiles such as name, phone number, profile picture, etc...

Inputs Data from the student

Source Keyboard, mouse

Outputs Student's edited information, modified student profile

Destination Database, screen

Action: A query will take the changes done by the student's inputs and execute. The row corresponding to this specific student in the database will be updated, and so will the information appearing on the student's profile.

Requires Internet connection, server is running, keyboard, screen, registered student account.

Pre-condition The student is logged in to their account and currently viewing their profile.

Post-condition The student's information is updated and can be viewed on the student's profile.

Side-effects None.

8. Student Add Tutor:

Function Allows students to request another tutor.

Description A student can request a new tutor by filling a form similar to their registration form where they provide information about their preferred tutor and booking details.

Inputs Data from the student.

Source Keyboard.

Outputs New tutor request form sent to the server.

Destination Database, admin's updates page

Action A query will take the student's input and add them to a temporary database awaiting the admin's approval.

Requires Internet connection, server is running, keyboard, screen, registered student account

Pre-condition Student is already registered and logged in.

Post-condition The form is sent to the admin to be approved.

Side-effects None.

C. Tutor Requirements

Software Requirements/User Requirements/Functional Requirements/6.1.1.9

9. Tutor Application Form:

Function Collects information about the tutor in a form to process their application.

Description Allows the user to fill in the required information for their tutor application to “Teachers” to be reviewed by the admin.

Inputs Tutor information.

Source Keyboard.

Outputs Filled out tutor application form sent to server

Destination Database, admin’s updates page

Action The user inputs the required information in the form and the submitted application is sent to the server and stored in a temporary database until the admin reviews the application.

Requires Internet connection, server is running, keyboard, screen.

Pre-condition Visitor is currently viewing the tutor application form page.

Post-condition The data filled by the applicant is saved in the database.

Side-effects None

Software Requirements/User Requirements/Functional Requirements/6.1.1.10

10. Tutor Edit Profile:

Function Edits profile for the tutor’s account.

Description The tutor is able to submit a form requesting a change in the information that is present on their account and shown on the landing page of the website. The admin has to approve them in order for them to be changed successfully.

Inputs Any information that they want to change on their profile card.

Source Keyboard.

Outputs Tutor’s edit profile form.

Destination Database, admin’s updates page

Action A query will take the changes done by the tutor and send them to the database and to the admin’s updates page awaiting approval or rejection.

Requires Internet connection, server is running, keyboard, screen, registered tutor account

Pre-condition Tutor is logged in and currently viewing the edit profile page.

Post-condition Tutor’s updated information is sent as a request to the admin awaiting approval/rejection.

Side-effects None

D. Member Requirements

Software Requirements/User Requirements/Functional Requirements/6.1.1.11

11. View Calendar:

Function Display previously added events to the calendar.

Description Both tutors and students have access to the calendar to use amongst other productivity tools on the website. When a student or a tutor visits the calendar, they should be able to see past events shown on their previously assigned date.

Inputs Clicking on the Calendar link.

Source Mouse.

Outputs Calendar

Destination Screen.

Action Clicking the calendar link will redirect the user to the Calendar page where their previous events data is displayed on page load.

Requires Internet connection, server is running, mouse, screen, registered student or tutor account.

Pre-condition Student or tutor is logged in.

Post-condition The calendar page is shown.

Side-effects None.

Software Requirements/User Requirements/Functional Requirements/6.1.1.12

12. Calendar Event Add

Function Adds events to the member's calendar.

Description Both tutors and students have access to their personal calendar to be able to add events by inputting the event details.

Inputs Clicking the add event button, event data from the member.

Source Keyboard, mouse.

Outputs Updated events on member's calendar page and database

Destination Screen, database.

Action A query will take the changes done to the calendar by the member and the information on the member's calendar will be updated in the database.

Requires Internet connection, server is running, mouse, keyboard, screen, registered student or tutor account.

Pre-condition Member is logged in and is currently viewing the calendar page.

Post-condition Calendar database information updated and appears on the calendar page.

Side-effects None.

13. Calendar Event Remove

Function Removes events from the user's calendar.

Description Both tutors and students can remove events from their personal calendar by clicking on the delete button on the event to be deleted.

Inputs Event to be deleted

Source Mouse

Outputs Updated events on member's calendar page and database

Destination Database

Action The selected event will be deleted from the information on the member's calendar in the database.

Requires Internet connection, server is running, mouse, screen, registered student or tutor account

Pre-condition Member is logged in and is currently viewing the calendar page

Post-condition Calendar event removed in the database and updated calendar appears on the screen.

Side-effects Human error: accidentally deleting an important event (deleted events are not recoverable).

14. Timer and Pomodoro Clock

Function Start, pause, or reset the timer or pomodoro clock

Description Both tutors and students have access to their own personal timer and pomodoro clock which they can start, pause, or end with the control buttons.

Inputs Clicking the control buttons, typing in time

Source Mouse, keyboard

Outputs Running timer or pomodoro clock

Destination Screen

Action An on-click event will be triggered upon pressing on the timers' buttons. This event will start, pause or cancel a timer.

Requires Internet connection, server is running, mouse, keyboard screen, registered student or tutor account

Pre-condition Member is logged in and is currently viewing the timer page or the pomodoro clock page.

Post-condition Timer or clock responds to control buttons and time input

Side-effects None

15. View To-do List:

Function Display previously added tasks to the to-do list.

Description Both students and tutors have access to a to-do list to organize their tasks. It is essential to be able to see previously added tasks to see what tasks still need to be done.

Inputs Clicking on the to-do list link.

Source Mouse.

Outputs to-do list

Destination Screen.

Action Clicking the to-do list link will redirect the user to the to-do list page where their previous tasks data is displayed on page load.

Requires Internet connection, server is running, mouse, screen, registered student or tutor account.

Pre-condition Student or tutor is logged in.

Post-condition The to-do list is shown.

Side-effects None.

16. To-do List Add

Function Adds tasks to the to-do list

Description Both tutors and students have access to their own personal to-do list where they can input their task's information (task name and flags).

Inputs Clicking the add task button, task information from the member

Source Keyboard, mouse

Outputs Updated tasks on member's to-do list page and database

Destination Screen, database

Action A query will take the new task added to the to-do list by the member and insert it in the member's to-do list table in the database.

Requires Internet connection, server is running, mouse, screen, registered student or tutor account

Pre-condition Member is logged in and is currently viewing the to-do list page.

Post-condition To-do list contains new task, database information updated and the updated to-do list appears on to-do list page

Side-effects None

17. To-do List Tick

Function Adds a tick mark on a to-do list task

Description Both tutors and students can add a tick mark on any task existing on their to-do list by clicking the empty circle to the left of the task name.

Inputs Clicking the empty circle next to the specified task

Source Keyboard, mouse

Outputs Updated tasks on member's to-do list page and database

Destination Screen, database

Action The changes done to the to-do list by the user will be used in an update query on the member's to-do list table in the database.

Requires Internet connection, server is running, mouse, keyboard, screen, registered student or tutor account, existing tasks in to-do list

Pre-condition Member is logged in and is currently viewing the to-do list page, to-do list contains existing tasks that can be ticked

Post-condition To-do list database information updated with ticked tasks and appears on to-do list page

Side-effects None

18. To-do List Remove

Function Removes items from the to-do list

Description Both tutors and students can remove tasks from their personal to-do list by clicking on the delete button on the task to be deleted.

Inputs Task to be deleted

Source Mouse

Outputs Updated tasks on member's to-do list page and database

Destination Screen, database

Action The selected task will be deleted from the information on the member's to-do list in the database.

Requires Internet connection, server is running, mouse, screen, registered student or tutor account, existing tasks in to-do list

Pre-condition Member is logged in and is currently viewing the to-do list page, to-do list contains existing tasks that can be ticked

Post-condition To-do list task removed in the database and updated to-do list appears on the screen.

Side-effects Human error: accidentally deleting an important task (deleted tasks are not recoverable).

19. Confirmation Email

Function Receives a confirmation email sent on member account creation

Description An email will be sent to let the member know their account has been successfully created and they can log in.

Inputs Admin approving student or tutor

Source Server application

Outputs Confirmation email

Destination Member's inbox

Action An automatic email is sent to the member's email address when an admin approves their sign up or application form.

Requires Server is running

Pre-condition Admin approves a sign up or application form

Post-condition Email is received by the member in their inbox

Side-effects None

20. Logout

Function Logs out of their account

Description A member clicks the log out button to no longer be logged in or have access to their account.

Inputs Clicking the log out button

Source Mouse

Outputs Landing page

Destination Screen

Action When the log out button is pressed, authentication cookies are cleared, and the member no longer has access to their account and is redirected to the website's landing page.

Requires Internet connection, server is running, mouse, screen, registered student or tutor account

Pre-condition The member is logged in to their account.

Post-condition The member is logged out of their account.

Side-effects None

21. Change Password Verification

Function Receives a verification code in an email to change their password, then inputs the code on the verification page.

Description A member clicks on the change password link either from the login page or from their profile. If done from the login page, the member needs to input their email address. An email is then sent to the member containing a verification code, and the member is redirected to the verification page. The member inputs the code which will redirect them to the change password page if correct.

Inputs Clicking the change password link, member's email address (in case member is logged out), verification code

Source Mouse, keyboard

Outputs Verification email, change password page

Destination Member's inbox, screen

Action If the member is logged out, the inputted email address on the login page is matched to the member's account, and an email containing the verification code is sent to that address. Otherwise, if the member is logged in, the email is sent to the address associated with the logged in account, then the member gets logged out. In both cases, the member is then redirected to the verification page (Note: the verification code is temporarily stored in the database until expiry after ten minutes). The verification code inputted by the member is compared to the one sent to their email and temporarily stored in the database. If it matches, the member is redirected to the change password page

Requires Internet connection, server is running, mouse, keyboard, screen, registered student or tutor account, verification code

Pre-condition Existing member is viewing the login page or their profile page. **Post-**

condition Email containing the verification code is sent to the member's email address, any logged in user gets logged out, and the change password page is shown.

Side-effects None

Software Requirements/User Requirements/Functional Requirements/6.1.1.22

22. Change Password Page

Function Changes their password after verifying their identity.

Description After inputting a correct verification code, a member inputs their new password on the change password page.

Inputs New password

Source Keyboard

Outputs Login page, updated account password

Destination Screen, database

Action The user inputs their new password. The password is checked to see if it matches the password requirements. If it does, the user's account password will be changed successfully in the database and the user is redirected to the login page; otherwise, an error message is displayed.

Requires Internet connection, server is running, keyboard, screen, registered student or tutor account, new password meeting the password requirements

Pre-condition The member has verified their identity and is currently viewing the change password page.

Post-condition The member's account password is updated in the database and the member is redirected to the login page, or an error message is shown.

Side-effects The member could lose access to their account if their email was compromised.

E. Admin Requirements

Software Requirements/User Requirements/Functional Requirements/6.1.1.23

23. Admin Page:

Function Displays the admin interface.

Description Allows the admin to view the information on students, tutors, or bookings.

Inputs Mouse click, students/tutors/bookings information

Source Mouse, database

Outputs The students, tutors, or bookings tables.

Destination Screen

Action Clicking one of the three options queries the database for the corresponding table and allows the admin to view the students, tutors, or bookings table.

Requires Internet connection, server is running, mouse, screen

Pre-condition Admin is logged in and is currently viewing the admin page

Post-condition Database information is displayed on the page

Side-effects None

Software Requirements/User Requirements/Functional Requirements/6.1.1.24

24. Admin Bookings Page:

Function Allows the admin to add, modify, or delete bookings.

Description On the admin page, after selecting the bookings table, the admin can add a new booking, or select a certain booking to modify or delete.

Inputs Booking information or deletion

Source Keyboard, mouse

Outputs Modified bookings table

Destination Database, screen

Action Changes made by the admin modify the bookings information in the database, and the modified bookings table is displayed.

Requires Internet connection, server is running, mouse, keyboard, screen

Pre-condition The admin is logged in and currently viewing the admin page.

Post-condition The bookings in the database are modified.

Side-effects None

25. Admin Manually Add Student:

Function Adds a student to the database from the website directly.

Description The admin manually enters the student's information to be added to the database.

Inputs The student's information.

Source Keyboard

Outputs The updated database with the new student's information and bookings.

Destination Database, screen

Action Query executing the student's insertion to their respective tables in the database.

Requires Internet connection, server is running, keyboard, screen

Pre-condition Admin is logged in and is currently viewing the admin page

Post-condition The database will be updated with the added student.

Side-effects Human error: admin might enter wrong information.

26. Admin Remove:

Function Removes a student or a tutor from the database and from the website

Description The admin enters a certain student or tutor's information for verification purposes to delete them from the database, including their bookings and account information.

Inputs A form containing the selected student or tutor's information

Source Keyboard

Outputs A success message and the modified database and webpages without the deleted information

Destination Screen, database

Action The admin's entered information (name, email..) will be checked in the backend code. If all of the entered fields match the information in the database for the specified email, a query containing the ID will be executed to remove the student or tutor from their corresponding tables in the database, and a success message is displayed; otherwise, an error message is displayed.

Requires Internet connection, server is running, keyboard, screen, and a registered student or tutor account to delete

Pre-condition Admin is logged in and is currently viewing the remove form

Post-condition The database will no longer have the student or tutor's information.

The webpages representing the selected member's profile will no longer be accessible and, in case of a tutor, the landing page will no longer include the deleted tutor's card.

Side-effects In case of human error by the admin, important information might be permanently lost because this action is irreversible without manually adding the same information again.

27. Admin Updates Page:

Function Displays all pending updates that the admin has to review

Description The page will include new student sign up forms, forms by existing students requesting new tutors, student consultation forms, tutor application forms, and tutor profile edit forms

Inputs Clicking the link to the updates page, form data from the database

Source Mouse, database

Outputs The updates page

Destination Screen

Action After the link to the page is clicked, the pending forms are fetched from the database and a short summary of each is displayed on the page.

Requires Internet connection, server is running, mouse, screen

Pre-condition Admin is logged in

Post-condition Admin is viewing the updates page

Side-effects None

28. Admin Updates Notification:

Function Receives notifications for new items added to updates page

Description Whenever a form is submitted to the admin, an automatic email will be sent informing the admin of this update

Inputs Incoming form data from tutors or students

Source Database

Outputs An email containing a summary of the update

Destination Admin's email

Action Every submitted form by a student or tutor will also generate an email to be sent to the admin

Requires Server is running

Pre-condition Form is submitted by a tutor or student

Post-condition Email delivered to admin

Side-effects None

29. Admin Student Approval:

Function Admin approves a new student form

Description When a student submits a signup form, the admin contacts the student and reviews this information, and accordingly accepts or rejects the signup.

Inputs Clicking one of the accept or reject buttons

Source Mouse

Outputs Redirection to the updates page, the accepted or rejected form is removed from the updates page

Destination Screen

Action When the form is accepted, the submitted data will be moved from the temporary pending updates to a new student's information and booking information in the database. An automated confirmation email is sent. Otherwise, if the form is rejected, the data will be removed from the temporary pending updates in the database.

Requires Internet connection, server is running, mouse, screen

Pre-condition Admin is logged in and currently viewing the updates page

Post-condition In case of acceptance: the student's account is successfully created, bookings are added to the database, and the student receives a confirmation email. In case of rejection: the signup form is only removed from the updates page.

Side-effects In case of human error or if someone somehow gains improper access to the admin's account, the forms could be falsely accepted or rejected, causing inaccurate information or lost signups.

30. Admin Student Add Tutor:

Function Admin approves a student request form for a new tutor

Description When a student submits a form to request a new tutor, the admin contacts the student and reviews the request, and accordingly accepts or rejects the form.

Inputs Clicking one of the accept or reject buttons

Source Mouse

Outputs Redirection to the updates page, the accepted or rejected form is removed from the updates page

Destination Screen

Action When the form is accepted, the submitted data will be moved from the temporary pending updates to the bookings information in the database. Otherwise, if the form is rejected, the data will be removed from the temporary pending updates in the database.

Requires Internet connection, server is running, mouse, screen

Pre-condition Admin is logged in and currently viewing the updates page

Post-condition In case of acceptance: the bookings are added to the database. In case of rejection: the signup form is only removed from the updates page.

Side-effects In case of human error or if someone somehow gains improper access to the admin's account, the forms could be falsely accepted or rejected, causing inaccurate information or lost signups.

Software Requirements/User Requirements/Functional Requirements/6.1.1.31

31. Admin Consultation Acknowledgement:

Function Admin acknowledges a consultation form request form

Description Consultation forms submitted by students are removed from the updates page after the admin finishes the consultation with the student or considers the form concluded or no longer useful.

Inputs Clicking the acknowledge button

Source Mouse

Outputs Redirection to the updates page, the consultation form is removed from the updates page

Destination Screen

Action The form is deleted from the temporary pending updates to the booking information in the database.

Requires Internet connection, server is running, mouse, screen

Pre-condition Admin is logged in and currently viewing the updates page

Post-condition In case of acceptance: the bookings are added to the database. In case of rejection: the signup form is only removed from the updates page.

Side-effects In case of human error or if someone somehow gains improper access to the admin's account, the forms could be falsely acknowledged, causing lost consultations.

Software Requirements/User Requirements/Functional Requirements/6.1.1.32

32. Admin Tutor Application Approval:

Function Admin approves a new tutor application

Description When a tutor application form is submitted, the admin reviews the form, contacts the potential tutor, and conducts a professional interview with them. Based on this, the admin accepts or rejects the application.

Inputs Clicking one of the accept or reject buttons

Source Mouse

Outputs Redirection to the updates page, the accepted or rejected form is removed from the updates page

Destination Screen

Action When the form is accepted, the submitted data will be moved from the temporary pending updates to a new tutor's information in the database. An automated confirmation email is sent. Otherwise, if the form is rejected, the data will be removed from the temporary pending updates in the database.

Requires Internet connection, server is running, mouse, screen

Pre-condition Admin is logged in and currently viewing the updates page

Post-condition In case of acceptance: the tutor's account is successfully created, and the tutor receives a confirmation email. In case of rejection: the tutor application form is only removed from the updates page.

Side-effects In case of human error or if someone somehow gains improper access to the admin's account, tutor applications can be falsely rejected, resulting in missed opportunity, or falsely accepted, possibly resulting in improper tutors, which is harmful or even dangerous to the overall business and students.

Software Requirements/User Requirements/Functional Requirements/6.1.1.33

33. Admin Tutor Edit Approval:

Function Admin approves tutor edit profile form

Description The admin reviews forms that request edits to a tutor's profile. If needed, the admin contacts the tutor, and accepts or rejects the changes.

Inputs Clicking one of the accept or reject buttons

Source Mouse

Outputs Redirection to the updates page, the accepted or rejected form is removed from the updates page

Destination Screen

Action If the form is accepted, any changes made to the tutor's profile in the form will be moved from the temporary pending updates to the tutor's information in the database. Otherwise, if the form is rejected, the data will be removed from the temporary pending updates in the database.

Requires Internet connection, server is running, mouse, screen

Pre-condition Admin is logged in and currently viewing the updates page

Post-condition In case of acceptance: the tutor's profile card is successfully edited, and changes appear on the landing page. In case of rejection: the form is only removed from the updates page.

Side-effects In case of human error or if someone somehow gains improper access to the admin's account, changes to tutor profiles would be publicly visible to all website visitors, which might be harmful depending on how inaccurate or inappropriate the updated information is.

7. Scenarios

A. Visitor Scenarios

1. Landing Page:

Initial assumption: The visitor is connected to the internet and has entered the website, currently viewing the landing page.

Normal: The visitor clicks certain or links on the landing page. The visitor is taken to the corresponding pages, such as “Become a Tutor” and “Get a Free Consultation”.

