VIT®

Vellore Institute of Technology

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Tutor Spot

J Component Report

Course Code: CSE1901

Technical Answers For Real World Problems

Submitted in partial fulfilment for the award of the degree of

Bachelor of Technology

in

Computer Science and Engineering

Under the guidance of

Prof. Senthilnathan P

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DECLARATION

I hereby declare that the report entitled "**TutorSpot**" submitted by our team, for the CSE1901 Technical Answers For Real World Problems (EPJ) to Vellore Institute of Technology is a record of bonafide work carried out by our team under the supervision of **Prof Senthilnathan P.**

We further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for any other courses in this institute or any other institute or university.

Place: Vellore
Date: 13-04-2023

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Signature of the Candidate

Acknowledgement

We would like to thank the Computer Science Department for giving us the opportunity to work on this project. This was quite a great experience, and we learned a lot from it. It helped us explore our skills and increased our interest in this domain.

Special thanks to our professor, Prof. Senthilnathan P sir for being so accommodating and generous and for his confidence in our abilities. He has guided us throughout the project and provided his insights.

TABLE OF CONTENTS

	Page No.
1. Acknowlegment	**3**
2. Table of Contents	**4**
3. Problem Statement	**5**
4. Project Outcome	**5**
5. Flow Diagram	**6**
6. Process Model Identification	**7**
7. Motivation	9
a. Technical Feasibility	9
b. Economical Feasibility	9
c. Social Feasibility	9
d. Environmental Feasibility	10
e. Political Feasibility	10
f. Demographic Feasibility	10
8. Requirements Gathering	**12**
a. Functional Requirements	12
b. Non-Functional Requirements	14
c. System Requirements	14
d. Functional Requirements	15
9. Work Breakdown Structures	**16**
10. Project Scheduling Charts	**18**
11. Literature Review	**20**
12. Block Diagram	**23**
13. Overview of Proposed Methodology	**24**
a. Class Diagram	25
b. ER Diagram	26
c. Data Flow Diagrams	26
d. Sequence Diagrams	31
e. Collaboration Diagrams	35
f. Use-Case Diagrams	38
14. User-Interface Design	**45**
15. Implementation	**63**
16. Testcase report with Unit Testing and Usability Testing	**91**
17. Conclusion and Future Scope	**106**
18. References	**106**
19. Poster	**107**

PROBLEM STATEMENT

Students sometimes face difficulty in understanding concepts and sometimes are too intimidated to clarify doubts by asking their faculties. At these times a tutor who belongs to their age group and has understood the concepts well would be handy. He/she would be able to teach the subject and clear doubts. This comes into use, particularly to underprivileged students for whom it is challenging to find faculties and also access good quality materials. They do not have a platform to gain knowledge which puts them on the back foot to developing in life.

This project provides a platform for the students to access verified materials and also seek knowledge from educated tutors who also belong to the same age group and thus helping remove any insecurities that the students may feel.

MOTIVATION

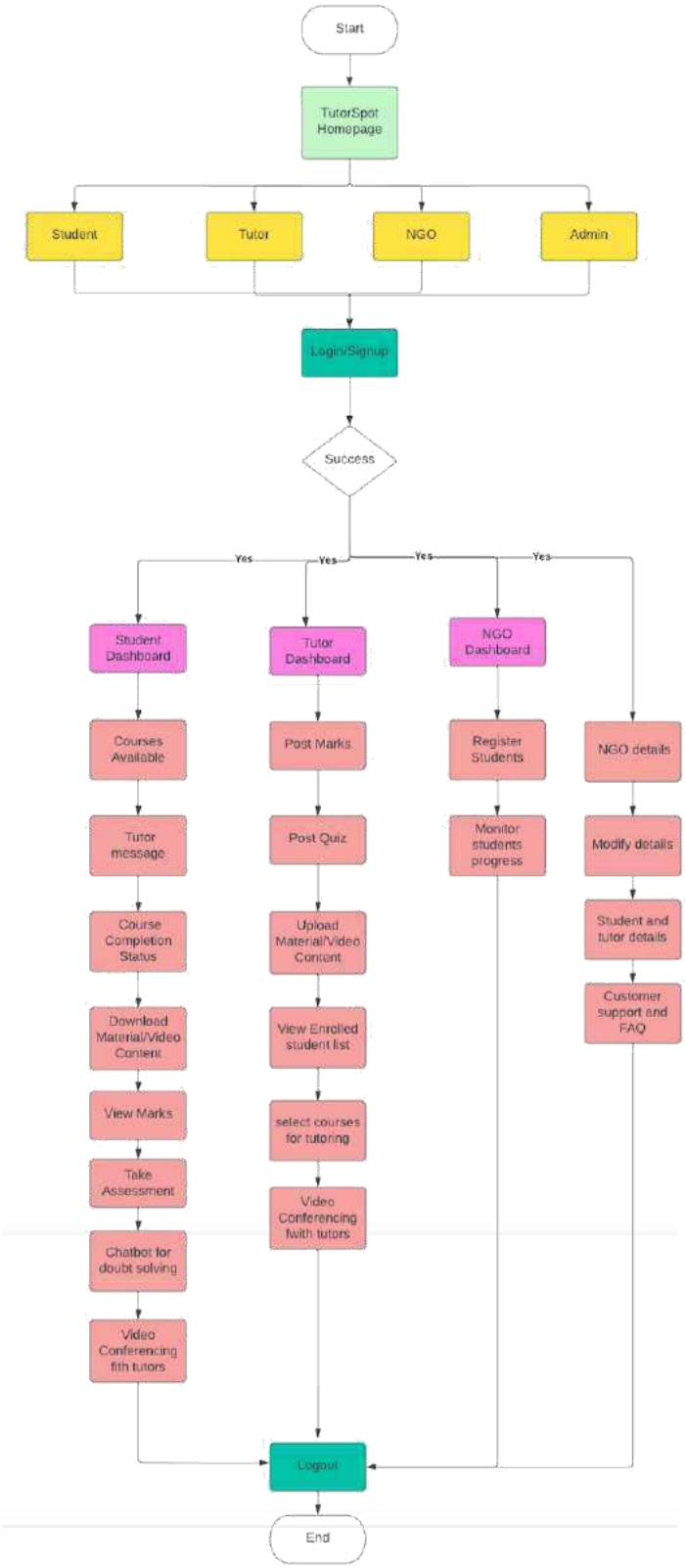
PROJECT OUTCOME: Product

We have proposed a web application in the form of a product which will be beneficial for students, especially those who cannot afford access to good quality education and resources.

With the help of this learning portal, we will be able to encourage community interaction.
Online education is more handy, convenient and well-organized.

Our portal will support the mix of academic and commercial capabilities needed to enable a learning paradigm.

FLOW DIAGRAM:



1. Problem statement

Students sometimes face difficulty in understanding concepts and sometimes are too intimidated to clarify doubts by asking their faculties. At these times a tutor who belongs to their age group and has understood the concepts well would come in handy. He/she would be able to teach the subject and also clear doubts if any. This comes into use, particularly to underprivileged students for whom it is really difficult to find faculties and also access good quality materials. They do not have a platform to gain knowledge which puts them on a backfoot to develop in life.

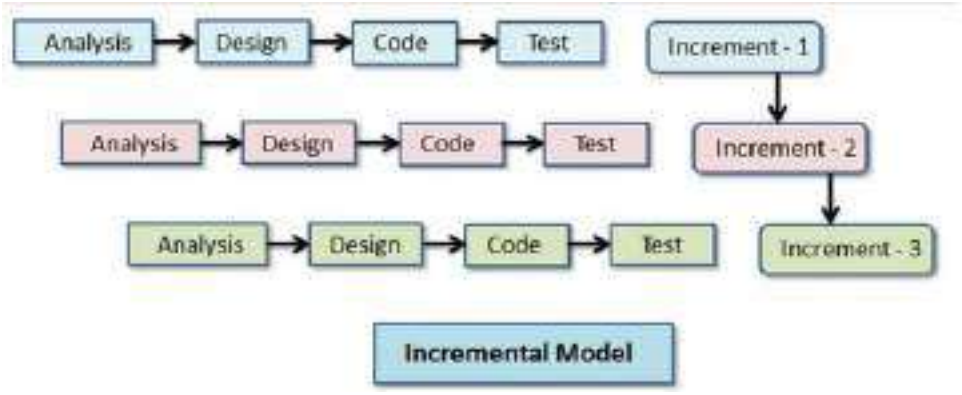
This project provides a platform for the students to access verified materials and also seek knowledge from educated tutors who also belong to the same age group and thus helping remove any insecurities that the students may feel.

2. Process Model Identification

The main model chosen for our application is the **Incremental SDLC model**.

Incremental Model is a process of software development where requirements are broken down into multiple standalone modules of software development cycle.

Incremental development is done in steps from analysis design, implementation, testing/verification, and maintenance.



Each iteration passes through the requirements, design, coding and testing phases. And each subsequent release of the system adds function to the previous release until all designed functionality has been implemented.

The system is put into production when the first increment is delivered. The first increment is often a core product where the basic requirements are addressed, and supplementary features are added in the next increments.

Once the core product is analyzed by the client, there is plan development for the next increment.

Why is this model the best fit for our project?

Reasons for choosing the incremental model:

1. Project requirements are well-defined and clearly understood by the team.
2. The project will not be completed in one shot, but it will be implemented in iterations. System development is broken down into many mini-development projects.
3. To start, a minimally functional system with only prioritized requirements and functions is created.
4. Then after that many consecutive iterations/ versions are implemented till the intended system is released.
5. Partial systems are successively built to produce a final total system.
6. Flexible and less costly and changes can be done throughout the development stages.
7. Errors can be easily identified and easy to test and debug.
8. Simple to manage risk because it is handled during its iteration.

3. Motivation

a. Technical feasibility

- *User Interface:* The website will utilize Html, CSS, JavaScript, and Bootstrap to display the user interface, which includes a navigation bar to access various categories and a search function to find tutors for specific courses. Users can also select study materials, and the scheduling page enables them to schedule sessions with available tutors.

- *Hardware Interface:* This software is designed to be platform-agnostic and can operate on any search engine. Its minimum hardware requirements include 4GB of RAM, 256GB of ROM, an Intel Core CPU with 1.09GHz speed, 1500Mhz, 2 cores, 4 logical processors, and an HP 85F1 motherboard. It is compatible with x32-based PCs and can run on the Microsoft Windows 7 Single Language (32BIT) operating system.

- *Software Interface:* For prototyping, we will use Figma and Adobe XD to create prototypes. The frontend design will be developed using HTML, CSS, JavaScript, and Php. Bootstrap is used to make the website responsive. For backend development, we will use Php, and for data storage, we will utilize PHPMyAdmin.

b. Economical feasibility

- *Firebase*: It provides many services like authentication, real-time database, hosting, cloud storage, etc. Services are free up to a certain limit, but are later charged only as per the usage. One added advantage is that it provides authentication services for almost every major platform, which includes Google, Facebook, Twitter, Apple, Github, Microsoft, and Yahoo.
- We will be using FirebaseRTC for a simple video chat application. For Chatbot application, we will be using ChatBot API service which works on a pay-per-use model and for additional services, the basic plan starts from $65 per month. Apart from the above mentioned services, other frameworks for developing a website are free of cost.
- The cost to participate and use the basic functionalities will be none and a small fee could be charged for additional functionalities.

b. Social feasibility

- This project will help underprivileged students to identify a tutor to teach a concept of which they lack knowledge.
- Students who suffer from anxiety will find it easier to communicate with people from their own age group, thereby putting less pressure on them.
- By collaborating with NGOs, we can help underprivileged students to gain education at absolutely no charge. They can follow the courses and learn at their own pace.
- Discussion forums and blogs serve as a good medium of communication and they will help to create an environment that will encourage learner-learner and learner-teacher interaction.

c. Environmental feasibility

- Software development would consume electricity which if derived from sustainable sources could ensure that the development process is environmentally feasible.
- The software is designed to be consumed in an electrical form in its entirety, no component of the project will produce results or products that could cause any harm to the environment and thus the product is eco-friendly.
- Since all materials are available online, there is zero usage of paper involved and thus the amount of paper being transported overall, which reduces carbon emissions.

d. Political feasibility

- The web application should not be restricted to only certain regions or certain sections of society.
- Universities with political influence should not be allowed to exploit student privacy and student data.
- The background details of students and tutors must be checked and verified to ensure only genuine students and tutors are authorized to gain access to the system.

e. **Demographic feasibility**

- States with low literacy rates might find it difficult to use the application as they would require basic technical understanding.
- Residents of states with lower per capita income and countries with lower GDP might face difficulty in obtaining the necessary devices from which they can access the software.
- The student community presently undergoing bachelor's and master's in colleges as well as underprivileged kids in centres who need assistance in academics are the target audience.

4. Project outcome

We are proposing a web application in the form of a **product** which will be beneficial for students, especially those who cannot afford access to good quality education and resources.

With the help of this learning portal, we will be able to encourage community interaction. Online education is more handy, convenient and well-organized.

Our portal will support the mix of academic and commercial capabilities needed to enable a learning paradigm.

I. Requirements Gathering

A. Functional Requirements

Module 1 (Student Dashboard):

A proper sign-up, login, and logout system that enables students to create accounts. A proper search system enables the students to search for the courses. The search system must fetch all the tutors available for that particular course when the scheduling time is given.The student must have access to all the documents that have been uploaded for each subject. Further the course completion status and the messages from tutors must be made available to the students.
REQUIREMENT 1: Proper Login systems for logging in and signing up

REQUIREMENT 2: Course Registration system

REQUIREMENT 3: Material Access Facility

REQUIREMENT 4: Tutor Message Viewer

REQUIREMENT 5: Ongoing Course Details of Student - Completion Status.

Module 2 (Tutor Dashboard):

A proper login, and logout system that enables the tutors to access their accounts. Once logged in, the list of courses that the tutor offers should be made available along with the list of students enrolled for each course. A facility to upload materials and assessments. A system to message the students and access to the quiz platform to conduct quizzes.

REQUIREMENT 1: Proper Login systems for logging in

REQUIREMENT 2: Course Creation/View Facility

REQUIREMENT 3: Material/Assignment Upload Facility

REQUIREMENT 4: Student Messaging Facility

REQUIREMENT 5: View Enrolled Students.

Module 3 (Video Conferencing and Chatbot):

A system that allows tutors and the students who have enrolled in a particular course to meet in a virtual platform to enable tutoring. It should also have an instant doubt

clearing chat application that would help student clarify their doubts

REQUIREMENT 1: Chat Application (Tutor - Student)

REQUIREMENT 2: Virtual Meeting Room (Video Conferencing Platform)

Module 4 (Quiz Platform):

Provide functionality for the tutors to create quizzes and assign them to the students. Students must be able to take up these quizzes and submit their answers back to the tutor. Once the due date is over, the quizzes must be graded and the results returned to the student. Both the student and tutor must be able to view the grade history.

REQUIREMENT 1: Create Quiz (Tutor)

REQUIREMENT 2: View and Take the Quiz

REQUIREMENT 3: Grade Quiz

REQUIREMENT 4: Grade History (Result of Students)

Module 5 (Collaboration with NGOs):

The details of all the NGOs currently being serviced by the system must be displayed and an option for other NGOs to register for the services of the tutors for their students must be provided.

REQUIREMENT 1: NGO Register Page

REQUIREMENT 2: NGO Details Viewing Facility

REQUIREMENT 3: Student Progress Monitor

Module 6 (User Account and Customer Support):

A page to view and update user profile information. An about us page with FAQs regarding how to use the system and information on how to contact us for further details and in addition a terms and conditions page.

REQUIREMENT 1: User Profile View/Update

REQUIREMENT 2: About Us Page

REQUIREMENT 3: Contact Info and FAQ Page

REQUIREMENT 4: Terms and Conditions Page

B. Non functional Requirements

- software will be designed to function properly on multiple devices. It will be designed so as to work on both mobile and desktop devices. This ensures the portability of the software.
- The software will be designed to work on all web browsers like chrome, safari, etc. It would be compatible with all these browser specifications and this makes the software accessible.
- It will be designed to work in the most efficient manner in all the web browsers allowing smooth browsing and user experience. The software will be coded to prevent slow down and it will be constantly updated to remove errors and bugs and patches would be introduced.
- The software would be easy to use and learn and it would be reasonably quick to use. All the files and materials would be downloadable and accessible, and all tutor, student and course information would be provided on demand, thus ensuring availability.
- The time between critical failure would be large and the number of critical failures low. This ensures that the system is functioning normally can thus ensures reliability of the system. It will possible to scale and extend the system to include students and organisations from much diverse regions, cultures and backgrounds which could include crossing country boundaries into the blanket of the system to ensure quality education.

C. System Requirements

- Operating System: Windows 7 with SP1; Recommended: Windows 10
- CPU: Intel or AMD processor with 64-bit support; Recommended: 2.8 GHz or faster processor
- A minimum requirement of 4GB RAM and 256GB of ROM
- Processor: Intel Core CPU @1.09GHz,1500Mhz,2 cores, and 4 logical Processors
- Disk Storage: 4 GB of free disk space
- Monitor Resolution: 1280x800; Recommended: 1920x1080
- Internet: Internet connection required for software activation
- Front-End Development: HTML, CSS, JavaScript, and Tailwind CSS.
- Back End Development: Django, React JS, and Python
- Data Storage: PHP, SQL/MongoDB.