What can go wrong: The visitor’s internet connection stops working: the visitor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The visitor can open the website on different tabs at the same time. Other users can simultaneously use the entire website’s features.

System state on completion: The selected page is fully loaded with all the available buttons and information.

2. Browse tutors:

Initial assumption: The visitor is connected to the internet and is currently viewing the landing page. The visitor has clicked on the “Browse our tutors” link.

Normal: The visitor clicks on the “Browse our tutors” link.

The page displays all the available tutors and the filtering panel will appear.

What can go wrong: The visitor’s internet connection stops working: the visitor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The visitor may select multiple criteria at the same time.

The visitor can open the website on different tabs at the same time.

Other users can simultaneously use the entire website’s features.

System state on completion: All tutors are shown.

3. Tutor Filtering:

Initial assumption: The visitor is connected to the internet and is currently viewing the tutors.

Normal: The visitor clicks on the filter button. The filtering panel will appear.

The visitor clicks on the options they would like to filter (e.g. location, courses...), then clicks “Filter” or presses enter. The filtered tutors will be displayed.

If the filters match none of the available tutors, the tutors panel will be empty, and a “No matches found” message will appear.

What can go wrong: The visitor's internet connection stops working: the visitor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The visitor may select multiple criteria at the same time.

The visitor can open the website on different tabs at the same time.

Other users can simultaneously use the entire website's features.

System state on completion: All tutors that meet the required criteria are shown.

4. Consultation Option:

Initial assumption: The visitor is connected to the internet and clicked on the "Get a Free Consultation" button. The consultation form page is shown.

Normal: The visitor fills in the fields of the form.

If the user inputs both the required and optional information and attempts to submit, the form will be submitted and a success message will be shown.

If the user inputs the required information only and attempts to submit, the form will be submitted and a success message will be shown.

If the visitor does not input one or more required fields and attempts to submit, the form will not be submitted and a message will be shown informing the visitor that all the required fields must be filled.

The visitor clicks on a button or presses enter to attempt to submit the form to the admin.

What can go wrong: The visitor's internet connection stops working: the visitor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The visitor may select multiple criteria at the same time.

The visitor can open the website on different tabs at the same time.

Other users can simultaneously use the entire website's features.

System state on completion: The form is sent to the admin and a success message is shown.

5. Login:

- 1) **Initial assumption:** The user logging in is a student. The student is connected to the internet, has clicked on the login link and is currently viewing the login page.

Normal: The student inputs their email and password and clicks the login button or presses enter to log in to their account.

If the student's email and password are correct, they will be redirected to their student profile.

If the student leaves one or more fields empty and tries to log in, the system will not allow the student to proceed and will inform the student that the email and password are required.

If the student enters an email that does not have a registered account associated with it, an error message will be displayed stating that this account does not exist.

If the student enters an incorrect password to their email, an error message will be displayed stating that the password is incorrect.

The student clicks the login button or presses enter to attempt to log in.

What can go wrong: The student's internet connection stops working: the student must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The student can simultaneously view the landing page or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The student is logged in and the student's profile is shown.

- 2) **Initial assumption:** The user logging in is a tutor. The tutor is connected to the internet, has clicked on the login link and is currently viewing the login page.

Normal: The tutor inputs their email and password and clicks the login button or presses enter to log in to their account.

If the tutor's email and password are correct, they will be redirected to their tutor profile.

If the tutor leaves one or more fields empty and tries to log in, the system will not allow the tutor to proceed and will inform the tutor that the email and password are required.

If the tutor enters an email that does not have a registered account associated with it, an error message will be displayed stating that this account does not exist.

If the tutor enters an incorrect password to their email, an error message will be displayed stating that the password is incorrect.

The tutor clicks the login button or presses enter to attempt to log in.

What can go wrong: The tutor's internet connection stops working: the tutor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The tutor can simultaneously view the landing page or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The tutor is logged in and the tutor's profile is shown.

- 3) **Initial assumption:** The user logging in is the admin. The admin is connected to the internet, has clicked on the login link and is currently viewing the login page.

Normal: The admin inputs his email and password and clicks the login button or presses enter to login to his account.

If the admin's email and password are correct, he will be redirected to the admin page.

If the admin leaves one or more fields empty and tries to log in, the system will not allow the admin to proceed and will inform the admin that the email and password are required.

If the admin enters an email that does not have a registered account associated with it, an error message will be displayed stating that this account does not exist.

If the admin enters an incorrect password to their email, an error message will be displayed stating that the password is incorrect.

The admin clicks the login button or presses enter to attempt to log in.

What can go wrong: The admin's internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view the landing page or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The admin is logged in and the admin page is shown.

B. Student Scenarios

6. Student Registration Form:

Initial assumption: The visitor is connected to the internet clicks on the “Request a Tutor” button from the landing page.

Normal: The visitor has to fill in all the information in order for the application to be submitted to the admin.

If the visitor fills all the required information, he can click on the submitting button for his application to be submitted successfully.

If the visitor fails to fill all the information as required, he/she will be sent an error message asking him to fill them then try again.

If the visitor enters a string instead of a number in the phone number area, or does not write the email in the correct format, he will receive an error.

If the visitor tries to apply using a registered email, the visitor will receive an error asking him/her to try again with a different email.

What can go wrong: The visitor’s internet connection stops working: the visitor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The visitor may fill several forms at the same time on different tabs.

The visitor can also still access the landing page.

System state on completion: The form is sent to the admin.

7. Student Edit Profile:

Initial assumption: The student already has an account and is logged in and clicks the “edit profile” button.

Normal: The student edits the profile as he/she wants and submits the request to the admin to review it.

If the student tries to edit using incorrect format, for example changing the email to another one in the wrong format or using a string in the phone number, the tutor will receive an error.

If the student changes the email or phone number to an already registered email/phone number, the student will receive an error asking him/her to try again with a different email and/or phone number.

What can go wrong: The student’s internet connection stops working: the student must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The student may edit the settings on different tabs, but the last edit is applied in case they are done simultaneously. The student is still able to use their profile productivity tools.

System state on completion: The student’s information is updated.

8. Student Add Tutor:

Initial assumption: The student is logged in to their profile.

Normal: The student has to fill in all the information in order for the application to be submitted to the admin.

If the student fills all the required information, they can click on the submitting button for his application to be submitted successfully.

If the student fails to fill all the information as required, he/she will be sent an error message asking them to fill them then try again.

If the student enters a string instead of a number in the phone number area, or does not write the email in the correct format, they will receive an error.

What can go wrong: The student's internet connection stops working: the student must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The student can fill multiple forms at the same time. The student can still access the landing page, or productivity tools on their profile.

System state on completion: The form is submitted and sent to the admin.

C. Tutor Scenarios

9. Tutor Application Form:

Initial assumption: The visitor is connected to the internet clicks on the “Become a Tutor” button from the landing page.

Normal: The visitor has to fill in all the information in order for the application to be submitted to the admin.

If the visitor fills all the required information, he can click on the submitting button for his application to be submitted successfully.

If the visitor fails to fill all the information as required, he/she will be sent an error message asking him to fill them then try again.

If the visitor enters a string instead of a number in the phone number area, or does not write the email in the correct format, he will receive an error.

If the visitor tries to apply using a registered email, the visitor will receive an error asking him/her to try again with a different email.

What can go wrong: The visitor’s internet connection stops working: the visitor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: Several visitors may be filling the application at the same time.

System state on completion: The form is sent to the admin.

10. Tutor Edit Profile:

Initial assumption: The tutor already has an account and is logged in.

Normal: The tutor edits the profile as he/she wants and submits the request to the admin to review it.

If the tutor tries to edit using incorrect format, for example changing the email to another one in the wrong format or using a string in the phone number, the tutor will receive an error.

If the tutor changes the email or phone number to an already registered email/phone number, the tutor will receive an error asking him/her to try again with a different email and/or phone number.

What can go wrong: The tutor’s internet connection stops working: the tutor must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The tutor can still access all other components of his profile, and can also access the landing page.

System state on completion: The tutor’s request to edit his profile is sent to the admin and the edit profile page is shown again.

D. Member Scenarios

11. View Calendar:

Initial assumption: The member has an internet connection, is logged in, and is currently viewing the calendar page.

Normal: The member is shown all the past events that are shown on their previously assigned dates.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member may check the past events at the same time on different tabs, can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The past events of the calendar are shown.

12. Calendar Event Add:

Initial assumption: The member has an internet connection, is logged in, and is currently viewing the calendar page.

Normal: The member clicks the add event button. In a form, the member inputs the event's name, timing, and optional flag (urgent, casual...).

If the member clicks cancel, changes are not saved and the calendar is displayed again.

If the member attempts to submit with the event name and date empty, an error message will be displayed and changes will not be saved.

If the member attempts to submit with the required fields filled in, the event will be successfully added to the calendar.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The updated calendar is shown, calendar information is updated in the database.

13. Calendar Event Remove:

Initial assumption: The member has an internet connection, is logged in, and is currently viewing the calendar page.

Normal: The member clicks on the delete button near the event they would like to delete. A dialog will appear asking the member if they are sure they would like to delete the event. If the member clicks yes, the event is successfully deleted from the database. If the member clicks no, no changes are made to the calendar.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The updated calendar is shown, calendar information is updated in the database.

14. Timer and Pomodoro Clock:

- 1) **Initial assumption:** The member has an internet connection, is logged in, and is currently viewing the timer page. The timer is initially set to 0:00.

Normal: The member inputs the time on the countdown timer.

If the member clicks the start button with a current timer greater than 0:00, the timer will start counting down.

If the member clicks the start button with a current time equal to 0:00, the timer will not run, and nothing happens.

If the member clicks the pause button, the timer will stop running.

If the member clicks the reset button, the time will be set 0:00 and the timer will stop running.

If the time reaches 0:00, the timer will play the ringing sound until the member clicks "stop".

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: No difference

- 2) **Initial assumption:** The member has an internet connection, is logged in, and is currently viewing the pomodoro clock page. The clock is initially set to 25:00.

Normal: The member clicks the start button, so the clock will start counting down in work mode.

If the time reaches 0:00 in work mode, the iteration count will be incremented by 1, and a ringing sound will be played for 3 seconds.

If the iteration count is not divisible by 4, the time will be set to 5:00, and the clock will count down in short break mode.

If the iteration count is divisible by 4, the time will be set to 30:00, and the clock will count down in long break mode.

If the member clicks the pause button in work, short break, or long break mode, the clock will stop running.

If the member clicks the reset button, the time will be set to 25:00 in work mode, the iteration count will be set to 0, and the clock will stop running.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: No difference

15. View To-do List:

Initial assumption: The member has an internet connection, is logged in, and is currently viewing the calendar page.

Normal: The member is shown all the tasks that still need to be done.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member may check the past events at the same time on different tabs, can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The tasks are all shown.

16. To-do List Add:

Initial assumption: The member has an internet connection, is logged in, and is currently viewing the to-do list page.

Normal: The member clicks the add task button. In a form, the member inputs the task's name and optional flag (top priority, normal...).

If the member clicks cancel, changes are not saved and the to-do list is displayed again.

If the member attempts to submit with the task name empty, an error message will be displayed and changes will not be saved.

If the member attempts to submit with the name filled in, the task will be successfully added to the to-do list.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The updated to-do list is shown, to-do list information is updated in the database.

17. To-do List Tick:

Initial assumption: The member has an internet connection, is logged in, and is currently viewing the to-do list page. The user intends to tick an existing task on the to-do list.

Normal: The member clicks on the empty circle near the task they would like to tick. The empty circle will now be ticked, and the task is successfully marked as complete in the database.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The updated to-do list is shown, to-do list information is updated in the database.

18. To-do List Remove:

Initial assumption: The member has an internet connection, is logged in, and is currently viewing the to-do list page. The user intends to delete an existing task on the to-do list.

Normal: The member clicks on the delete button near the task they would like to delete. A dialog will appear asking the member if they are sure they would like to delete the task. If the member clicks yes, the task is successfully removed from the list deleted from the database. If the member clicks no, no changes are made to the to-do list.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can simultaneously use the whole website, or be logged in from a different device. Other users can simultaneously use the entire website's features.

System state on completion: The updated to-do list is shown, to-do list information is updated in the database.

19. Confirmation Email:

Initial assumption: The member has already applied to register as a student or a tutor. The admin has just approved the member's form (student's signup form or tutor's application form).

Normal: The member receives an email notification informing them that their account has been approved, and they are ready to log in to their new student or tutor account.

What can go wrong: The member's internet connection stops working: the member does not receive the confirmation email on their device, but the email is sent regardless. Once the member regains their internet connection, the email will be successfully delivered to their device.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member and other users can simultaneously use the entire website's features.

System state on completion: No difference.

20. Logout:

Initial assumption: The member has an internet connection and is logged in to their account.

Normal: The member clicks the logout link, so they are no longer logged in to their account.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can open the website on different windows or devices at the same time before or after they have logged out. Other users can simultaneously use the entire website's features.

System state on completion: The landing page is displayed; member is no longer logged in.

21. Change Password Verification Email:

- 1) **Initial assumption:** The member is connected to the internet, has an account, is logged out and is viewing the login page.

Normal: If the member clicks on the "forgot password" link and the email field is filled with the member's correct email address, the corresponding member will be sent an email to this same address with a verification code, and the member will be redirected to the verification page.

If the member clicks on the "forgot password" link and the email field is empty or contains an invalid email, an error message will be displayed asking the member to enter a valid email.

If the member clicks on the “forgot password” link and the email field contains an email with no associated account on “Teachers”, an error message will be displayed stating that this account does not exist.

On the verification page, if the member enters a correct verification code, they will be redirected to the change password page.

If the member enters an empty or incorrect verification code, an error message will be displayed.

If the member attempts to submit a code after the verification time has expired (10 minutes have passed), they will be redirected to an error page and will have the option to resend the code. The member will then be redirected to the verification page.

What can go wrong: The member’s internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can open the website on different windows or devices at the same time. Other users can simultaneously use the entire website’s features.

System state on completion: Redirection to the change password page; email is sent to the member’s email address, member’s identity is verified.

- 2) **Initial assumption:** The member is connected to the internet, is logged in, and is viewing their profile page.

Normal: The member will be sent an email to their email address with a verification code, and the member will be redirected to the change password page.

On the verification page, if the member enters a correct verification code, they will be redirected to the change password page.

If the member enters an empty or incorrect verification code, an error message will be displayed.

If the member attempts to submit a code after the verification time has expired (10 minutes have passed), they will be redirected to an error page and will have the option to resend the code. The member will then be redirected to the verification page.

What can go wrong: The member’s internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can open the website on different windows or devices at the same time. Other users can simultaneously use the entire website’s features.

System state on completion: Redirection to the change password page; email is sent to the member’s email address, member’s identity is verified.

22. Change Password Page:

Initial assumption: The member is connected to the internet and has entered a correct verification code. The member is currently viewing the change password page.

Normal: The member inputs their new password in the new password field and the confirm password field.

If the new password field is empty or does not meet the password requirements listed on the page, an error message will be displayed asking the member to follow the password requirements.

If the value in the confirm password field is not identical to the value in the new password field, an error message will be displayed stating that the passwords do not match.

If the new password meets the requirements and the confirm password field matches the new password field, the member's password will successfully be changed, and a success message is shown.

What can go wrong: The member's internet connection stops working: the member must ensure that their device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can open the website on different windows or devices at the same time. Other users can simultaneously use the entire website's features.

System state on completion: The member's password is successfully changed. The member is logged out and is redirected to the login page after a success message is shown.

E. Admin Scenarios

23. Admin Page:

Initial assumption: The admin has internet access, is logged in to his profile, and is viewing the admin page.

Normal: The admin clicks the student, tutor, or bookings table, so the selected table is displayed.

If the admin clicks on the top row indicating the title of the below column (e.g. “First name”, “Phone”, “Email”...), the displayed table will be sorted by that attribute.

What can go wrong: The admin’s internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website’s features.

System state on completion: Admin is able to view the data of the selected entity.

24. Admin Bookings Page:

- 1) **Initial assumption:** The admin has internet access, is logged in to his account, and is viewing the bookings table. The admin wishes to add a booking.

Normal: The admin clicks on the add button. A form is displayed including the fields to be filled with information about the booking to be added.

If the admin clicks the “cancel” button, any input data will be lost and not saved to the database. The bookings table will be displayed again.

If the admin fills in all the fields validly and attempts to submit, a success message will be displayed and the booking will be added to the database.

If the admin fills in one or more fields invalidly (email with incorrect format, unallowed symbols...) and attempts to submit, a message will be displayed indicating that the invalid values should be changed.

If the admin inputs the email address of a student or tutor without an existing account in the student or tutor email fields, then attempts to submit, a message will be displayed stating that the student or tutor does not exist.

If the admin leaves one or more fields empty and attempts to submit, a message will be displayed telling the admin to fill in the empty fields.

The admin clicks the submit button or presses enter to attempt to submit the booking.

What can go wrong: The admin’s internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website's features.

System state on completion: The booking is successfully added to the database and the updated table is shown.

- 2) **Initial assumption:** The admin has internet access, is logged in to his account, and is viewing the bookings table. The admin wishes to modify or delete a booking.

Normal: The admin clicks on the booking of his choosing. A form is displayed including input fields with default values set to the row's current values, as well as three buttons: delete entry, cancel, and save.

If the admin clicks the "delete entry" button, a popup dialog will appear asking the admin to confirm whether he wants to delete the selected booking.

On the popup, if the admin clicks "no", no changes will be made to the database, and the bookings page is shown again.

On the popup, if the admin clicks "yes", the selected booking will be removed from the database, and a success message will be shown.

If the admin clicks the "cancel" button, any changes made to the input fields will be lost and not saved to the database.

If the admin attempts to submit and all the fields contain a valid value, any changes made to the input fields will change the corresponding value in the database, and a success message will be shown.

If the admin attempts to submit and one or more fields contains an invalid value (email with incorrect format, unallowed symbols...), a message will be displayed indicating that the invalid values should be changed.

The admin clicks the submit button or presses enter to attempt to submit his changes.

What can go wrong: The admin's internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website's features.

System state on completion: The booking is successfully modified or deleted in the database and the updated table is shown.

25. Admin Manually Add Student:

Initial assumption: The admin is connected to the internet and logged in, viewing the students table. The admin has clicked on the add button to add a student.

Normal: A form is displayed including the fields to be filled with information about the student to be added.

If the admin clicks the "cancel" button, any input data will be lost and not saved to the database. The student table will be displayed again.

If the admin fills in all the fields correctly (following a valid format) and attempts to submit, a success message will be displayed and the student will be added to the database.

If the admin fills in one or more fields invalidly (email with incorrect format, unallowed symbols...) and attempts to submit, a message will be displayed indicating that the invalid values should be changed.

If the admin inputs the email address of a student with an existing account in the email field, then attempts to submit, a message will be displayed stating that the student already exists.

If the admin leaves one or more fields empty and attempts to submit, a message will be displayed telling the admin to fill in the empty fields.

The admin clicks the “save” button or presses enter to attempt to submit the new student.

What can go wrong: The admin’s internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website’s features.

System state on completion: The specified student is successfully added to the system.

26. Admin Remove:

Initial assumption: The admin is connected to the internet and logged in, viewing the remove form.

Normal: The admin enters the first name, last name, email, and phone number of the student or tutor to be removed from the system, and attempts to submit.

If all of the fields match a certain registered member in the database, that member will be removed and a success message will be displayed to the admin.

If one or more fields are incorrect, an error message will be displayed informing the admin that the information is incorrect for the member with the specified email address.

If the email address field does not match any member in the database, an error message will be displayed informing the admin that the specified member does not exist.

What can go wrong: The admin’s internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website’s features.

System state on completion: The specified student or tutor is successfully removed from the system.

27. Admin Updates Page:

Initial assumption: The admin is connected to the internet and logged in.

Normal: The admin clicks on the updates page link and is taken to the updates page. All of the pending updates are fetched from the database and displayed on the page in a condensed format. The admin has the option to click on any of the updates to view its details.

What can go wrong: The admin's internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website's features.

System state on completion: The updates page is fully loaded and all of the pending updates have been fetched from the server.

28. Admin Updates Notification:

Initial assumption: The server is running and a new update is available on the admin's update page from a student or a tutor.

Normal: A student or tutor submits a form to be reviewed by the admin. The form appears on the admin's update page. An automatic email is sent to the admin's email address with a small summary of the update.

What can go wrong: The admin's internet connection stops working: the admin does not receive the email on their device, but the email is sent by the server regardless.

When the admin regains a stable internet connection, the email will be delivered to his device.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The member can open the website on different windows or devices at the same time before or after they have logged out. Other users can simultaneously use the entire website's features.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website's features.

System state on completion: Email successfully sent to admin

29. Admin Student Approval:

Initial assumption: The admin is connected to the internet and logged in. The admin has received a new student signup form on his updates page, and is currently viewing this form.

Normal: The admin can either accept or reject this form.

If the admin accepts, the student account is created, the student's bookings are added to the bookings table, the student receives an automated confirmation email, and a success message is displayed to the admin. The updates page is displayed again and the approved form is removed from the updates page.

If the admin rejects, the student account is not created, the signup form data is lost, and a success message is displayed to the admin. The updates page is displayed again and the rejected form is removed from the updates page.

What can go wrong: The admin's internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website's features.

System state on completion: The updates page is displayed again without the approved or rejected form. The student account is either created or not based on the admin's choice.

30. Admin Student Add Tutor:

Initial assumption: The admin is connected to the internet and logged in. The admin has received a new student tutor request form on his updates page, and is currently viewing this form.

Normal: The admin can either accept or reject this form.

If the admin accepts, the bookings table is updated with the new request, and a success message is displayed to the admin. The updates page is displayed again and the approved form is removed from the updates page.

If the admin rejects, the bookings table is not modified, the new tutor request form data is lost, and a success message is displayed to the admin. The updates page is displayed again and the rejected form is removed from the updates page.

What can go wrong: The admin's internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website's features.

System state on completion: The updates page is displayed again without the approved or rejected form. The bookings table is either modified with the new booking information or not, based on the admin's choice.

31. Admin Consultation Acknowledgement:

Initial assumption: The admin is connected to the internet and logged in. The admin has received a new consultation form on his updates page, and is currently viewing this form.

Normal: The admin can click the “acknowledge” button at the bottom of the form. The consultation form data is lost, and a success message is displayed to the admin. The updates page is displayed again and the acknowledged consultation is removed from the updates page.

What can go wrong: The admin’s internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website’s features.

System state on completion: The updates page is displayed again without the acknowledged form.

32. Admin Tutor Application Approval:

Initial assumption: The admin is connected to the internet and logged in. The admin has received a new tutor application form on his updates page, and is currently viewing this form.

Normal: The admin can either accept or reject this form.

If the admin accepts, the tutor account is created, the tutor receives an automated confirmation email, and a success message is displayed to the admin. The updates page is displayed again and the approved form is removed from the updates page.

If the admin rejects, the tutor account is not created, the application form data is lost, and a success message is displayed to the admin. The updates page is displayed again and the rejected form is removed from the updates page.

What can go wrong: The admin’s internet connection stops working: the admin must ensure that his device is connected to the internet.

The server stops running: the server must always be running for all of its users to visit and interact with.

Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website’s features.

System state on completion: The updates page is displayed again without the approved or rejected form. The tutor account is either created or not based on the admin’s choice.

33. Admin Tutor Edit Approval:

Initial assumption: The admin is connected to the internet and logged in. The admin has received a new tutor edit form on his updates page, and is currently viewing this form.

Normal: The admin can either accept or reject this form.

If the admin accepts, the tutor account is updated with the submitted form's modifications, and a success message is displayed to the admin. The updates page is displayed again and the approved form is removed from the updates page.

If the admin rejects, the tutor account is not modified, the edit form data is lost, and a success message is displayed to the admin. The updates page is displayed again and the rejected form is removed from the updates page.

What can go wrong: The admin's internet connection stops working: the admin must ensure that his device is connected to the internet.

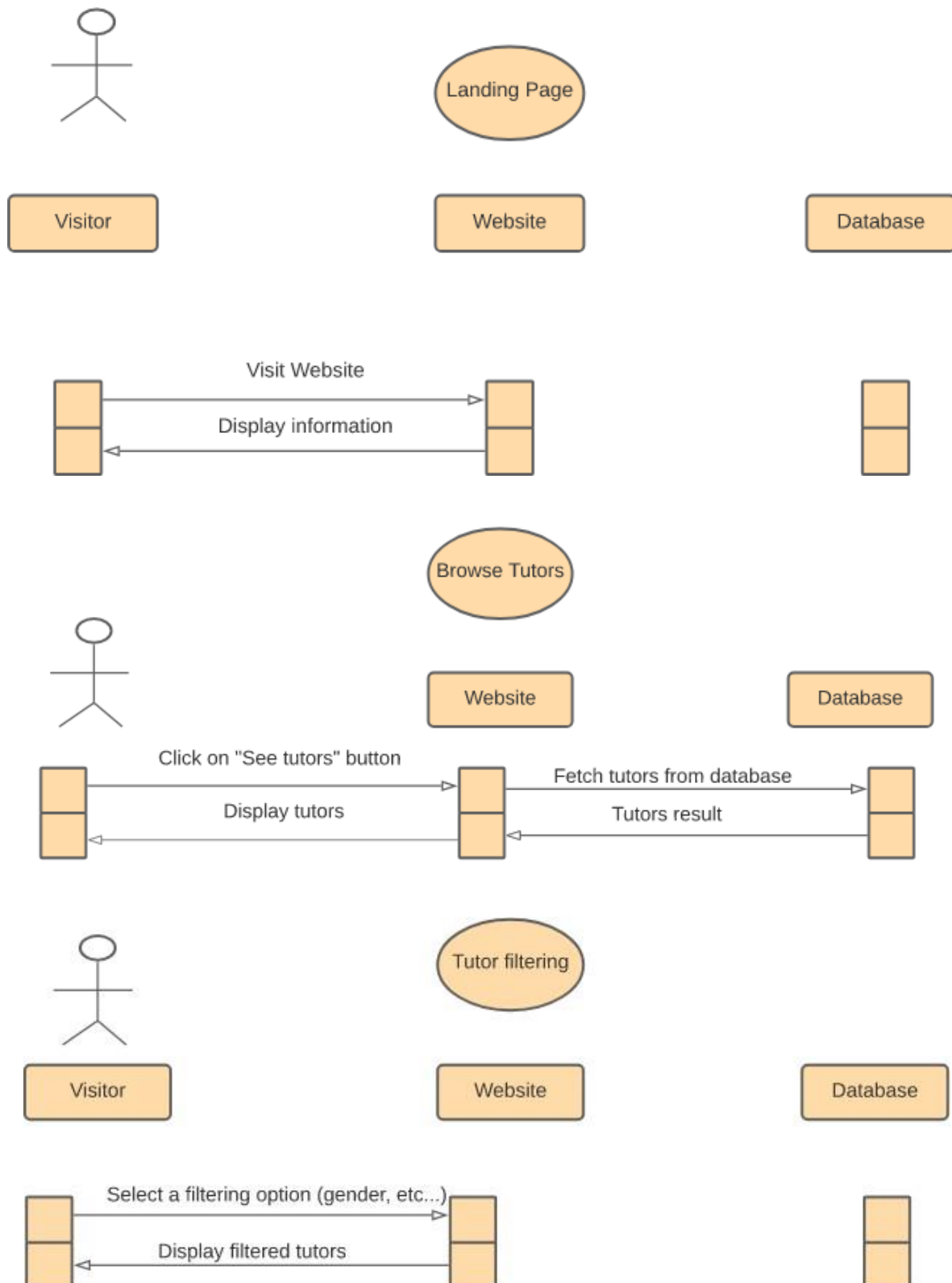
The server stops running: the server must always be running for all of its users to visit and interact with.

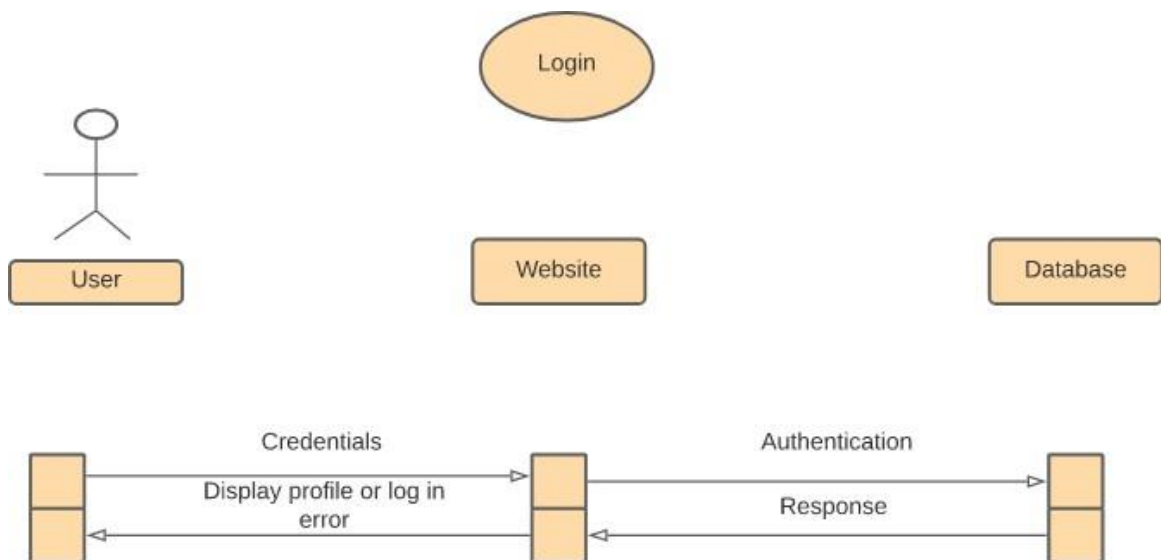
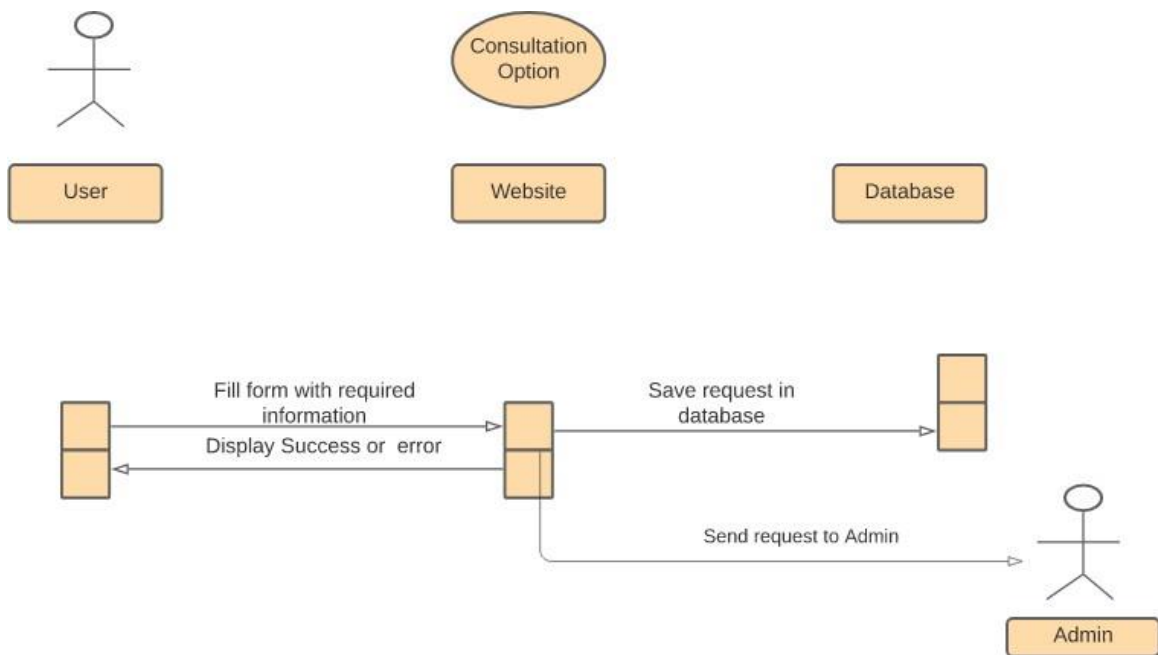
Other activities: The admin can simultaneously view and use the landing page, the admin page, and the updates page from a different device or window. Other users can simultaneously use the entire website's features.

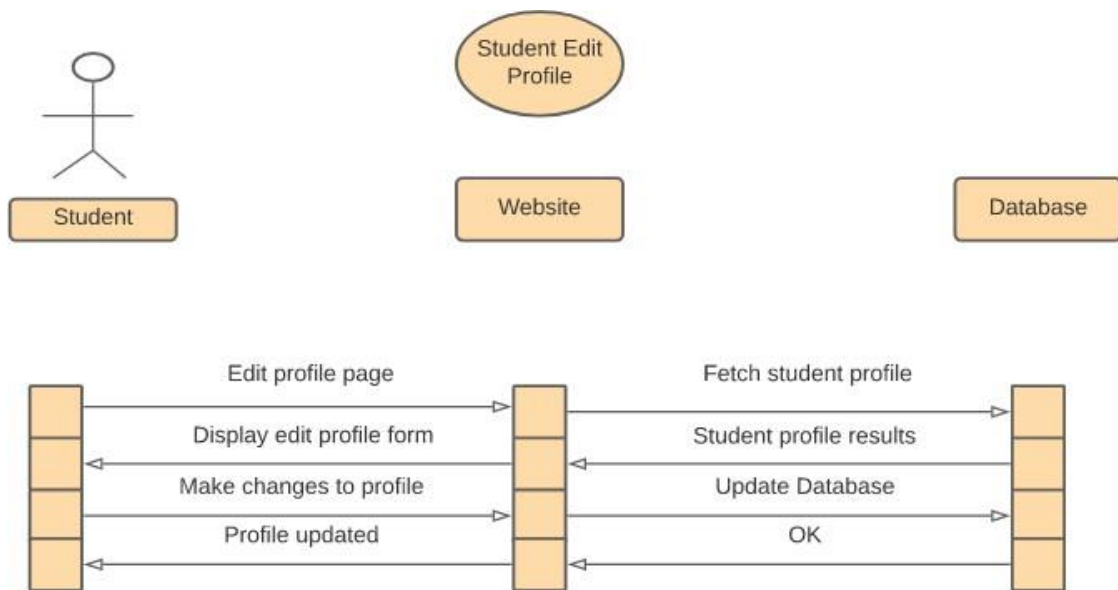
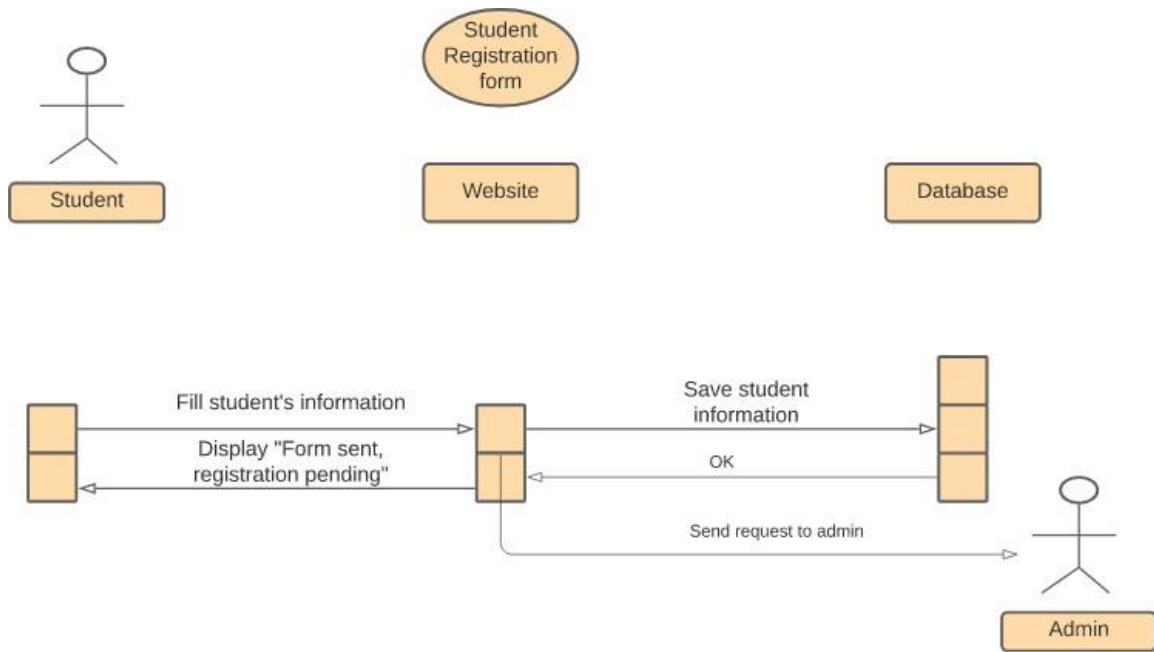
System state on completion: The updates page is displayed again without the approved or rejected form. The tutor account is either modified or not based on the admin's choice.