D. Stakeholder identification

- **DIRECT STAKEHOLDERS:**

Internal Stakeholders:

Website Administrator

Customer service department

Software maintenance and development team

Database manager, project manager

Project Development team

Management, board members and shareholders

External Stakeholders:

Students using the TutorSpot website

Students/People providing tutoring services

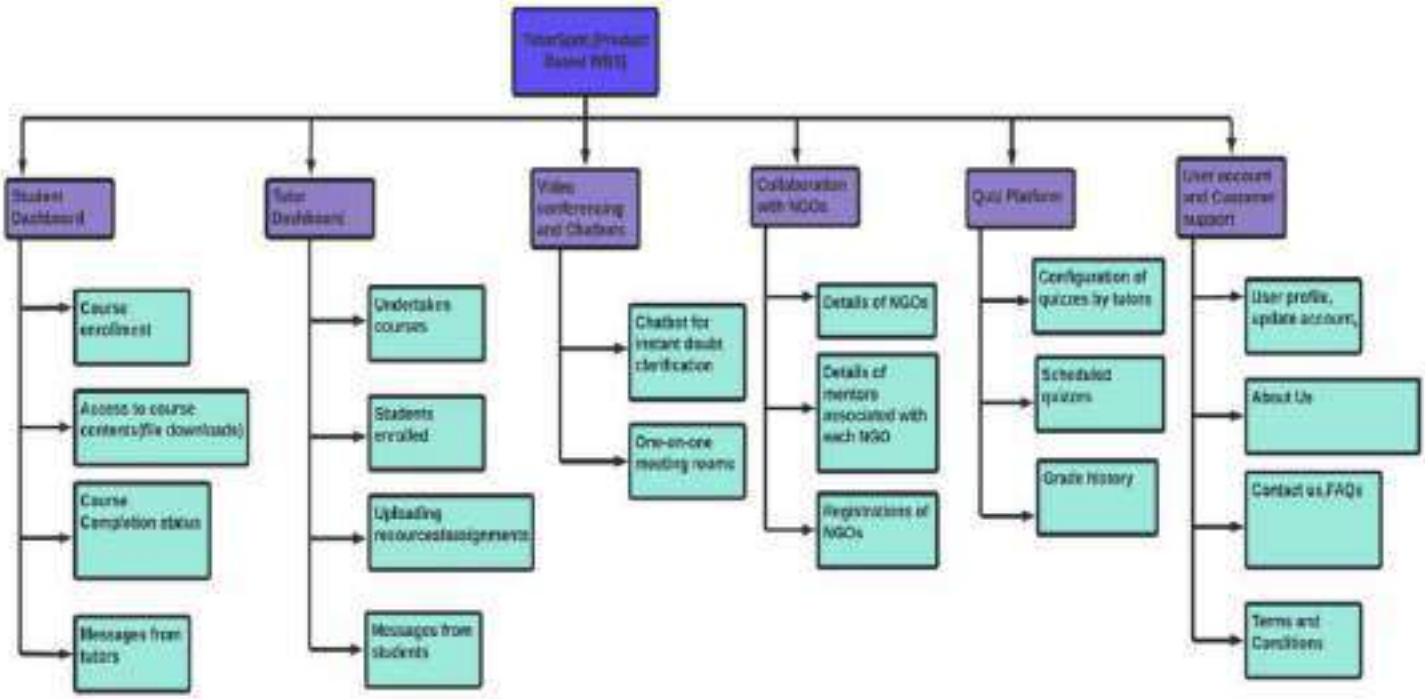
- **INDIRECT STAKEHOLDERS:**

Non-governmental organisations helping the communities

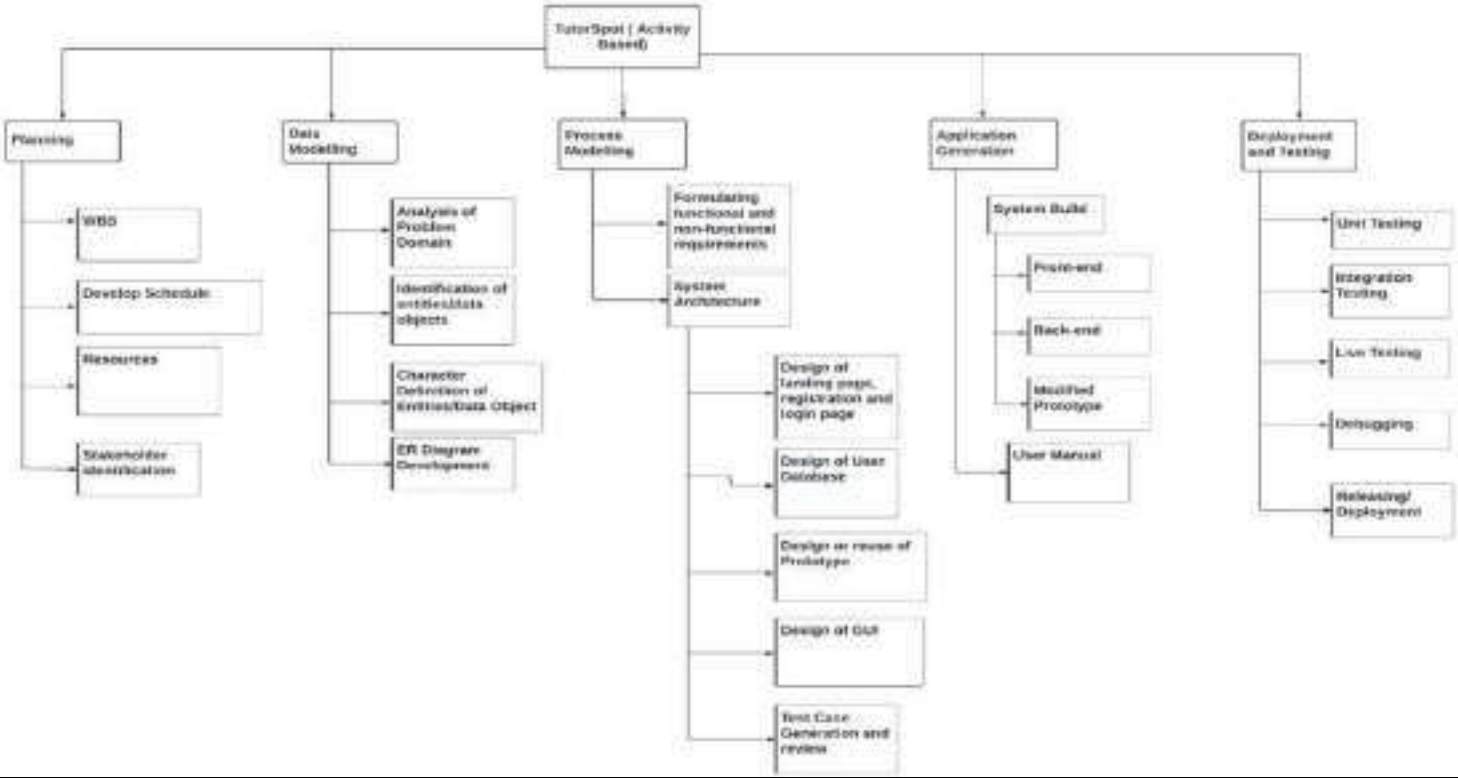
Parents or family members of learners