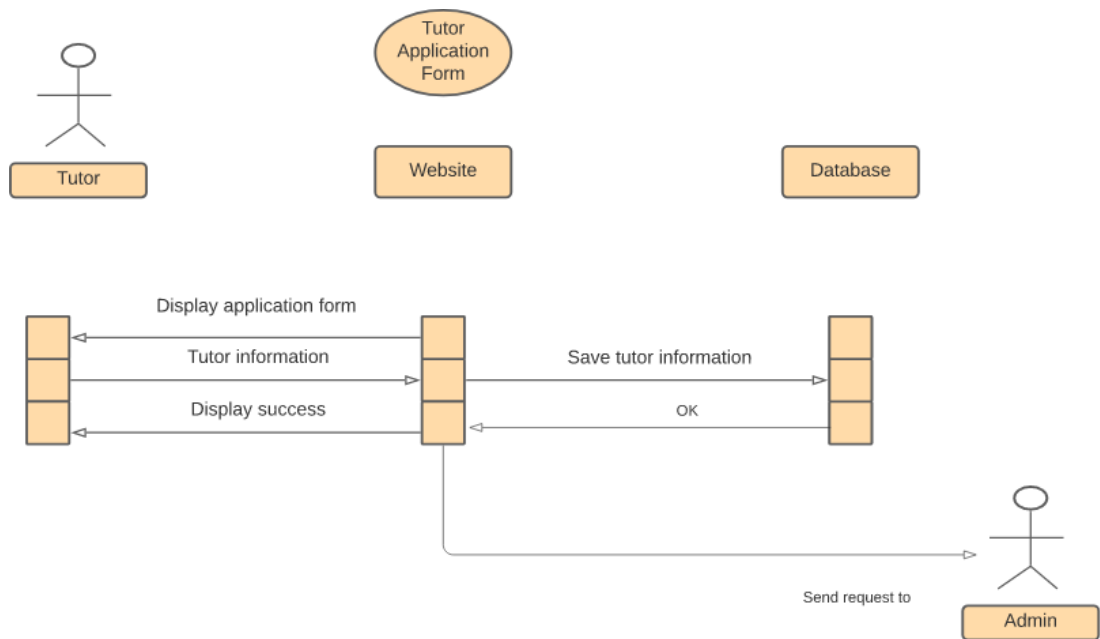
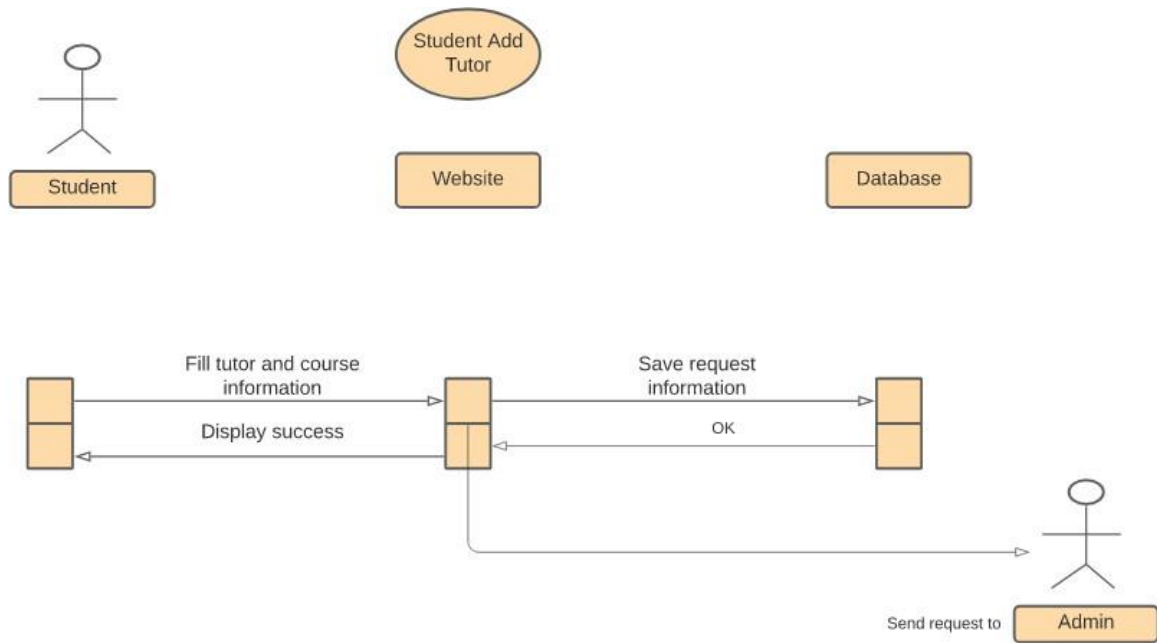
8. System Models

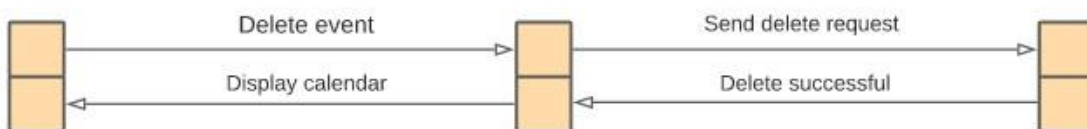
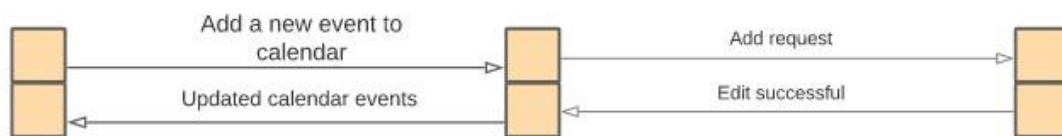
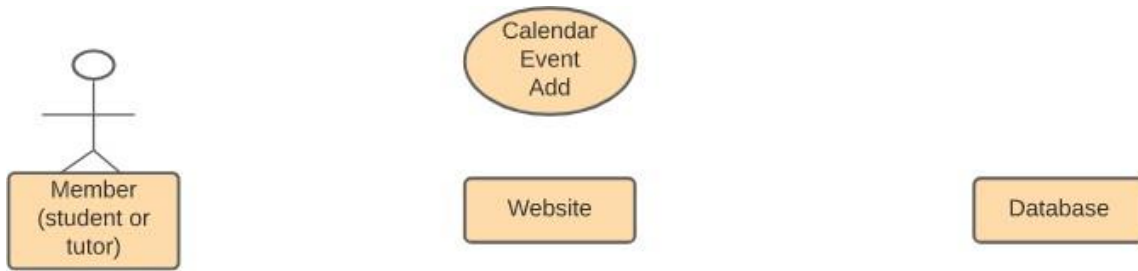
8.1 First Set Of Sequence Diagrams

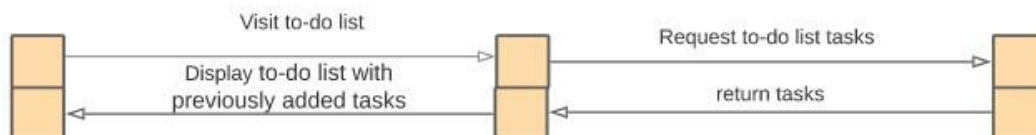
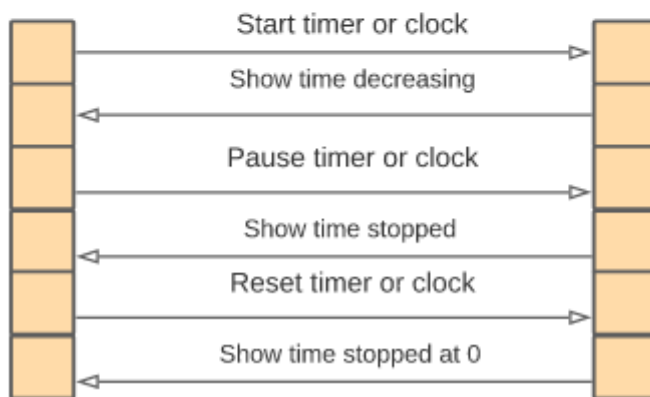


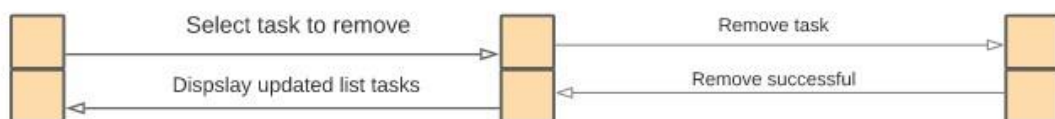
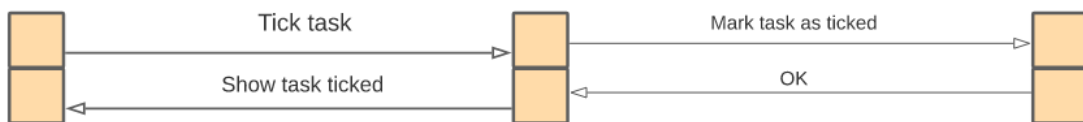
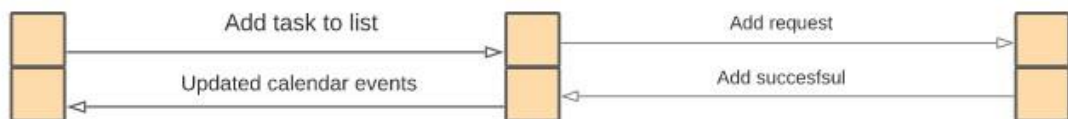


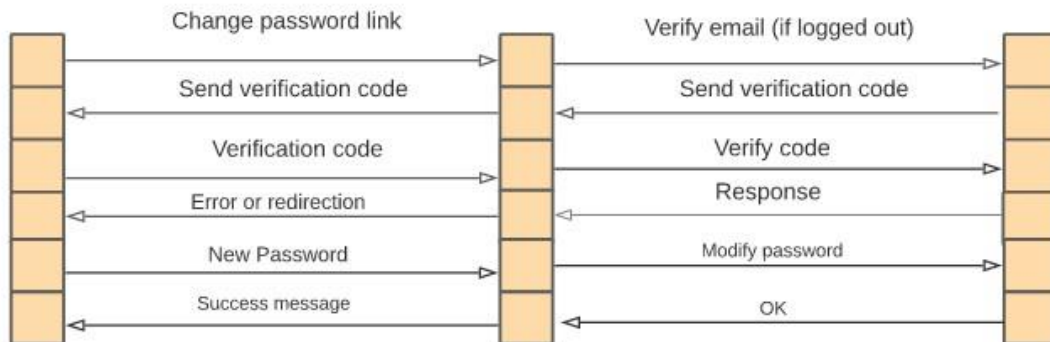
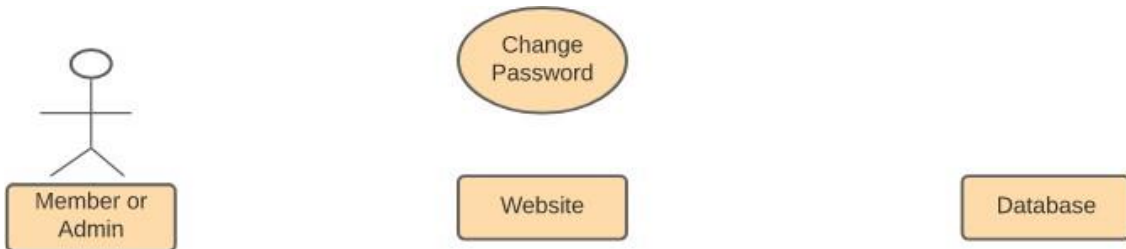
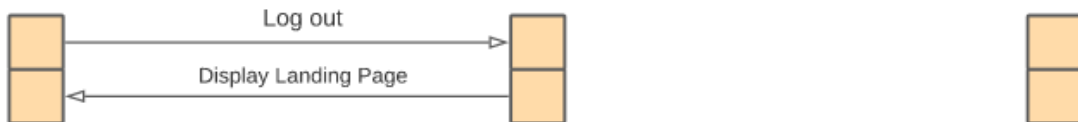
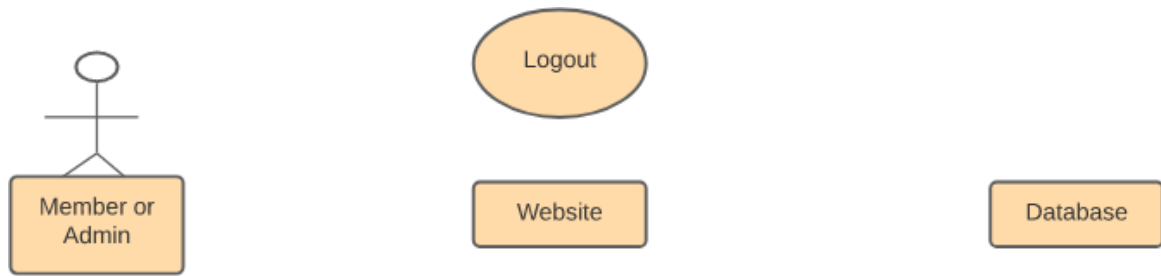


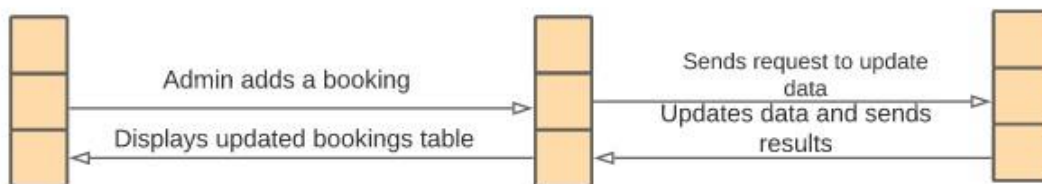
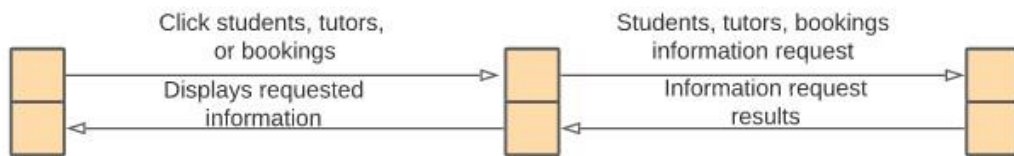


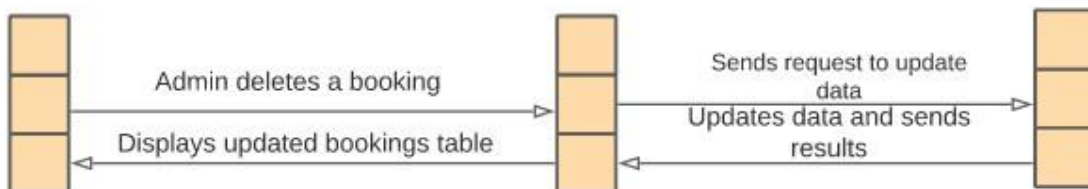
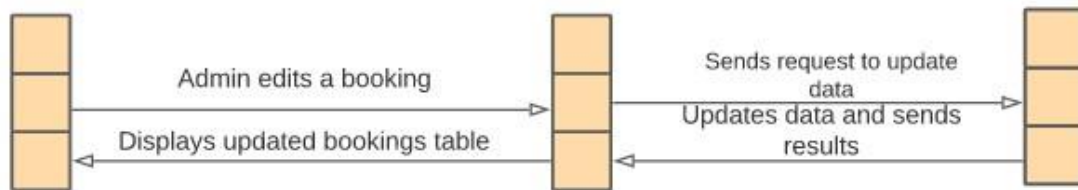


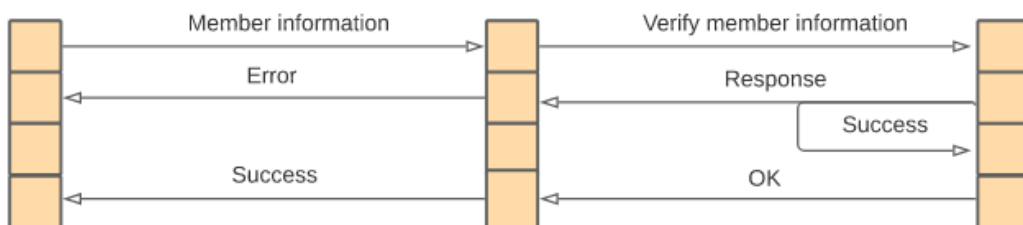
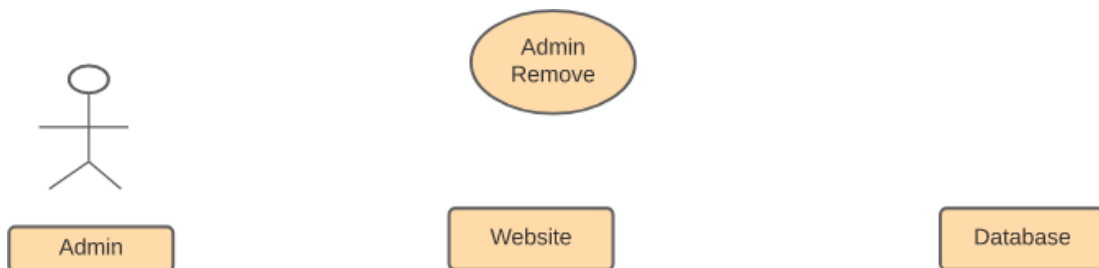
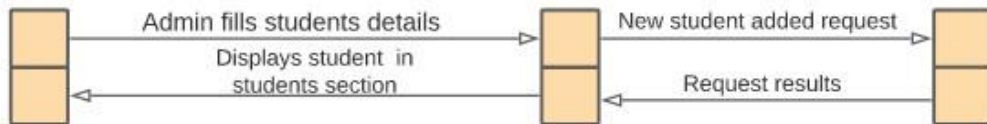
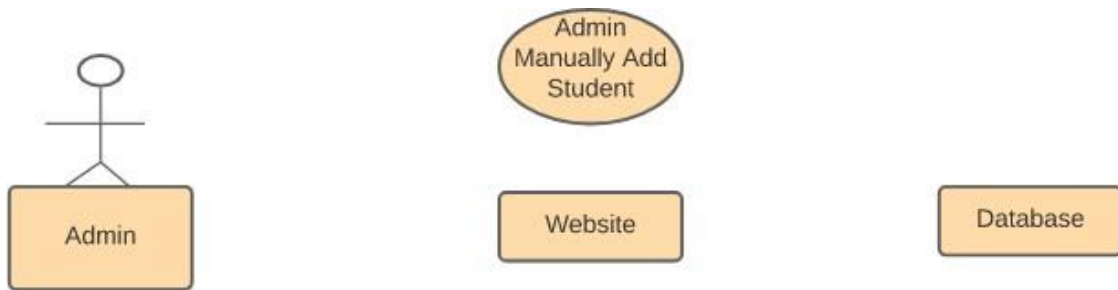


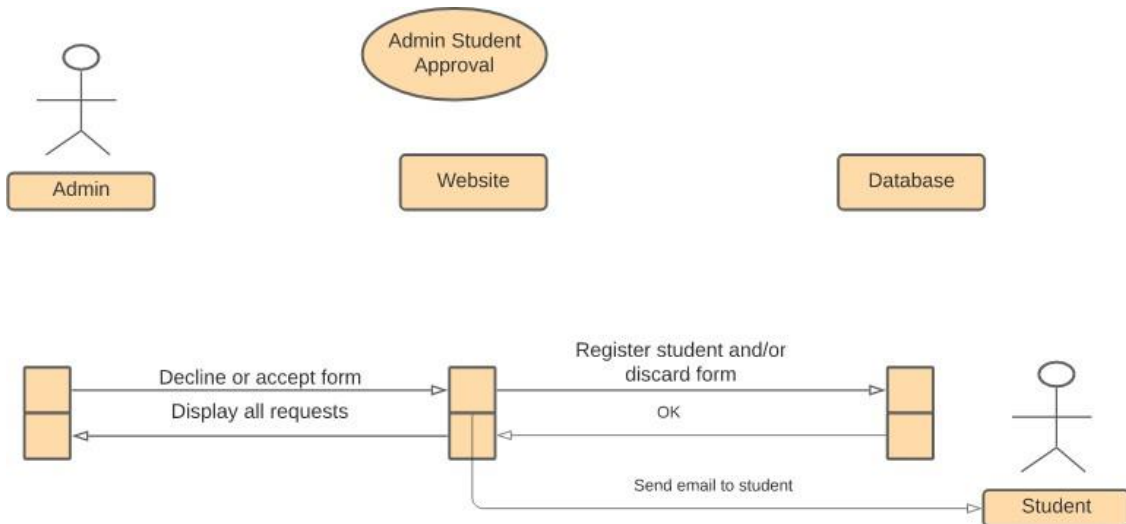


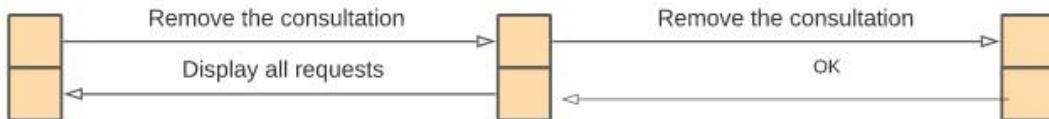
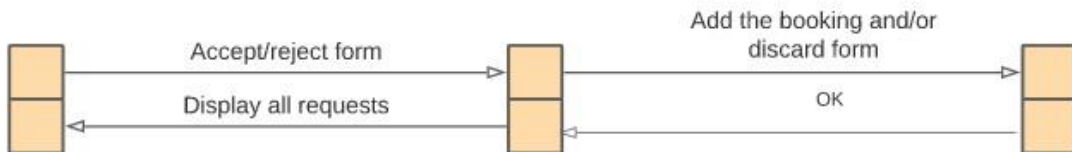
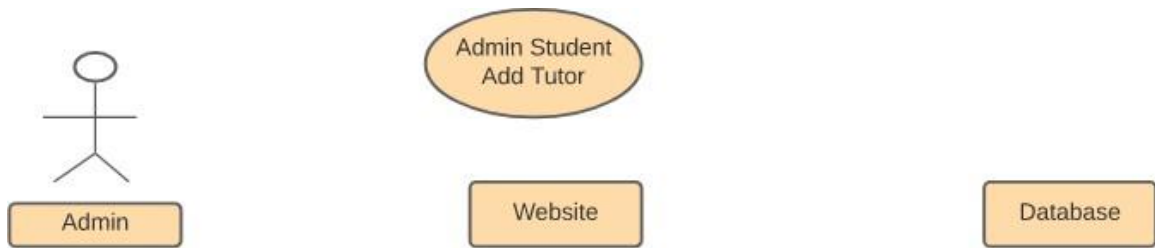


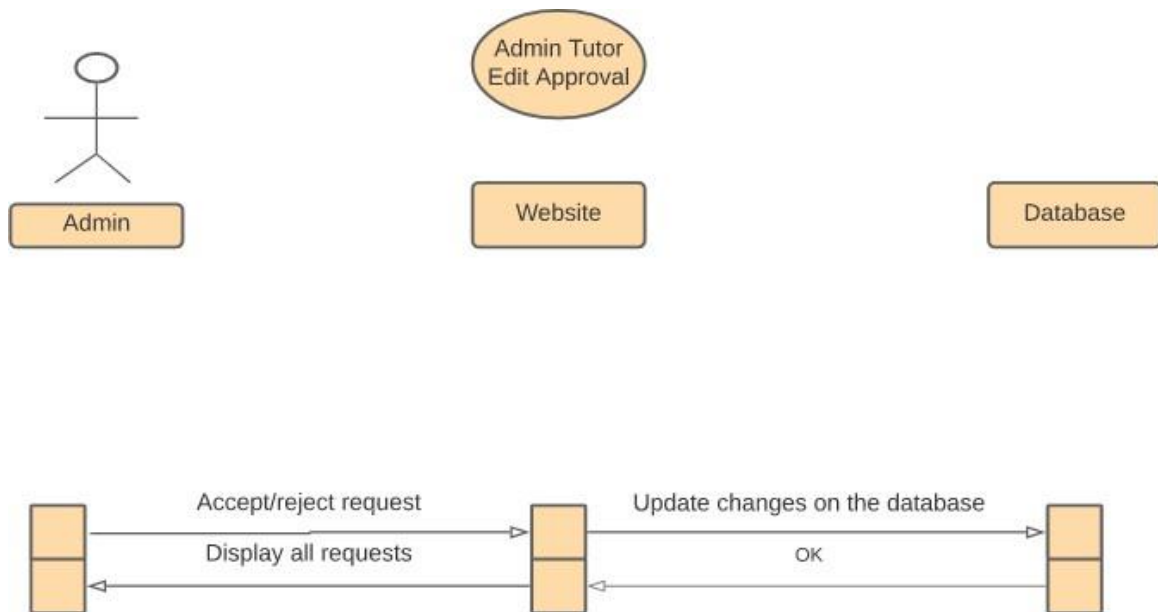
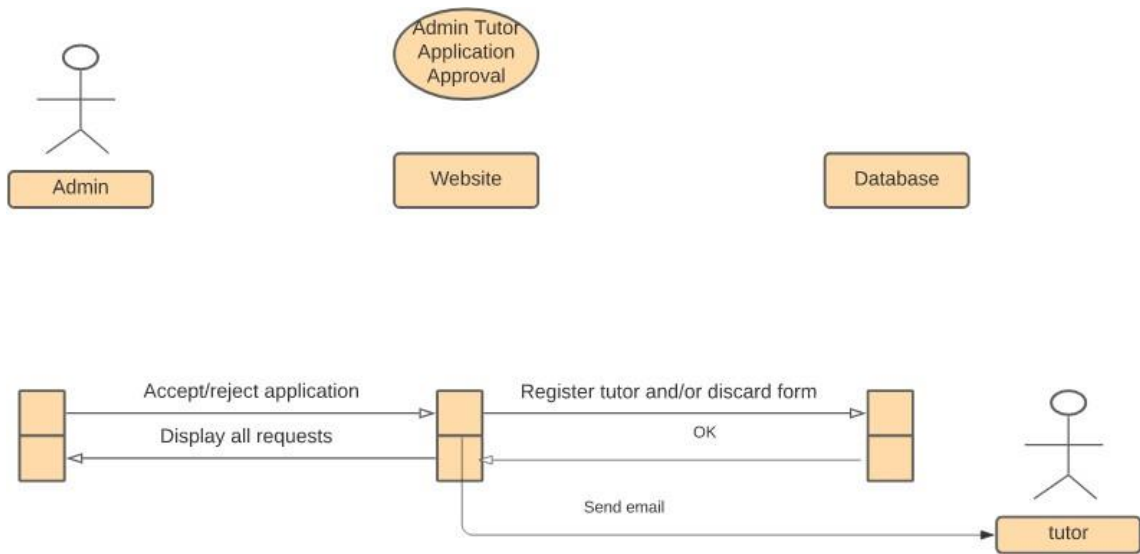




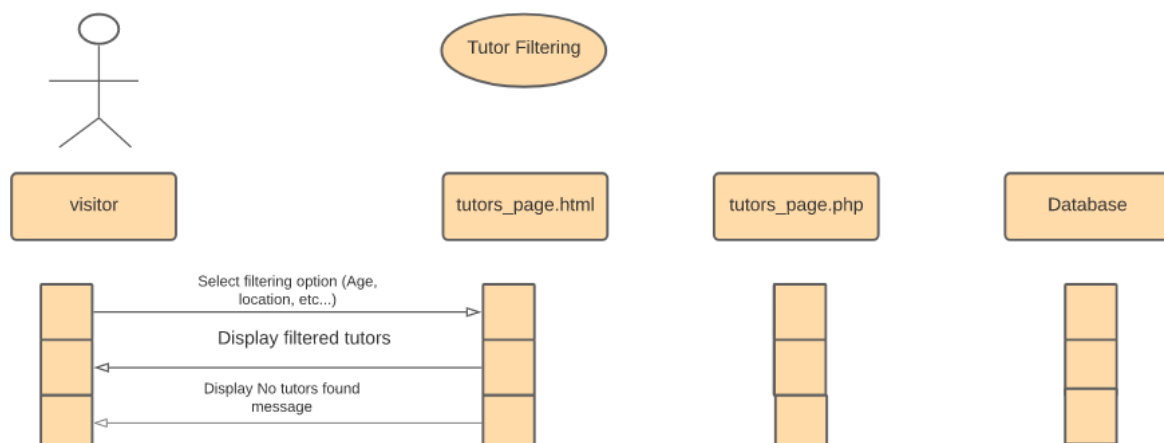
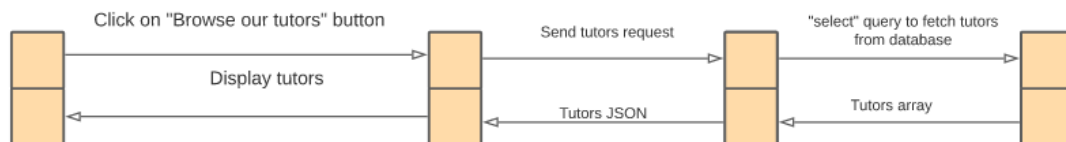
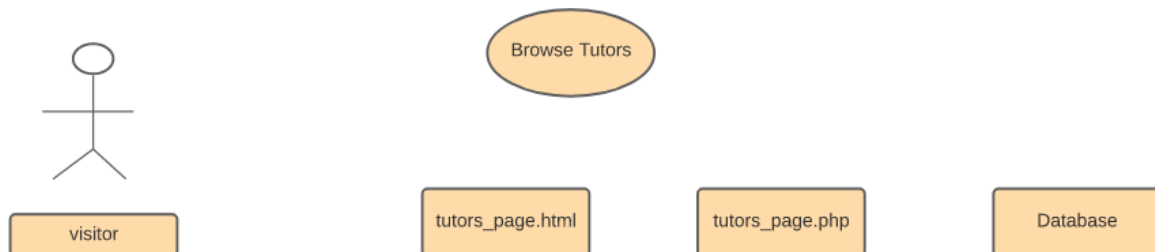
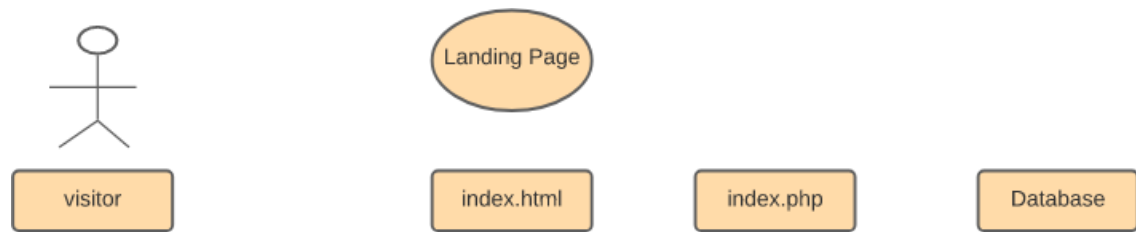


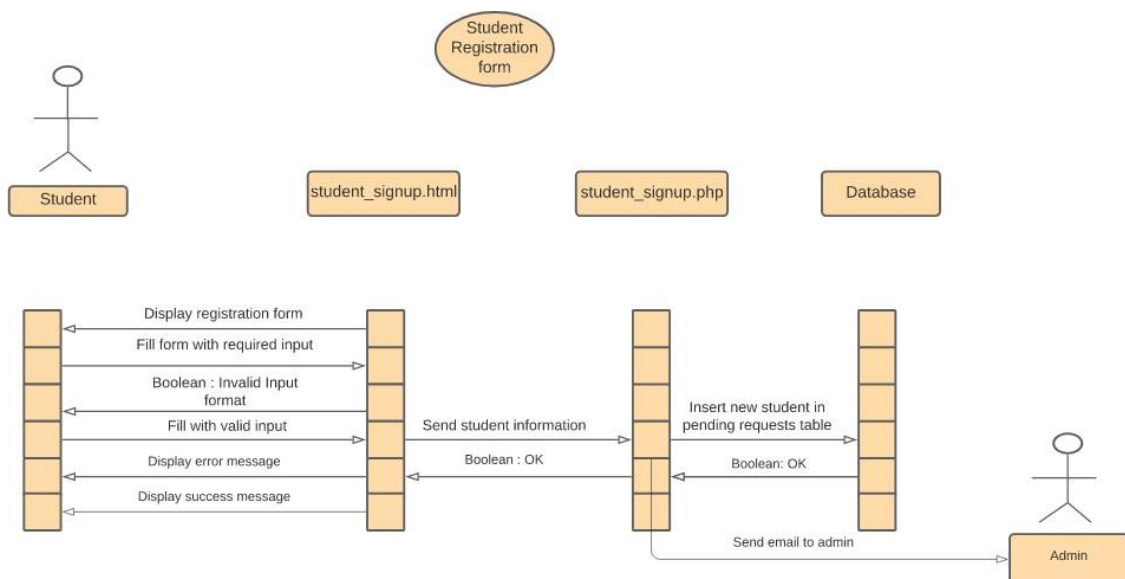
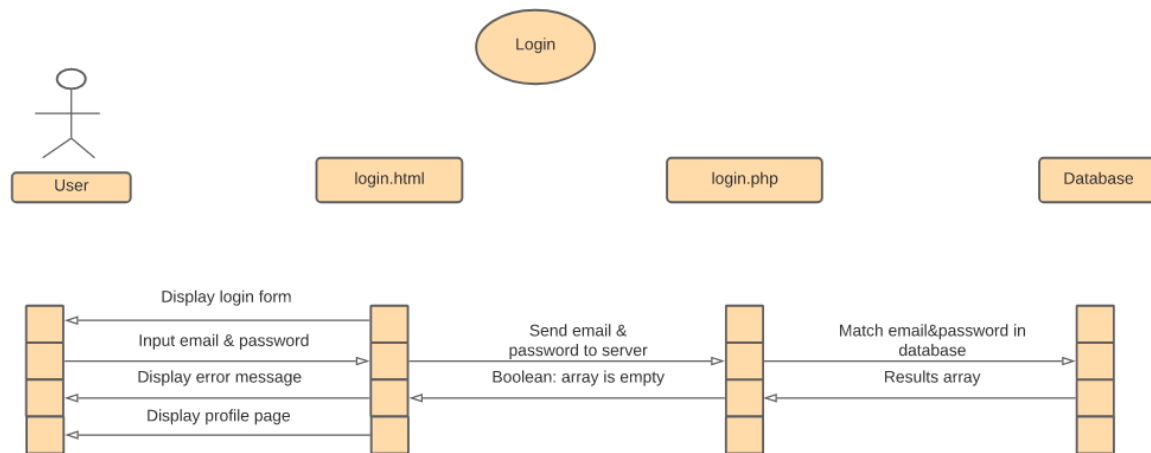
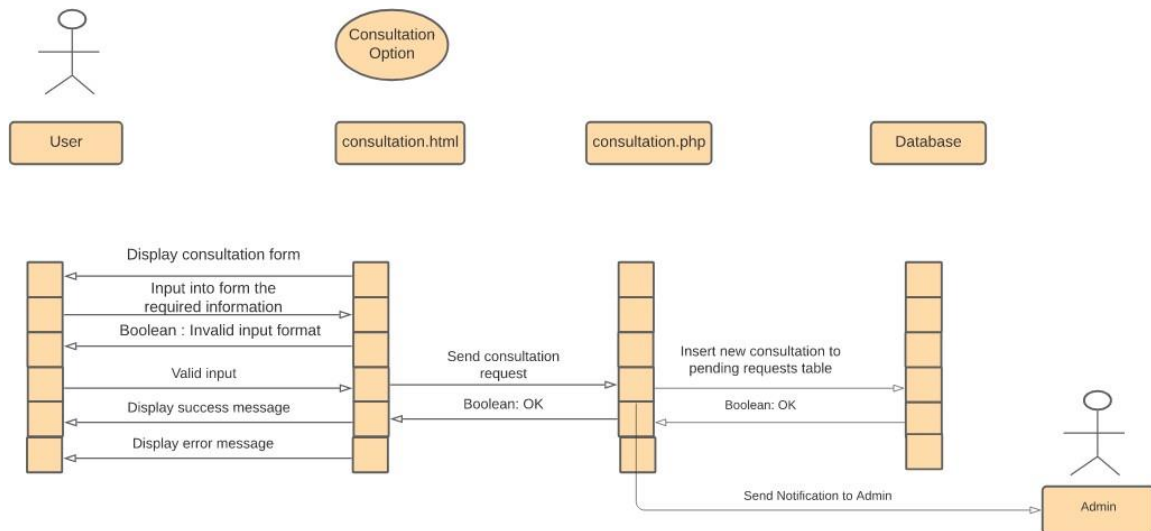


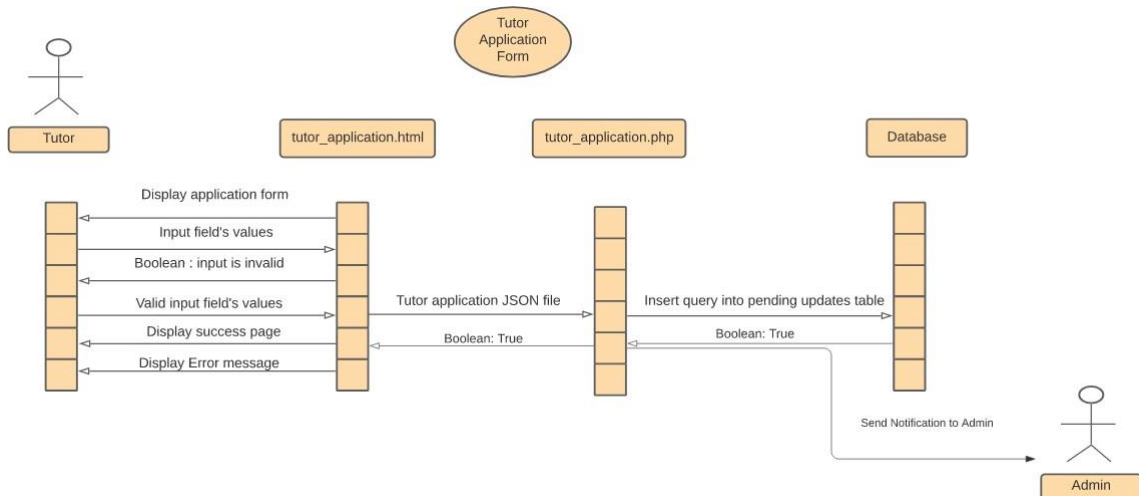
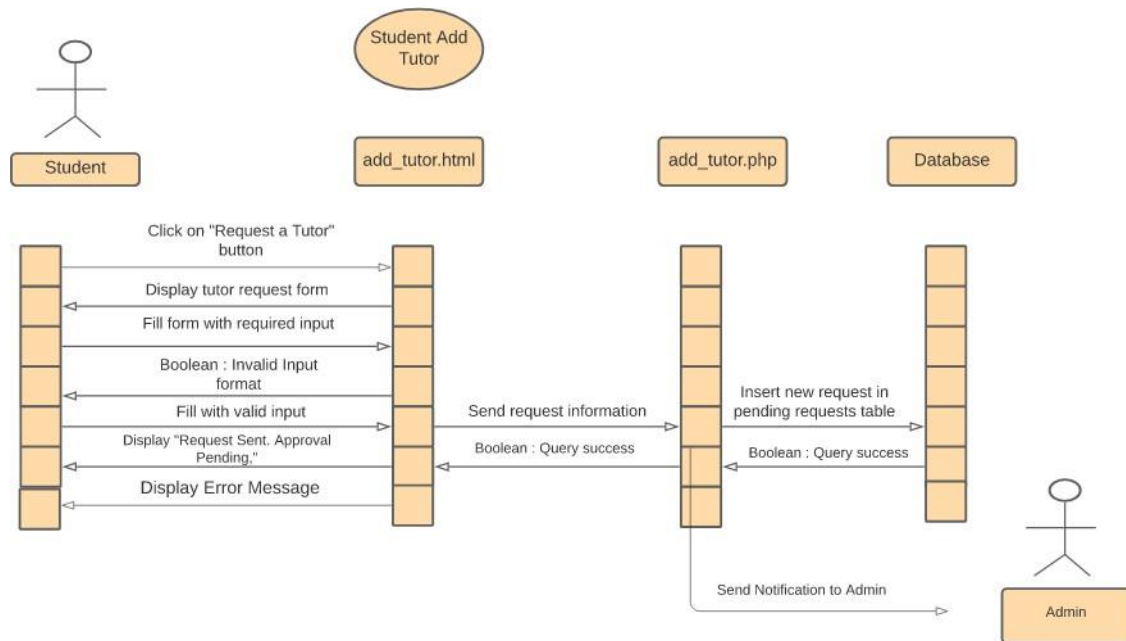
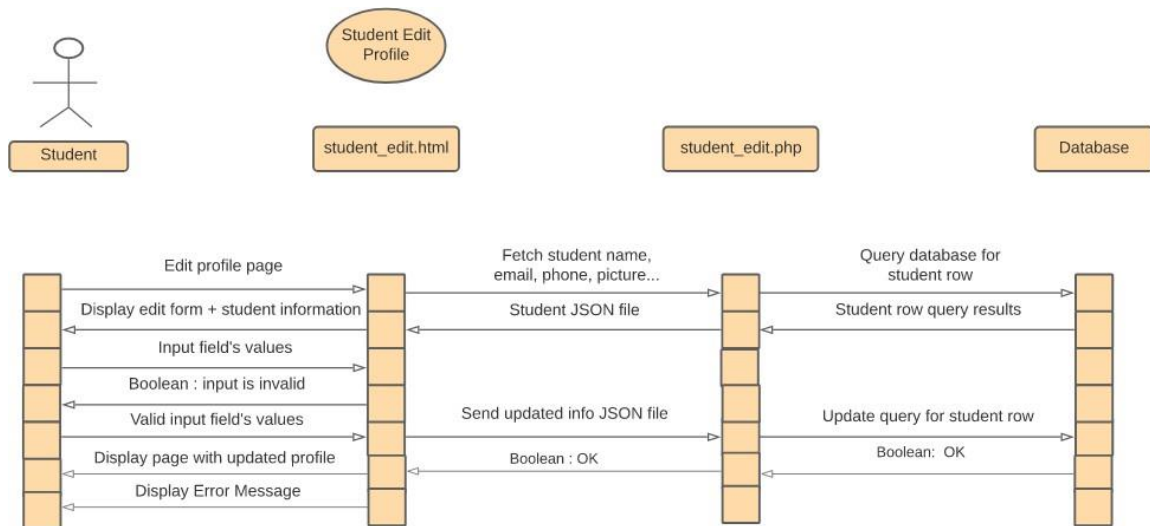