III. Work Breakdown Structure:

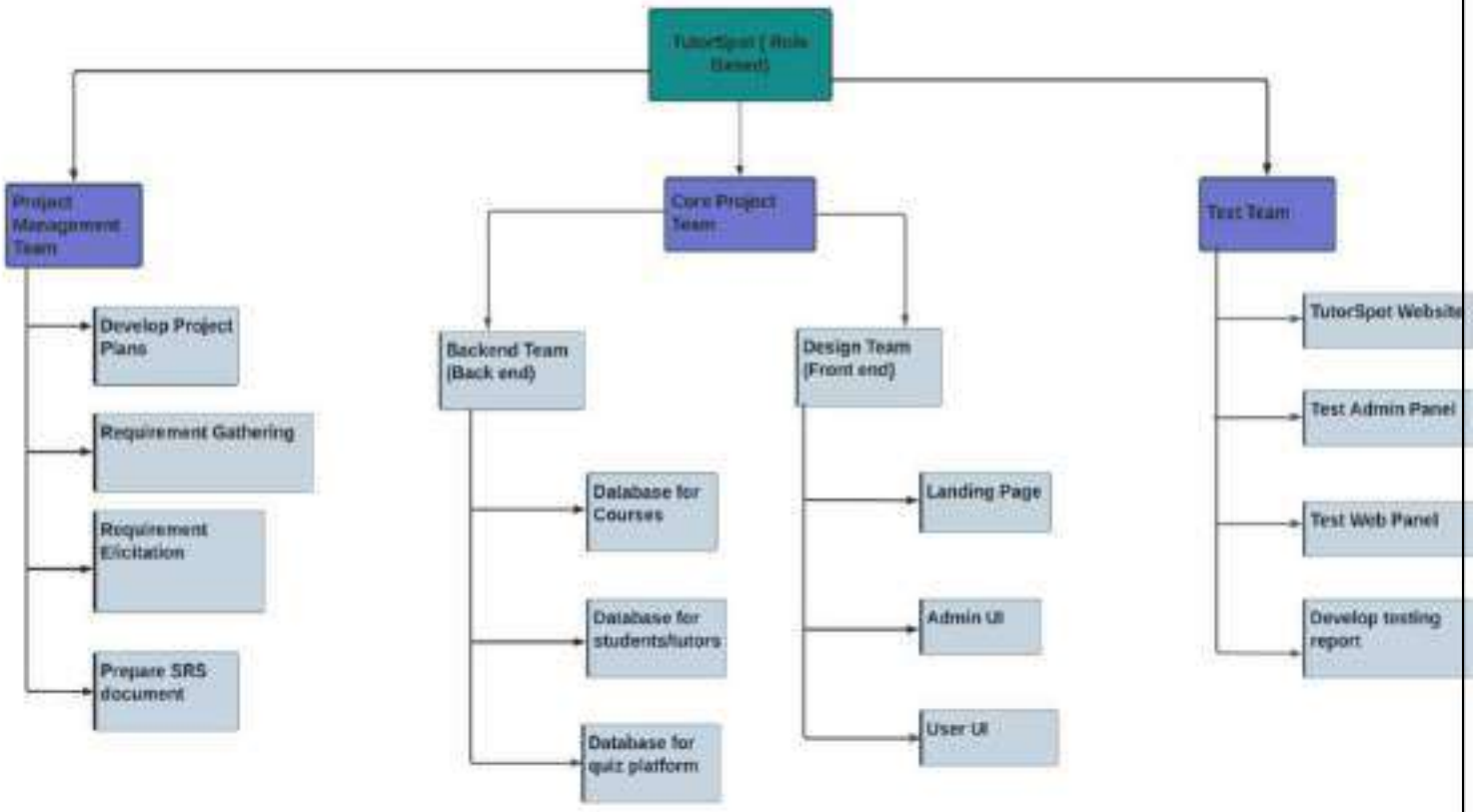
A. Product Based



B. Activity Based

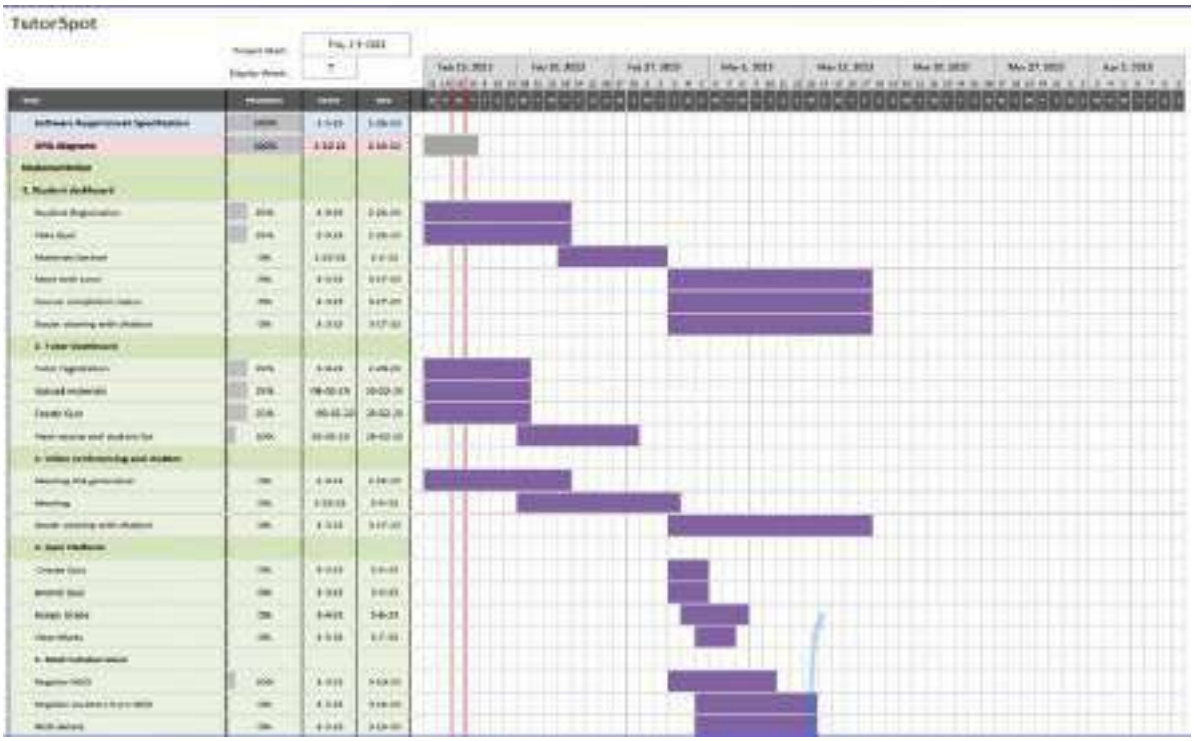


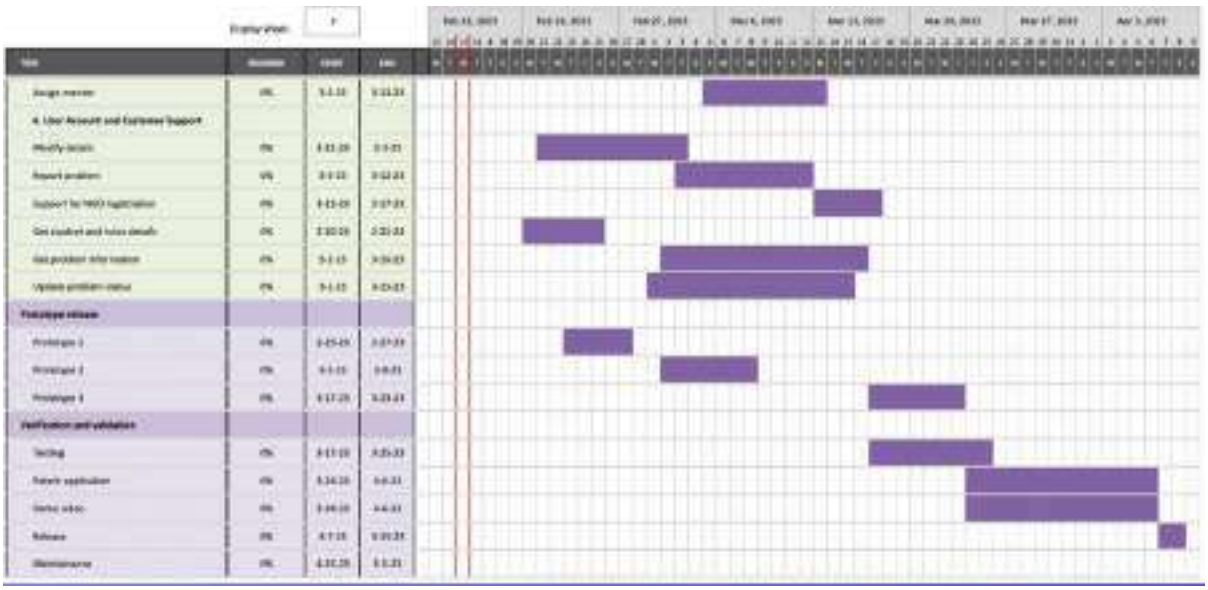
C. Role based


Project Management Team
Develop Project Plans
Requirement Gathering
Requirement Elicitation
Prepare SRS document
Core Project Team
Backend Team (Back end)
Database for Courses
Database for students/tutors
Database for quiz platform
Design Team (Front end)
Landing Page
Admin UI
User UI
Test Team
TutorSpot Website
Test Admin Panel
Test Web Panel
Develop testing report