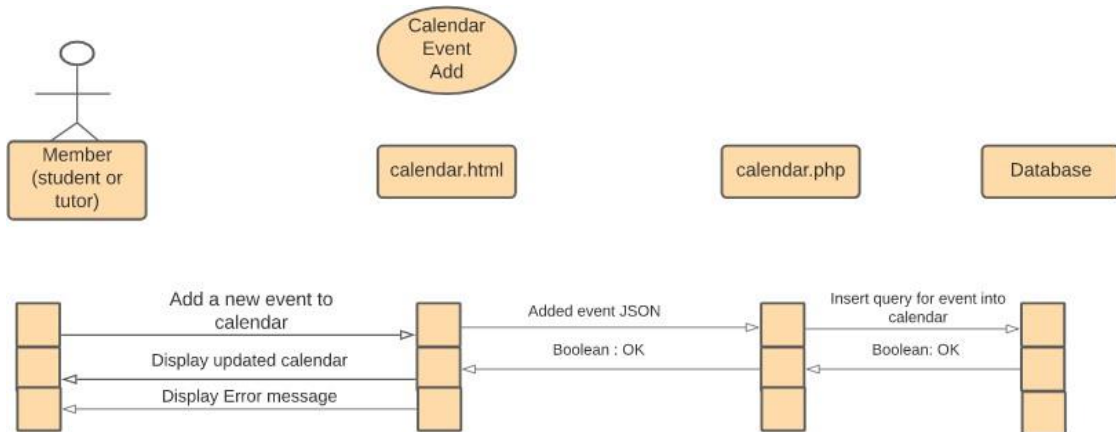
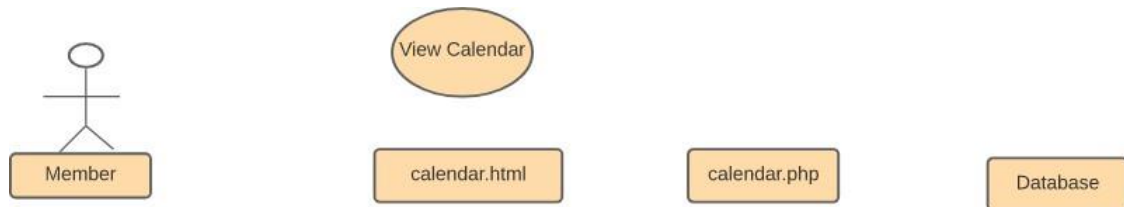
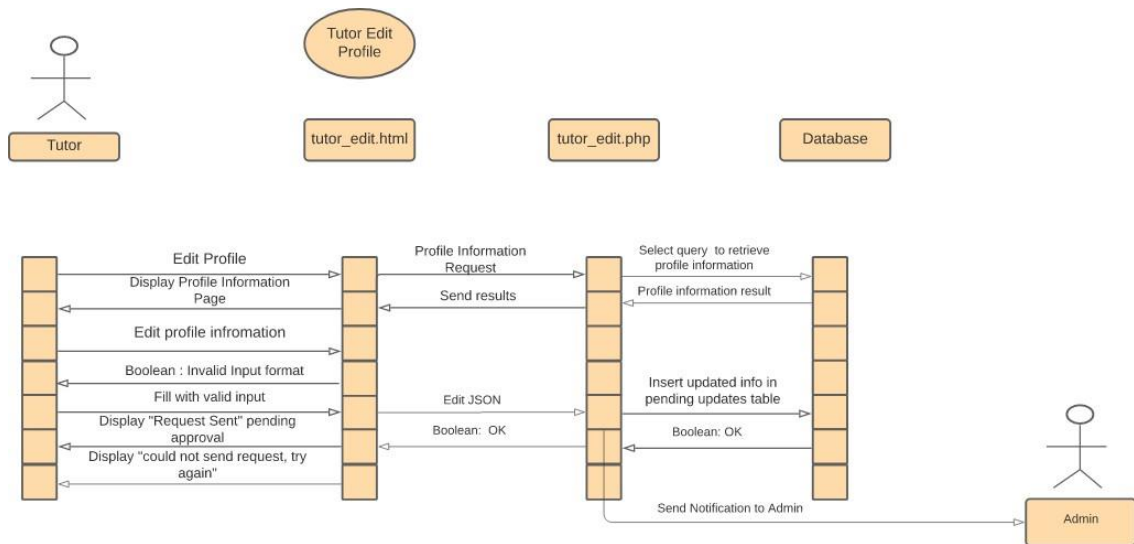


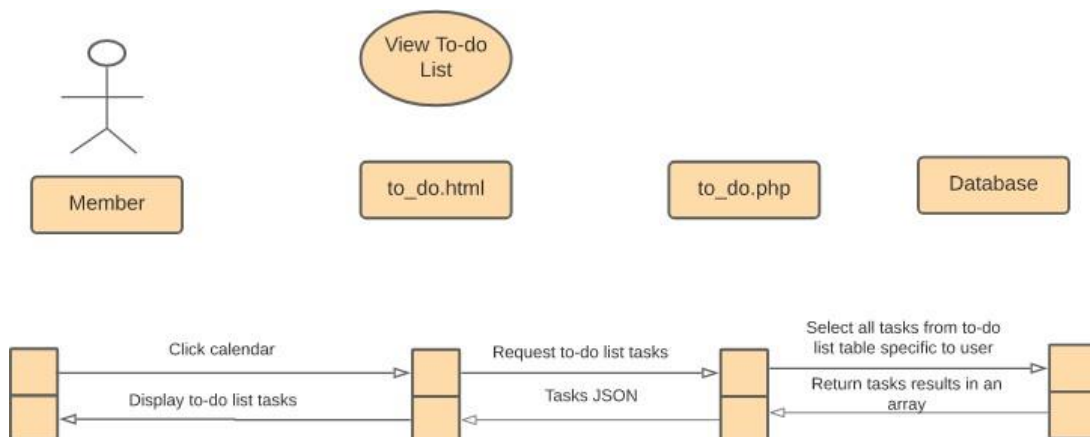
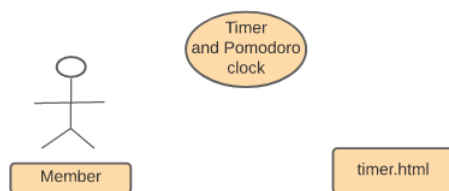
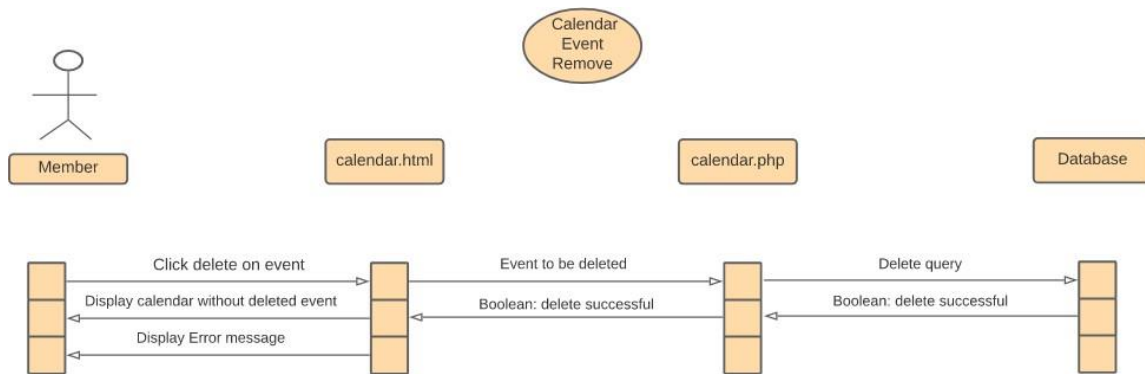
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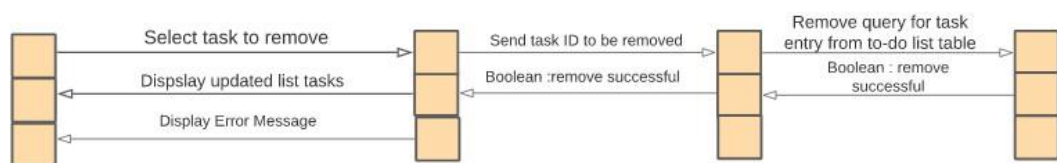
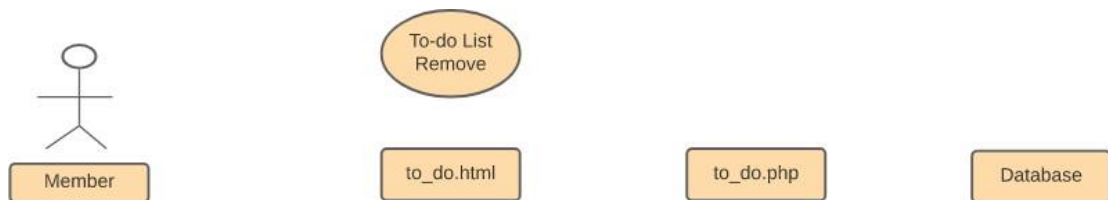
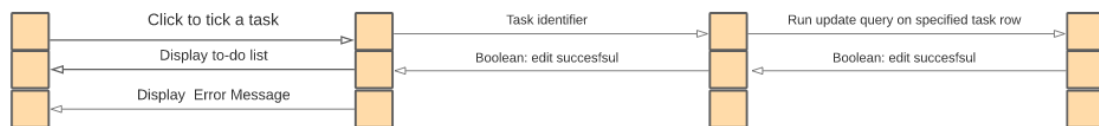
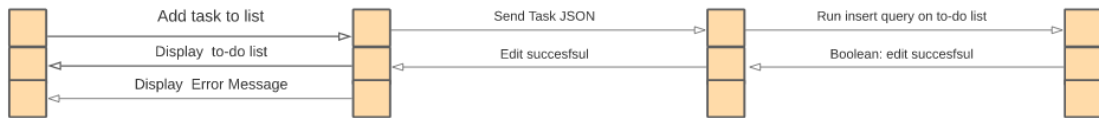


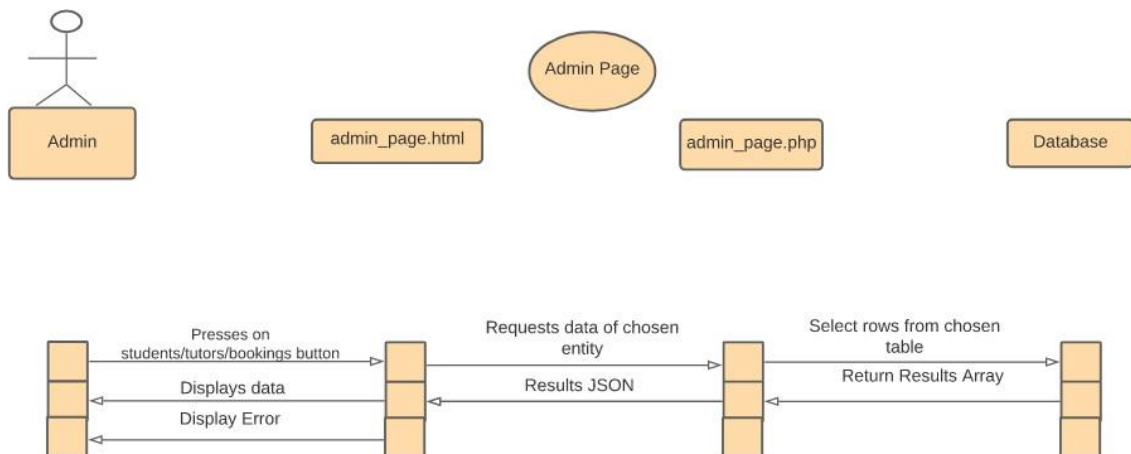
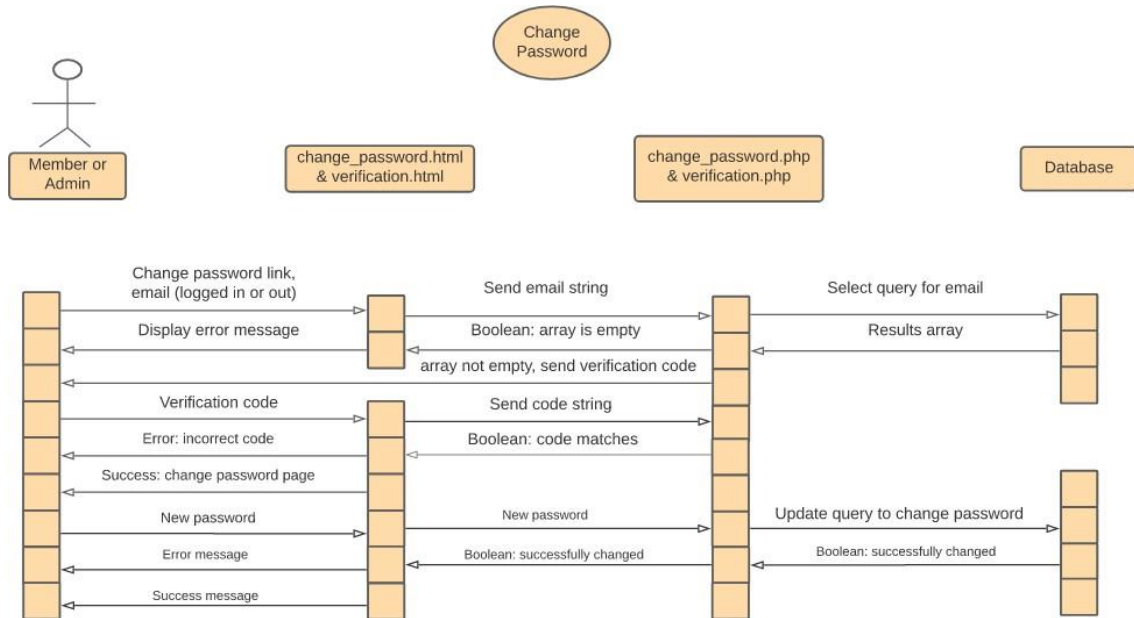
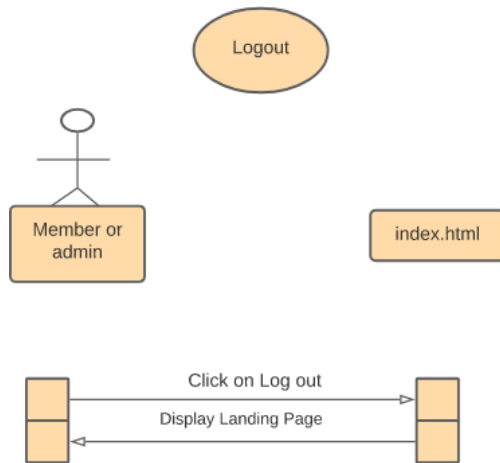


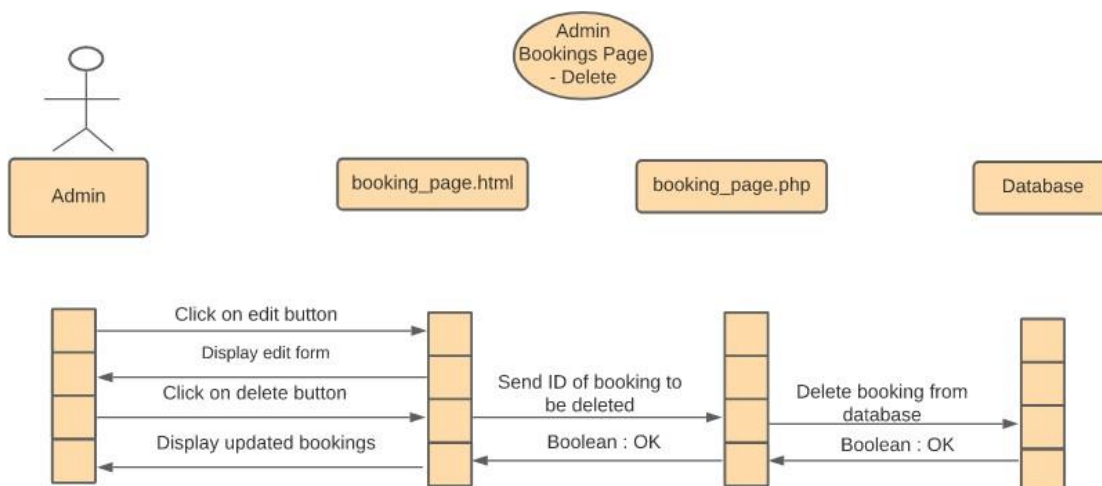
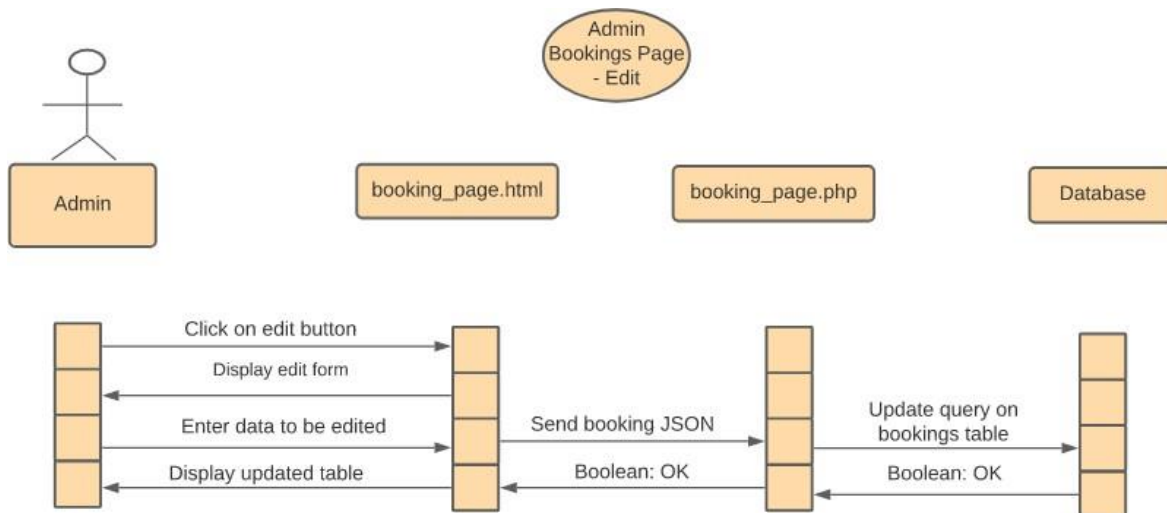
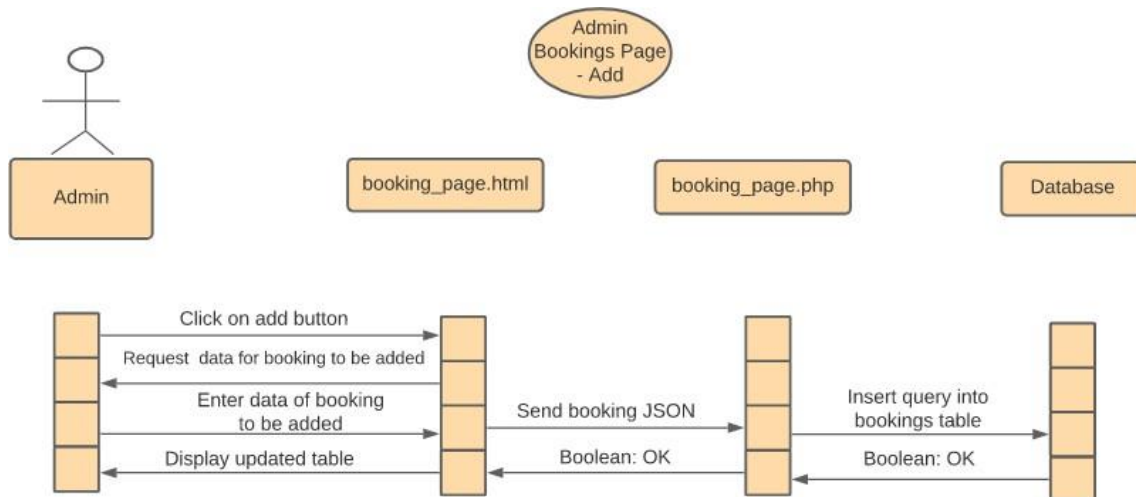