IV. Project Scheduling

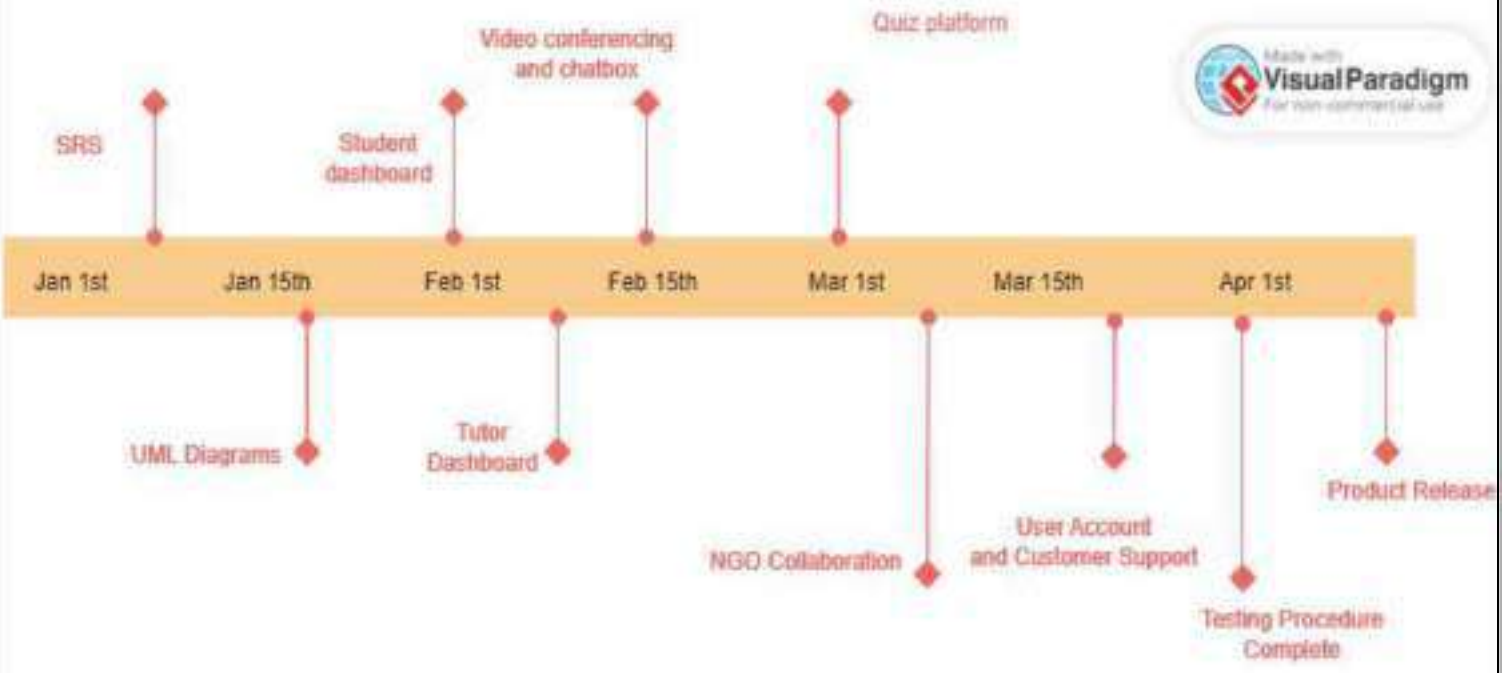
A. Gantt Chart





B. Pert Chart

C. Timeline Chart



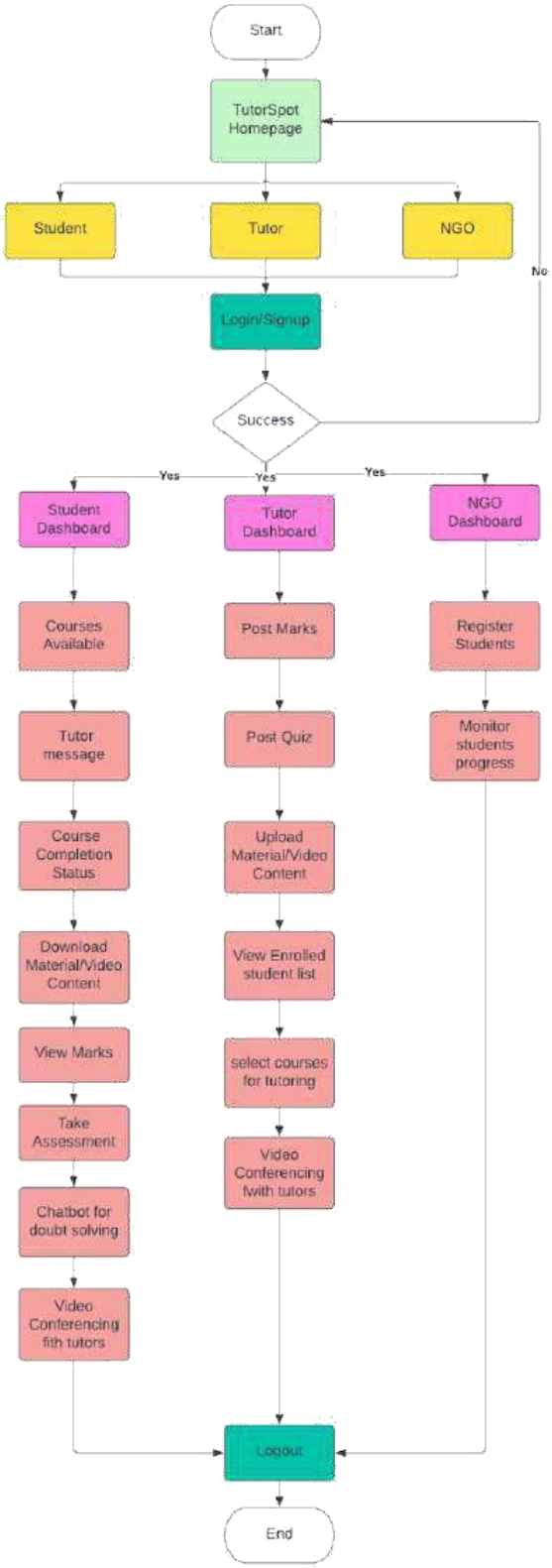
V. Literature review

Sr. No	Title	Findings	Reference
1	Online tutoring system in college: A case study in private education	The findings of the study showed that the online tutoring system is interesting and pleasant to be used. The students agreed that online learning gives them flexibility on their their learning compared to traditional learning.	https://ieeexplore.ieee.org/document/6271259 Rafidah Mohd Arif and Othman O. Khalifa in 2012 International Conference on Computer and Communication Engineering (ICCCE)
2	Designing of Learning Environment of an Intelligent Tutoring System for Academic Learning Needs of Learning-Disabled Learners Based on a Survey Report of Region-Specific Target Group	The study helped in identifying the most affected learning domains and related multiple criteria affecting the learners. This eventually is implemented in the domain model of an intelligent tutoring system to develop the four learner-centric learning environments. Results show that a practice-based learning environment was the most relatable learning environment followed by visual-based learning environment.	https://doi.org/10.1007/978-981-19-0284-0_29
3	A meta-analysis of the effectiveness of intelligent tutoring systems on college	(a)Overall, ITS had a moderately positive effect on college students' academic learning (g = .32 to g = .37); (b) ITS were less effective than human tutoring, but they	https://doi.org/10.1037/a0034752 Steenbergen-Hu, S., & Cooper, H. (2014). A meta-analysis of the

	students' academic learning.	outperformed all other instruction methods and learning activities, including traditional classroom instruction, reading printed text or computerized materials, computer-assisted instruction, laboratory or homework assignments, and no-treatment control; (c) ITS's effectiveness did not significantly differ by different ITS, subject domain, or the manner or degree of their involvement in instruction and learning; and (d) effectiveness in earlier studies appeared to be significantly greater than that in more recent studies.	effectiveness of intelligent tutoring systems on college student's academic learning. Journal of Educational Psychology, 106(2), 331–347.
4	Intelligent Tutoring System (ITS) Trends 2006-2018: A Literature Review	(1)Most ITS research had positive research results (2) ITS more frequently supported knowledge learning in the fields of mathematics and computer science (3) Modeling and Simulation Environments ITS and gamified environments ITS was the most widely used, followed by hypermedia environments and multi-form environments (4) Most ITS studies were based on quantitative research, followed by mixed research. Therefore, the issue of ITS research presented a layered platform for the guidance of researchers, educators, policymakers, and magazine publishers in the ITS research field.	Jianhua Han; Wei Zhao; Qiang Jiang; Mohamed Oubibi; Xiangen Hu in 2019 Eighth International Conference on Educational Innovation through Technology (EITT)
5	Evolution and trends in intelligent tutoring systems research: a multidisciplinary and	(a)ITS research has been growing in recent years. According to the Price literature exponential growth curve, this field is still in its initial stage while has high potential; (b) computer science, education, psychology, and engineering were the	https://doi.org/10.1007/s12564-021-09697-7

	scientometric view	main ITS research knowledge sources, with ITS social science publications since 2007 being higher than ITS natural sciences publications; (c) interactive learning environments, student modelling, teaching/learning strategies, and machine learning have been the most popular research foci; and (d) the Coh-Matrix, problem-centered instruction, and STEM are the current research trends.	
6	An Overview of Intelligent Tutoring System Authoring Tools: Updated Analysis of the State of the Art	1) the last few years there has been significant progress in the development of ITS authoring tools and the understanding of the key issues involved. 2) The development efforts to date represent many diverse approaches, and it is still too early to get a sense of which approaches will prove to be the most useful (or marketable). 3) In general, ITS authoring tools are still research vehicles that have demonstrated significant success in limited cases, yet have not been made robust enough to be placed and supported in production contexts or commercial markets.	Murray, T. (2003). An Overview of Intelligent Tutoring System Authoring Tools: Updated Analysis of the State of the Art. In: Murray, T., Blessing, S.B., Ainsworth, S. (eds) Authoring Tools for Advanced Technology Learning Environments. Springer, Dordrecht. https://doi.org/10.1007/978-94-017-0819-7_17

VI. Block diagram



VII. Overview of proposed methodology

The overall project has been explained module wise:

1**. Register/ Login:**

- For a non registered user, we will first take all the details regarding the user and store in the database.
- We will distinguish between the registered and the non registered user using certain flag values in the database.
- After acquiring all the details , we will proceed with either student login or tutor login

2. Tutor module and Quiz platform:

- If the user has logged in as a tutor, then he/she can upload his course content which can also include video lectures. Option for configuring a quiz will also be provided.
- The quiz platform consists of a form which will be made available to the students/learners. The tutor can set the question paper as an mcq or text based.
- The student can access the quiz link when he or she inputs the secret code that the tutor provides. This ensures the security of the quiz platform.

3. Student module:

- Once the student has logged into the portal, the student can register for the courses, access the material uploaded by the tutor for that particular course as well as attend graded quizzes.
- They can also view their personal details and modify them if needed.
- For any help or support they can utilise the chatbot feature and also get guidance of the tutor directly as well

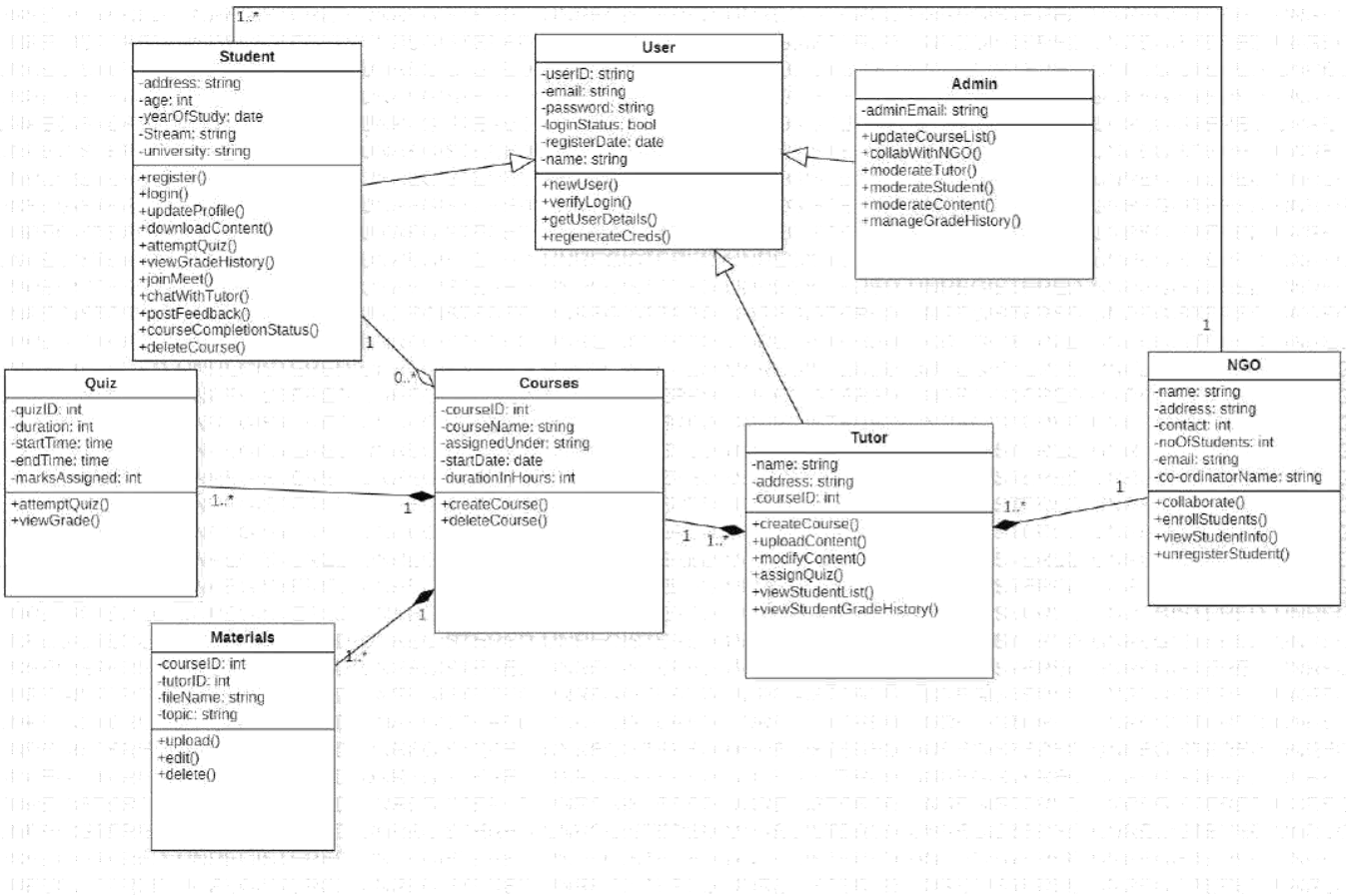
4. NGO Portal:

- The NGO's will be able to login and register.
- All the details about the NGOs currently being serviced will be displayed.
- The option to register tutors for the students will be provided. A student progress monitor will be available for every individual student.

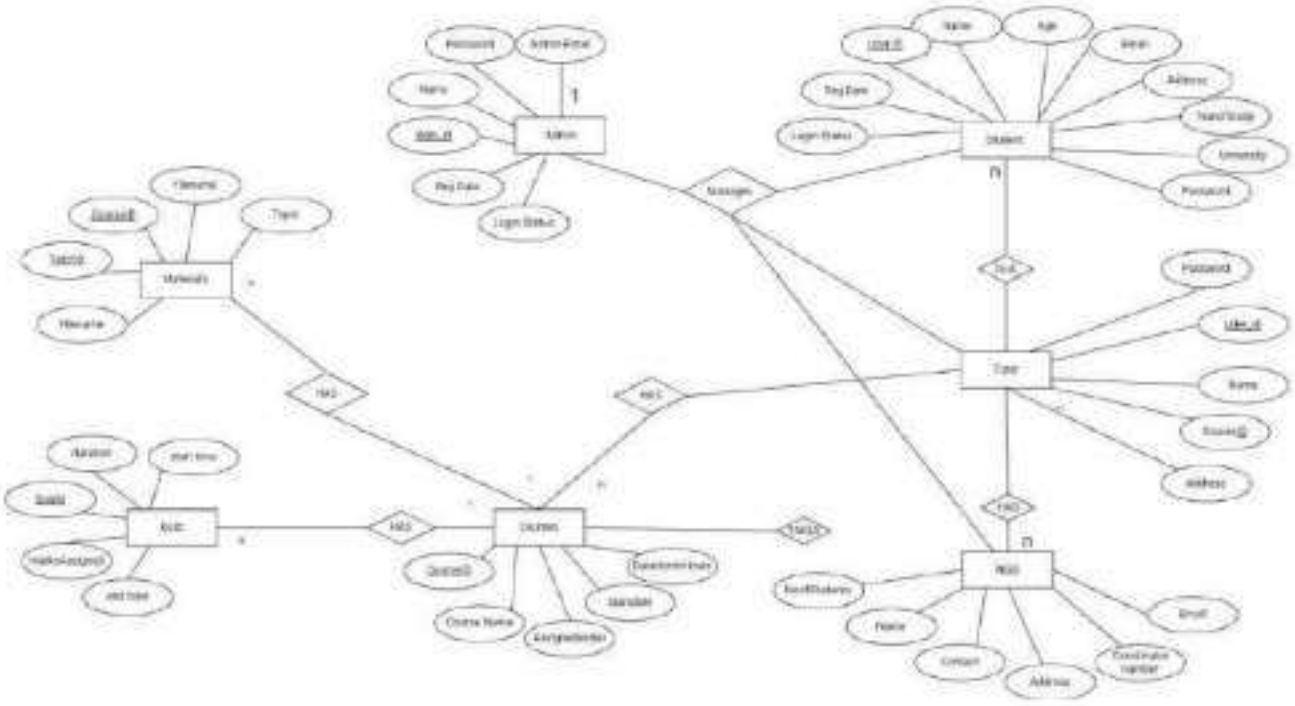
5. Video conferencing and chatbot platform for doubt solving:

- If the user has logged in as a student, he can join the scheduled meet organised by the tutor for doubt solving purposes.
- Along with this, he/she can also use the chatbot to solve doubts.