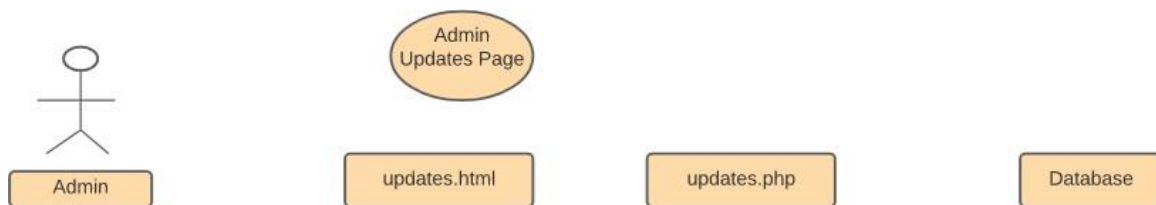
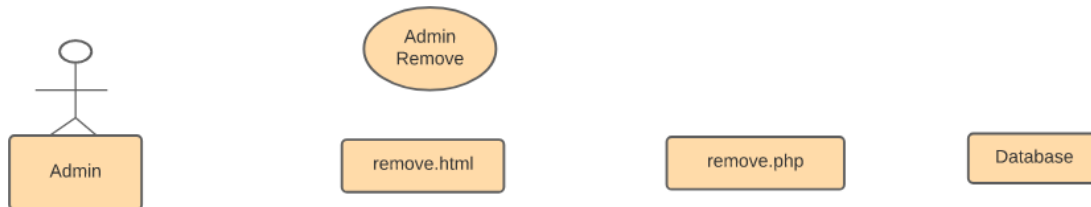
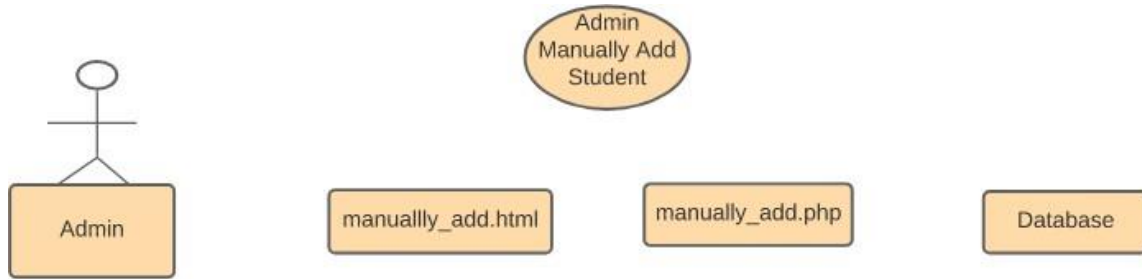


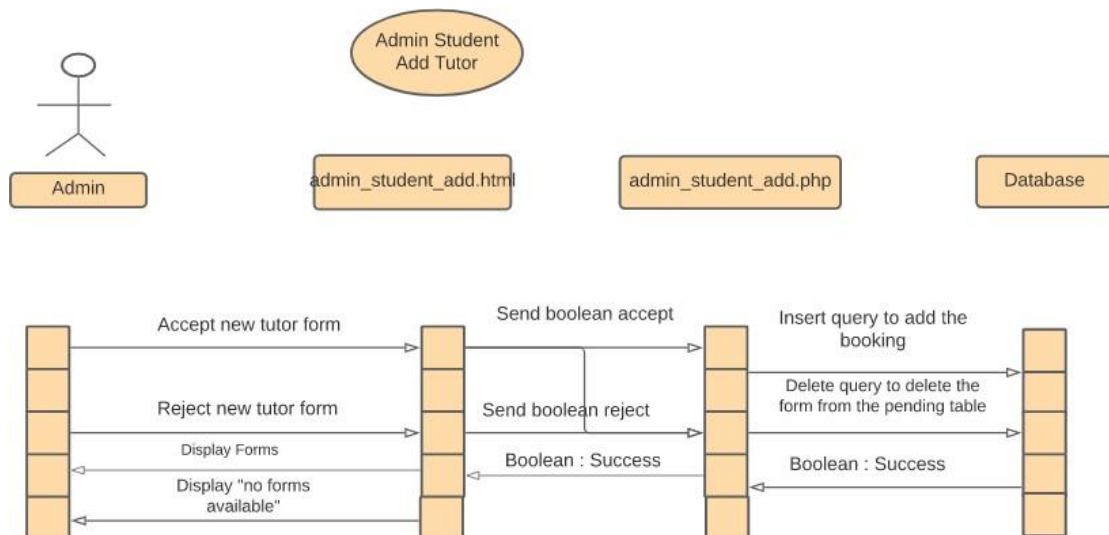
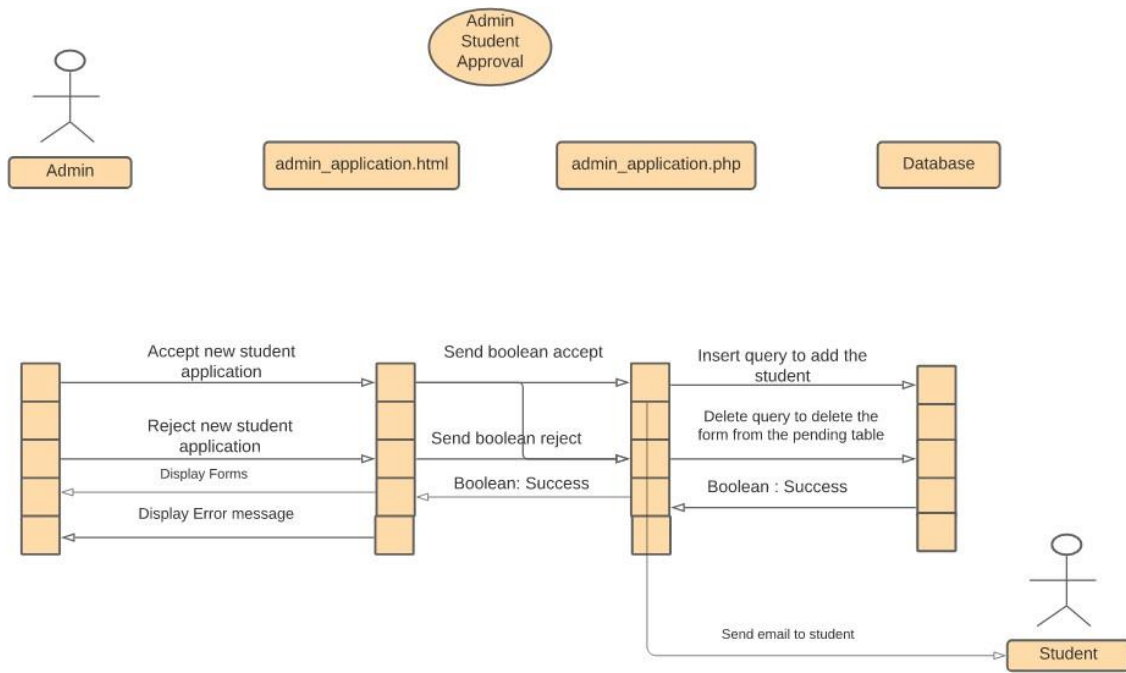


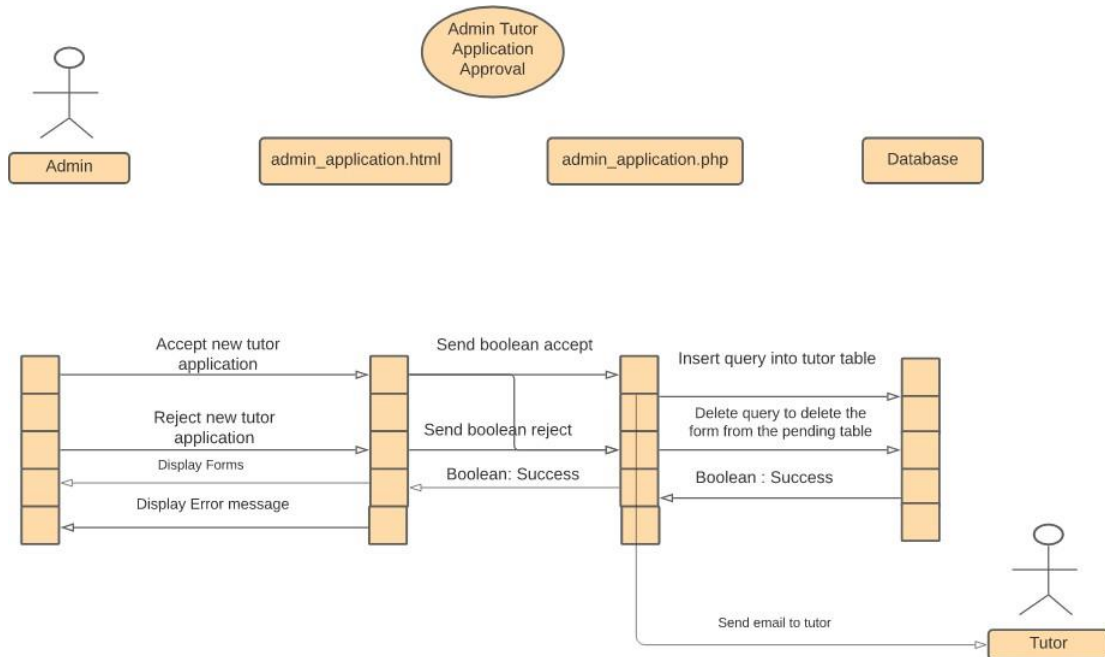
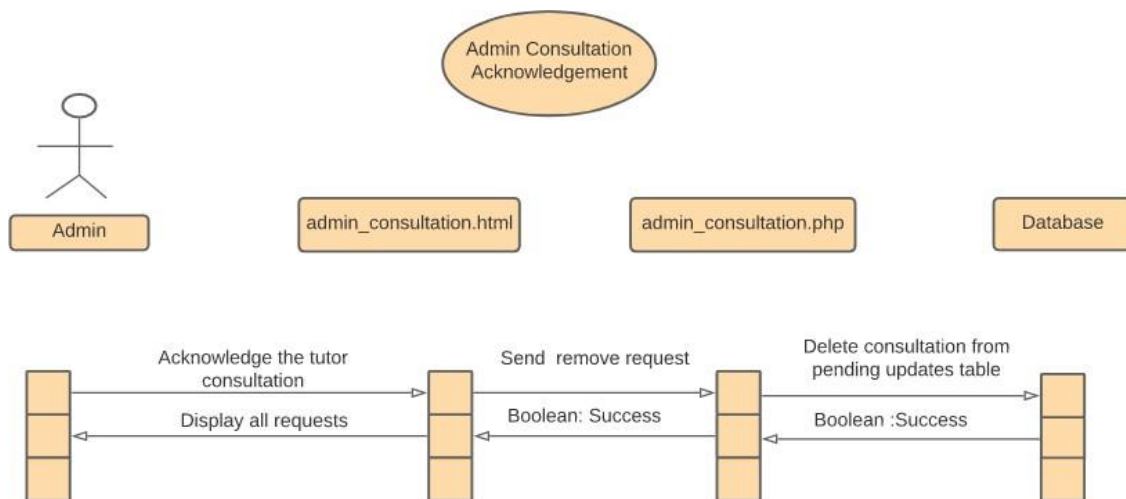


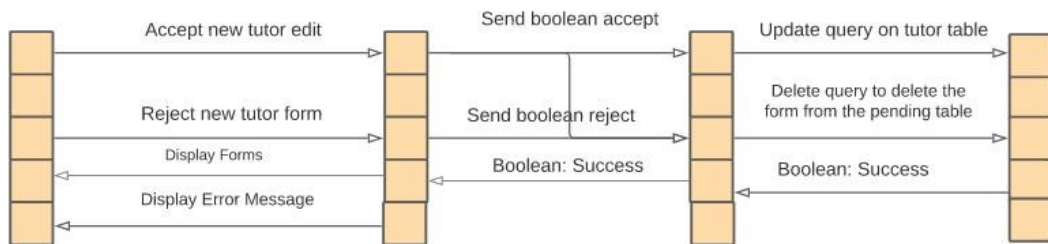
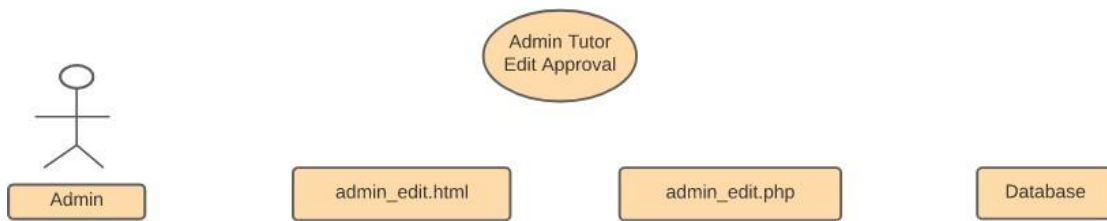






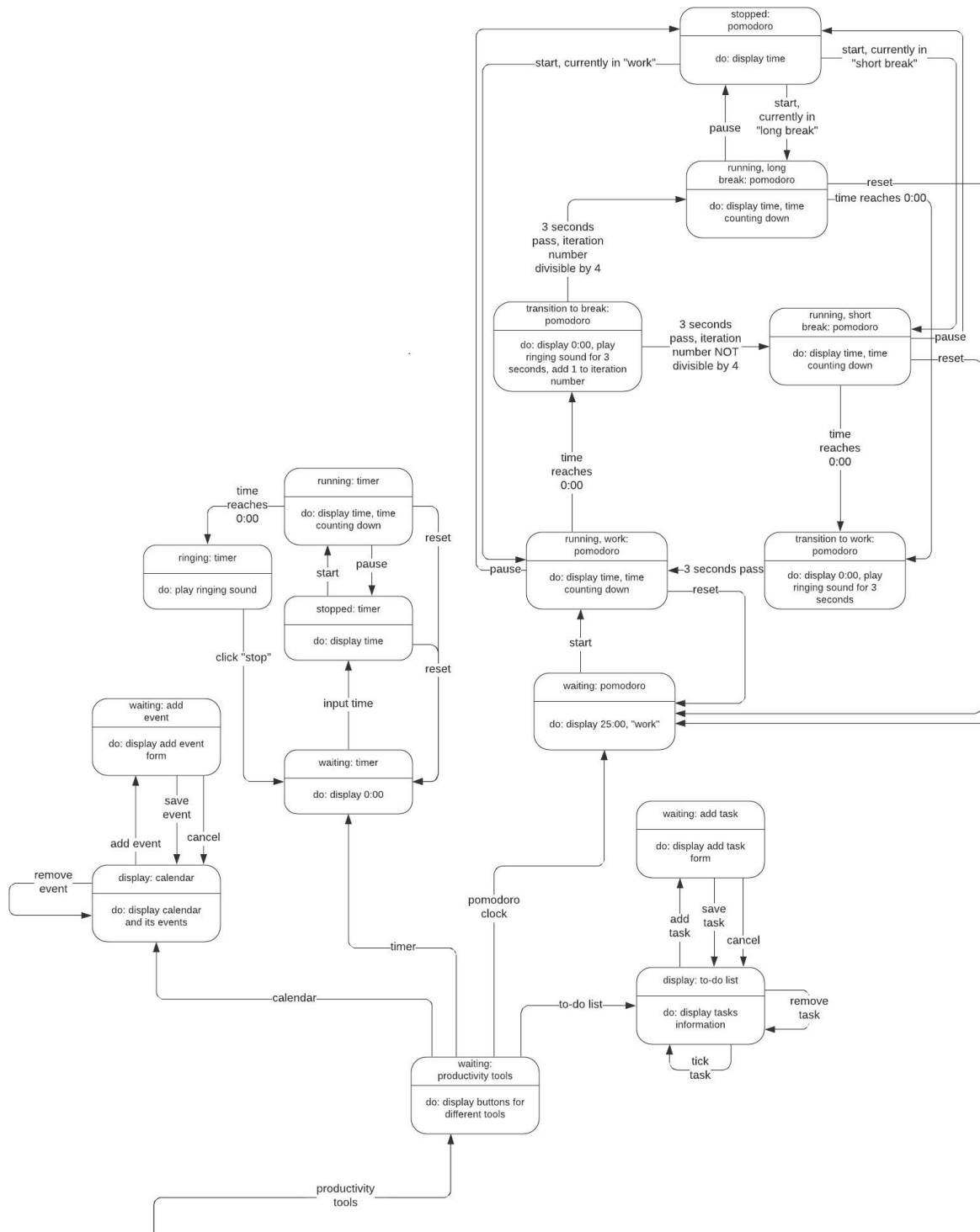






8.3 Stimulus Response

8.3.1 Stimulus Response Diagram



8.3.2 State Description

State	Description
Display: landing page	Display the website' landing page upon visiting the website. Contains several descriptions of "Teachers" and links/buttons to other parts of the website. Also accessible from the navbar.
Waiting: student signup	The website is displaying the student sign up form and waiting for user input and submit.
Display: successful signup	The website displays a success message after the signup form is successfully submitted and sends an email notification to the admin.
Waiting: tutor application	The website is displaying the tutor application up form and waiting for user input and submit.
Display: successful application	The website displays a success message after the application form is successfully submitted and sends an email notification to the admin.
Waiting: consultation	The website is displaying the consultation form and waiting for user input and submit.
Display: successful consultation	The website displays a success message after the consultation form is successfully submitted and sends an email notification to the admin.
Display: tutors	The website is currently on the landing page and is displaying the tutor cards according to the specified filters.
Waiting: login page	The website is displaying the login form and waiting for user input and submit.
Display: student profile	The website is displaying the logged in student's profile information and links to other parts of the website accessible by the student.
Waiting: student add tutor	The website is displaying the add tutor form for the student and waiting for user input and submit.
Display: successful student add tutor	The website displays a success message after the student add tutor form is successfully submitted and sends an email notification to the admin.
Waiting: student edit	The website is displaying the add tutor form for the student and waiting for user input and submit.
Display: student edit	The website displays a success message after the student

success	successfully edits their profile.
Display: tutor profile	The website is displaying the logged in tutor's profile information and links to other parts of the website accessible by the tutor.
Waiting: tutor edit	The website is displaying the tutor edit form for the tutor and waiting for user input and submit.
Display: tutor edit success	The website displays a success message after the tutor edit form is successfully submitted and sends an email notification to the admin.
Waiting: productivity tools	The website displays the productivity tools page with links to each tool (calendar, timer, pomodoro clock, to-do list) and is waiting for the user to click one of them
Display: calendar	The website displays the calendar along with the member's added events.
Waiting: add event	The website displays the add event form and waits for the user to add event data.
Waiting: timer	The initial state of the timer. The time is set to 0:00 and is stopped (does not count down).
Stopped: timer	The timer is stopped and retains its current time without resetting to 0. The timer does not count down and displays the current time.
Running: timer	The timer is running and is counting down. The timer displays its value and updates the time remaining at every second.
Ringling: timer	The timer has finished counting down to 0:00 and is playing a ringing sound. The timer is waiting for the user to click "stop"
Waiting: pomodoro	The initial state of the clock. The time is set to 0:00 and is stopped (does not count down).
Running, work: pomodoro	The clock is running in work mode (25 minutes) and is counting down. The clock displays its value and updates the time remaining at every second.
Transition to break: pomodoro	Lasts 3 seconds, is triggered after work time runs out. The clock is stopped and displays 0:00 and a ringing sound is played for 3 seconds. Iteration number is incremented by 1.
Running, long break: pomodoro	The clock is running in long break mode (30 minutes) and is counting down. The clock displays its value and updates the time remaining at every second.
Running, short break: pomodoro	The clock is running in short break mode (5 minutes) and is counting down. The clock displays its value and updates the time remaining at every second.

Transition to break: pomodoro	Lasts 3 seconds, is triggered after long or short break time runs out. The clock is stopped and displays 0:00 and a ringing sound is played for 3 seconds.
Stopped: pomodoro	The clock is stopped and retains its current time without resetting to 0. The clock does not count down and displays the current time.
Display: to-do list	The website is displaying the to-do list as well as the user's added tasks.
Waiting: add task	The website is displaying the to-do list add task form and is waiting for user input.
Waiting: verification	The website has sent a verification code to the user by email and is currently displaying the verification page. The website is waiting for the user to input the verification code.
Waiting: change password	The website is displaying the change password page after the user has entered the verification code. The website is waiting for the user to enter a new password.
Waiting: expired	The website is displaying the "code expired" message after more than 10 minutes have passed from the start of the change password process. The website is waiting for the user to click on the resend link to receive another verification code.
Display: successfully changed	The website is displaying a success message after the password is successfully changed. The website logs out any logged in user.
Waiting: admin page	The website is displaying the admin page, and links to the students, tutors, and bookings tables. The page also displays links to other parts of the website accessible to the admin. The website is waiting for the admin to click on one of the links.
Display: students table	The website is displaying the students table along with student information.
Waiting: add student	The website is displaying the add student form to the admin and waiting for admin input and submit.
Display: tutors table	The website is displaying the tutors table along with tutor information.
Display: bookings table	The website is displaying the bookings table along with tutor information.
Waiting: add booking	The website is displaying the add booking form to the admin and waiting for admin input and submit.
Waiting: modify/delete booking	The website is displaying the add booking form to the admin and waiting for admin input and submit (submit changes or delete).

Waiting: remove	The website is displaying the remove form to the admin and waiting for admin input and submit.
Display: successful remove	The website is displaying a success message after the password is successfully changed. The website logs out any logged in user.
Waiting: updates	The website is displaying the pending updates sent to the admin by students and tutors. The website is waiting for the admin to click one of the form updates.
Waiting: student signup update	The website is displaying the student signup form that was accessed from the admin updates page. The website is waiting for the admin to accept or reject the form.
Waiting: student add tutor update	The website is displaying the student add tutor form that was accessed from the admin updates page. The website is waiting for the admin to accept or reject the form.
Waiting: consultation update	The website is displaying the consultation form that was accessed from the admin updates page. The website is waiting for the admin to acknowledge the form.
Waiting: tutor application update	The website is displaying the tutor application form that was accessed from the admin updates page. The website is waiting for the admin to accept or reject the form.
Waiting: tutor edit update	The website is displaying the tutor edit form that was accessed from the admin updates page. The website is waiting for the admin to accept or reject the form.

8.3.3 Stimuli

Stimulus	Description
Become a tutor	The user clicks on the “become a tutor” button to be taken to the tutor application page.
Become a student	The user clicks on the “become a student” button to be taken to the student registration page.
Missing/invalid information + submit	The user attempts to submit a form to the admin that contains invalid data or has one or more required fields empty.
Full valid information + submit	The user submits a form to the admin that contains fully valid data and has all the required fields filled in.
Return	The user clicks on the return button to be redirected to the initial page after successfully submitting a form.
Request free consultation	The user clicks on the “get a free consultation” link to be taken to the consultation form page.
Browse our tutors	The user clicks on the “browse our tutors” link or button to be taken to the browse tutors page.
Add filter	The user adds a filter on the tutors page to display tutors meeting those criteria.
Clear filters	The user removes all the filters on the tutors page to display all the unfiltered available tutors.
Login	The user clicks on the login link from the landing page to be taken to the login page.
Incorrect credentials	The user attempts to log in with incorrect credentials on the login page.
Forgot password	The user clicks on the “forgot password” link on the login page below the login form.
Correct student credentials	The user logs in with the email of an existing student account and the correct password for that account.
Correct tutor credentials	The user logs in with the email of an existing tutor account and the correct password for that account.
Correct admin credentials	The user logs in with the email of the admin account and the correct password for that account.
Logout	The logged in student, tutor, or admin clicks on the logout button to no longer be logged in on this device. Accessible from anywhere on

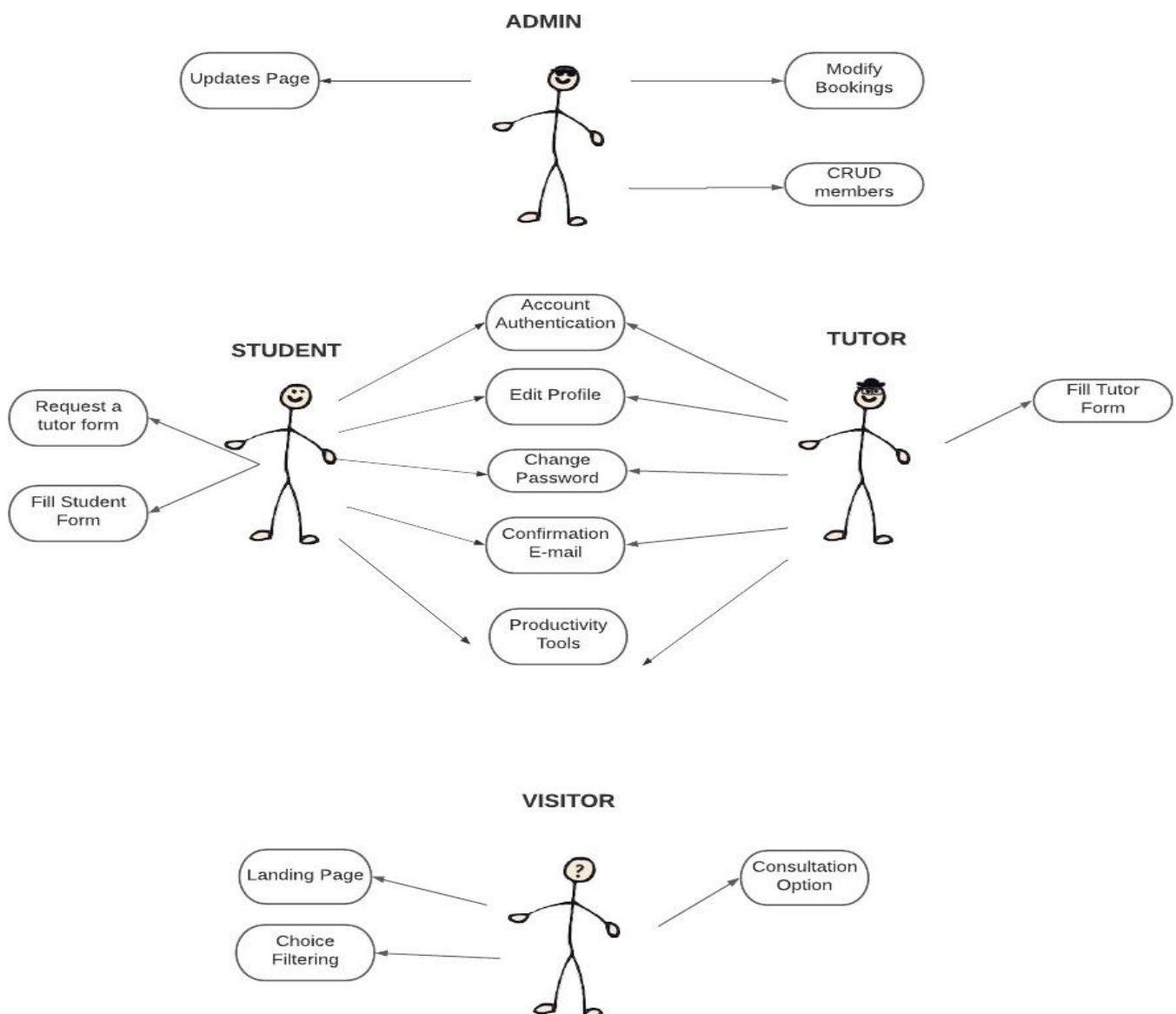
	the website.
Request new tutor	The student clicks on the “request a new tutor” link to be taken to the add tutor form.
Student edit profile	The student clicks on the “edit profile” link to be taken to the edit profile form.
Tutor edit profile	The tutor clicks on the “edit profile” link to be taken to the edit profile form.
Productivity tools	The student or tutor clicks on the “productivity tools” link on their profile to be taken to the productivity tools page.
Change password	The student, tutor, or admin clicks on the “change password” link on their profile.
Missing/invalid information + save	The user attempts to save a form that contains invalid data or has one or more required fields empty.
Full valid information + save	The user submits a form save a form that contains fully valid data and has all the required fields filled in.
Cancel	The user exits out of the current form without saving changes and is redirected to the initial page.
Calendar	The logged in student or tutor clicks on the calendar button on the productivity tools page.
Timer	The logged in student or tutor clicks on the timer button on the productivity tools page.
Pomodoro Clock	The logged in student or tutor clicks on the pomodoro clock button on the productivity tools page.
To-do List	The logged in student or tutor clicks on the to-do list button on the productivity tools page.
Add event	The student or tutor clicks on the add event button on the calendar to view the add event form.
Save event	The student or tutor clicks save on the add event form to attempt to submit changes to the calendar.
Remove event	The student or tutor clicks save on the remove button on an event on the calendar.
Input time	The student or tutor inputs the initial time which the timer will start counting down from.
Start	The student or tutor starts the timer or pomodoro clock.
Pause	The student or tutor pauses the timer or pomodoro clock.

Reset	The student or tutor resets the timer or pomodoro clock to pause it at a time of 0:00.
Time reaches 0:00	The timer or pomodoro clock finishes running and reaching a time of 0:00.
Click “stop”	The student or tutor clicks “stop” after the alarm has reached 0:00 and is currently playing a ringing sound.
Start, currently in “work”	The pomodoro clock starts counting down from 25:00.
Start, currently in “long break”	The pomodoro clock starts counting down from 30:00.
Start, currently in “short break”	The pomodoro clock starts counting down from 5:00.
3 seconds pass	A 3 second break between different pomodoro clock modes.
3 seconds pass, iteration number divisible by 4	A 3 second break between different pomodoro clock modes while checking the iteration number to proceed to a long break.
3 seconds pass, iteration number NOT divisible by 4	A 3 second break between different pomodoro clock modes while checking the iteration number to proceed to a short break.
Add task	The student or tutor clicks on the add task button on the to-do list to view the add task form.
Save task	The student or tutor clicks save on the add task form to attempt to submit changes to the to-do list.
Tick task	The student or tutor clicks save on the remove button on an event on the to-do list.
Remove task	The student or tutor clicks save on the remove button on a task on the to-do list.
Students	The admin clicks the students button to be taken to the students page.
Tutors	The admin clicks the tutors button to be taken to the tutors page.
Bookings	The admin clicks the bookings button to be taken to the bookings page.
Updates	The admin clicks the updates link to be taken to the updates page.
Remove	The admin clicks the remove link to be taken to the remove form.
Add student	The admin clicks the add student button while viewing the students page

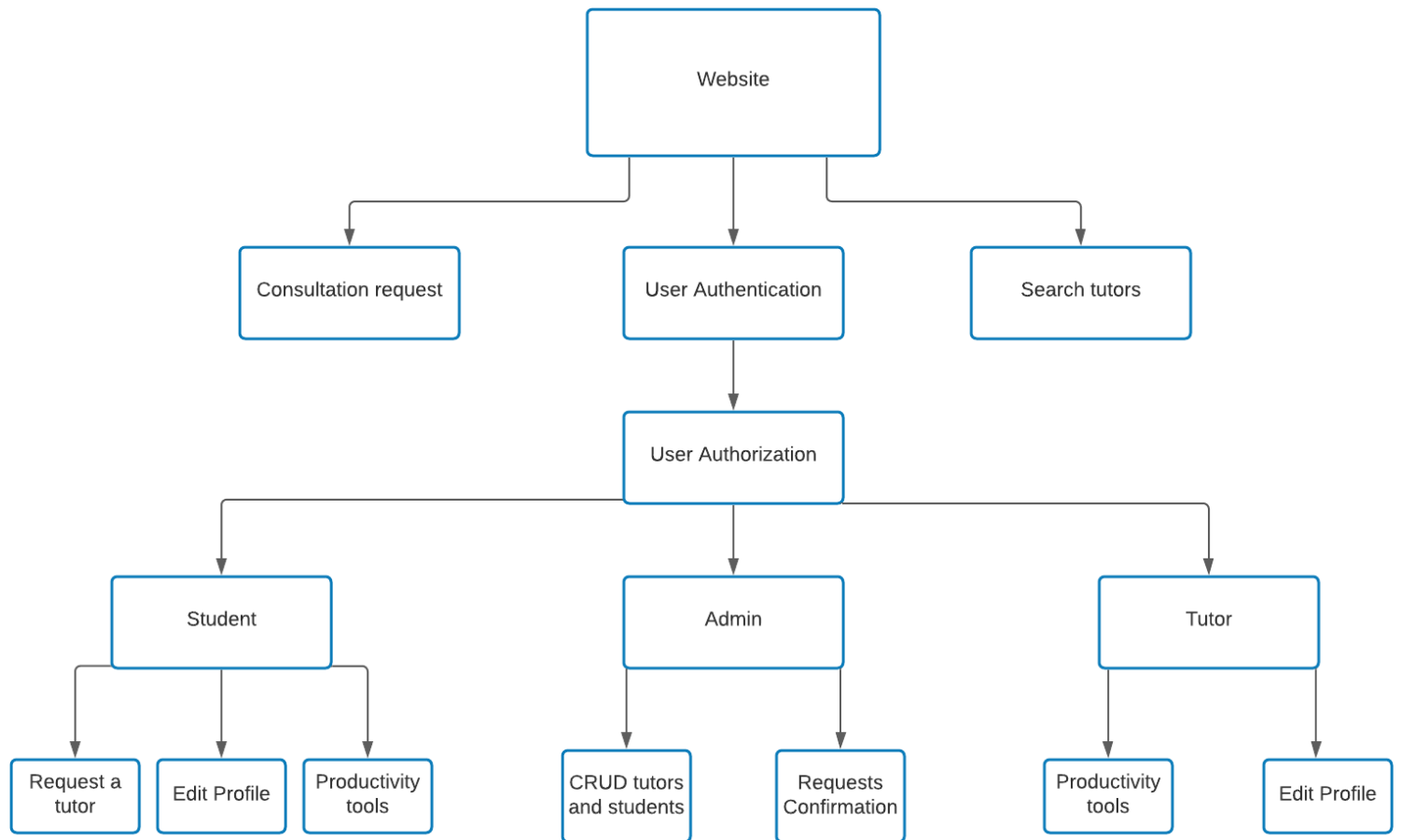
Add booking	The admin clicks the add booking button while viewing the bookings page
Click booking	The admin clicks on a certain booking on the bookings page to open the edit/delete form for that booking
Incorrect member information	The admin attempts to submit the remove form with incorrect information about the member to be deleted
Correct member information	The admin submits the remove form with fully correct information about the member to be deleted
Student signup update	The admin clicks on a student signup form on the updates page
Student add tutor update	The admin clicks on a student add tutor form on the updates page
Consultation update	The admin clicks on a consultation form on the updates page
Tutor application update	The admin clicks on a tutor form on the updates page
Tutor edit update	The admin clicks on a tutor edit form on the updates page
Accept or reject	The admin clicks either “accept” or “reject” on a student signup form, student add tutor form, tutor application form, or tutor edit form that he is currently viewing.
Acknowledge	The admin clicks “acknowledge” on a consultation form that he is currently viewing.
Incorrect code	The user enters an incorrect verification code on the verification page.
Correct code	The user enters a correct verification code on the verification page.
Code expires	The user attempts to submit on the verification page or the change password page after more than 10 minutes have passed from the time the verification code was sent to the user by email.
Click “resend”	The user clicks on the “resend code” button after the verification code expires.
Invalid password	The user attempts to submit on the change password page with a new password that is empty, invalid, or does not meet the password requirements.
Valid password	The user attempts to submit on the change password page with a new password that is valid and meets the password requirements.

8.4 Use Cases

Use Cases Diagram



9. System Architecture



10. Signature Sheet

Name	Task	Signature
Yara Chahine	<ul style="list-style-type: none"> -Project Proposal -Introduction -User Requirements Functional -System Requirements -Scenarios -System Architecture -First Set of Sequence Diagrams -Second Set of Sequence Diagrams 	
Reem Zubdeh	<ul style="list-style-type: none"> -Project Proposal -Project Planning -User Requirements Functional -System Requirements -Scenarios -Glossary -Stimulus Response -First Set of Sequence Diagrams -Second Set of Sequence Diagrams 	
Sarah Abdallah	<ul style="list-style-type: none"> -Project Proposal -User Requirements Functional -System Requirements -Scenarios -Use Cases -First Set of Sequence Diagrams -Second Set of Sequence Diagrams 	
Ali Knayber	<ul style="list-style-type: none"> -Project Proposal -Risk Management -User Requirements Functional -User Requirements Non-Functional -System Requirements -Scenarios -Preface -First Set of Sequence Diagrams -Second Set of Sequence Diagrams -Conclusion 	

11. Conclusion

In conclusion, our team managed to translate our client's requirements in the best possible way. This document was written in a way to cover all the necessary parts of the project and give a clear overview to the development team in implementing it. This website will help our client, "Teachers", run their business in a smoother way, while also limiting human errors due to the fact that the database will directly be saving the data received from the tutors and students. Furthermore, it's the best way to promote a startup.

We divided the users of this system into four main user types: visitor, student, tutor and admin. It is important for the development team to differentiate between them, as each user has specific requirements and privileges. Our project will consist of a website linked to a database, which includes continued communication between the two of them. Thus, it is important that the development team focuses on the security and the continuous availability of both the website and the database. This ensures that the system will not stop working or lose data at any time.