I. Class Diagram:



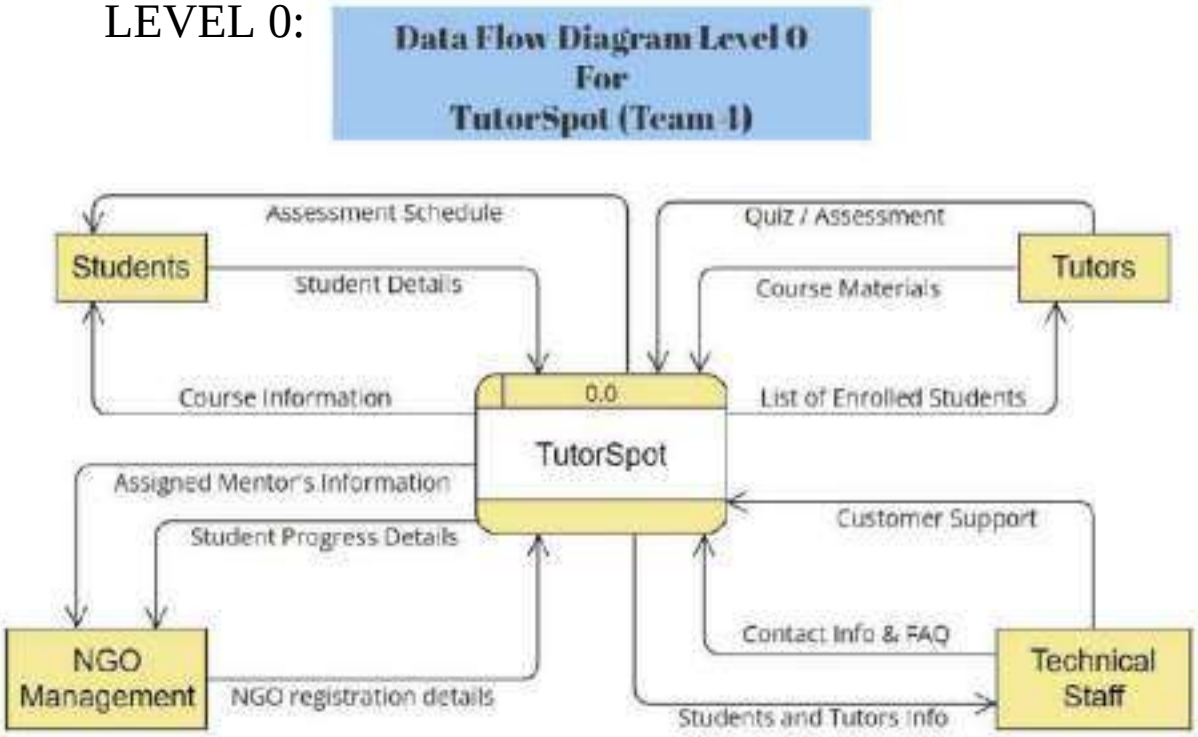
II. ER Diagram:



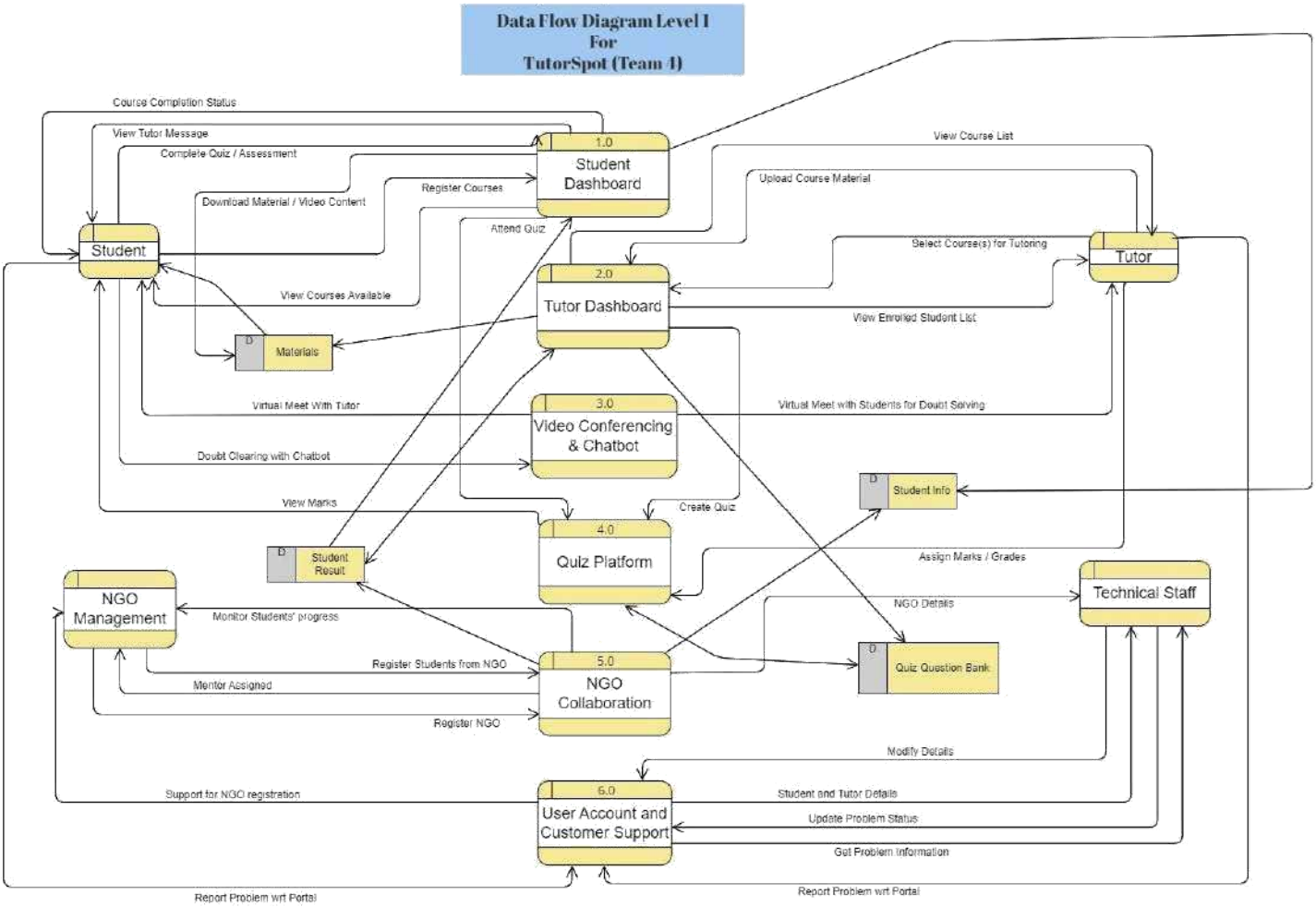
III.

Data flow diagrams:

LEVEL 0:

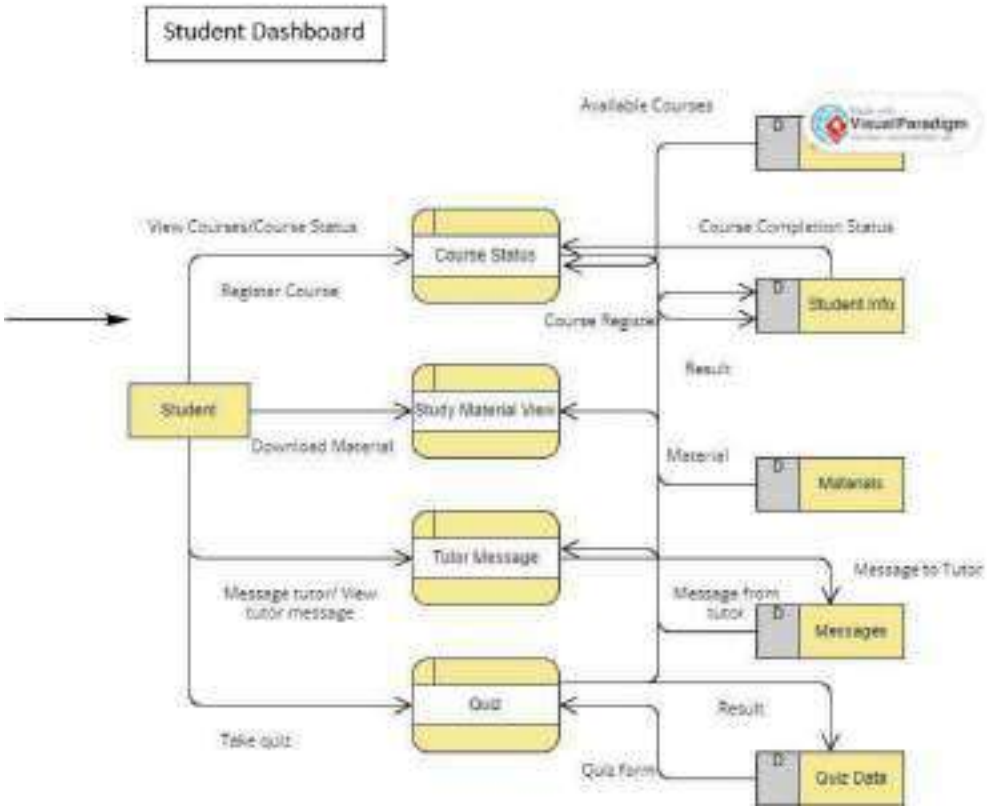


LEVEL 1:

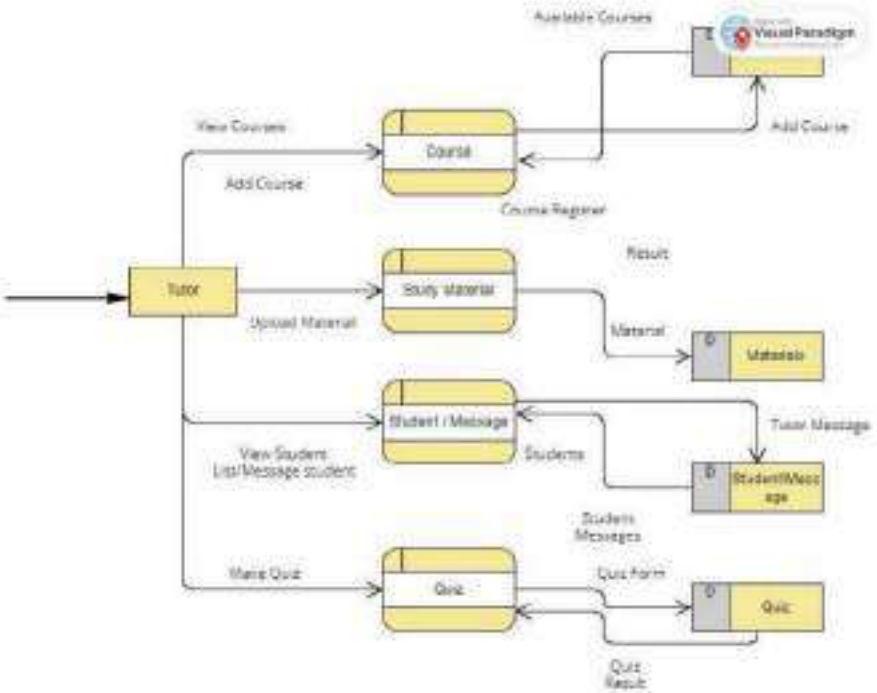

Data Flow Diagram Level I
For
TutorSpot (Team 4)
Course Completion Status
View Tutor Message
Complete Quiz / Assessment
Download Material / Video Content
Register Courses
Attend Quiz
View Course List
Upload Course Material
Select Course(s) for Tutoring
View Courses Available
View Enrolled Student List
Virtual Meet With Tutor
Virtual Meet with Students for Doubt Solving
Doubt Clearing with Chatbot
View Marks
Create Quiz
Assign Marks / Grades
NGO Details
Monitor Students' progress
Register Students from NGO
Mentor Assigned
Register NGO
Modify Details
Support for NGO registration
Student and Tutor Details
Update Problem Status
Get Problem Information
Report Problem wrt Portal
Report Problem wrt Portal
1.0
Student Dashboard
2.0
Tutor Dashboard
3.0
Video Conferencing & Chatbot
4.0
Quiz Platform
5.0
NGO Collaboration
6.0
User Account and Customer Support
Student
Tutor
Technical Staff
NGO Management
D
Materials
D
Student Result
D
Student Info
D
Quiz Question Bank

LEVEL 2:

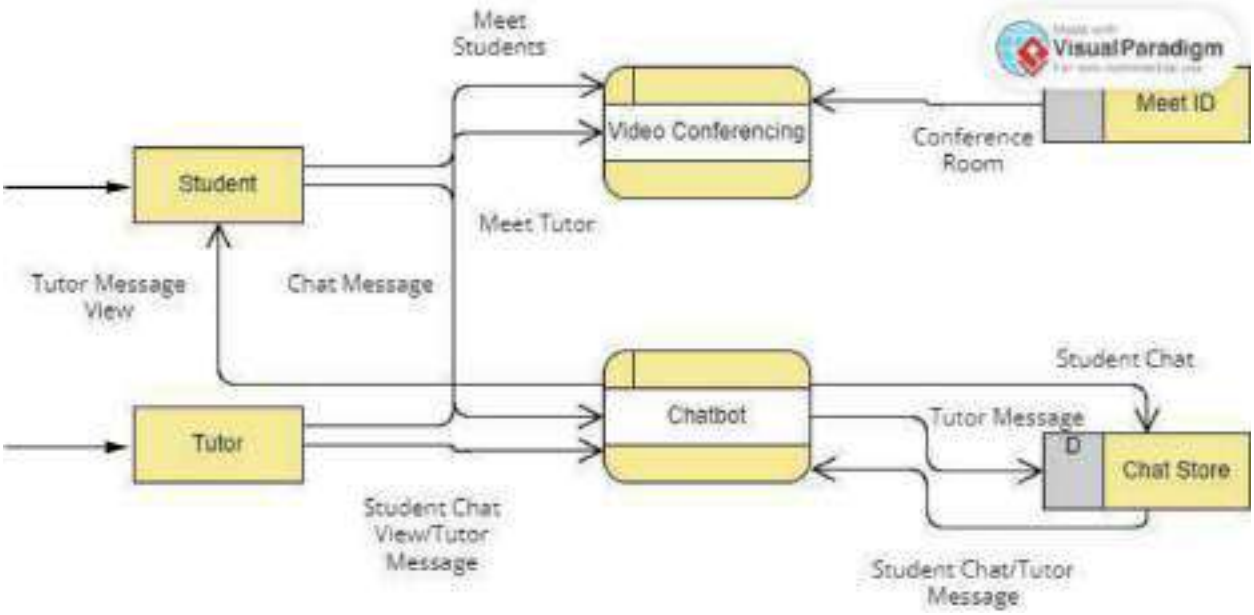
1. Student Dashboard



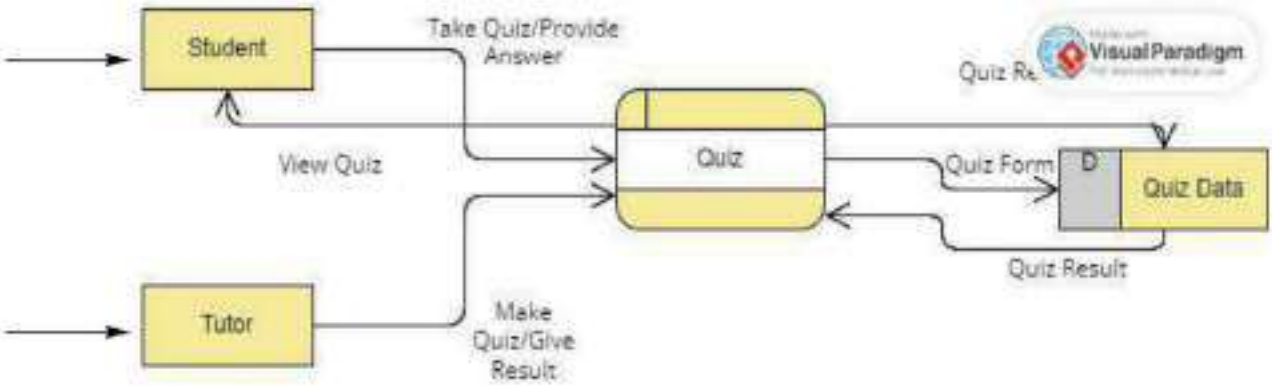
2. Tutor Dashboard



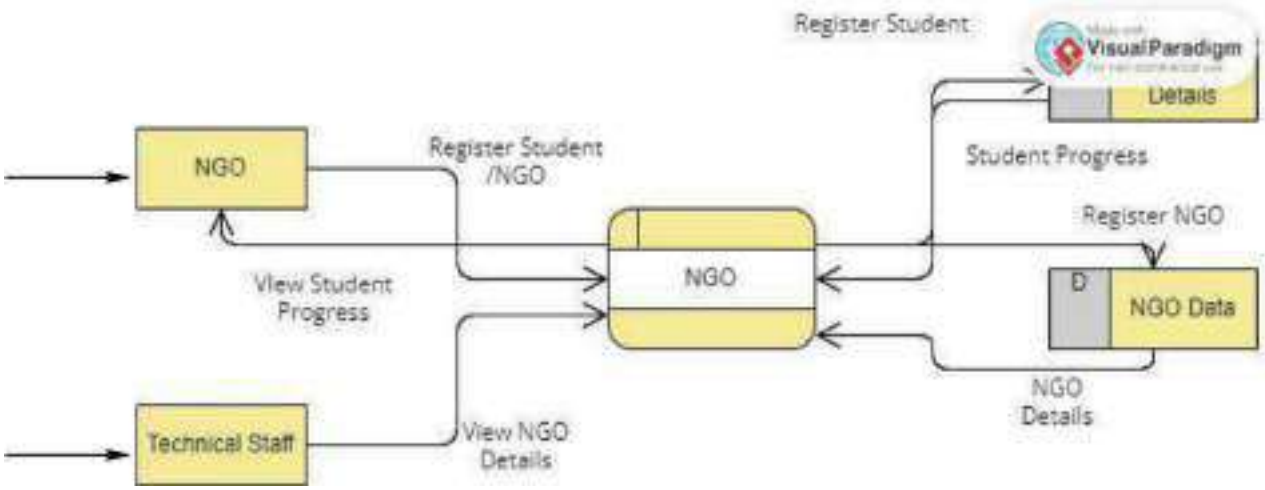
3.Video Conferencing and Chatbot



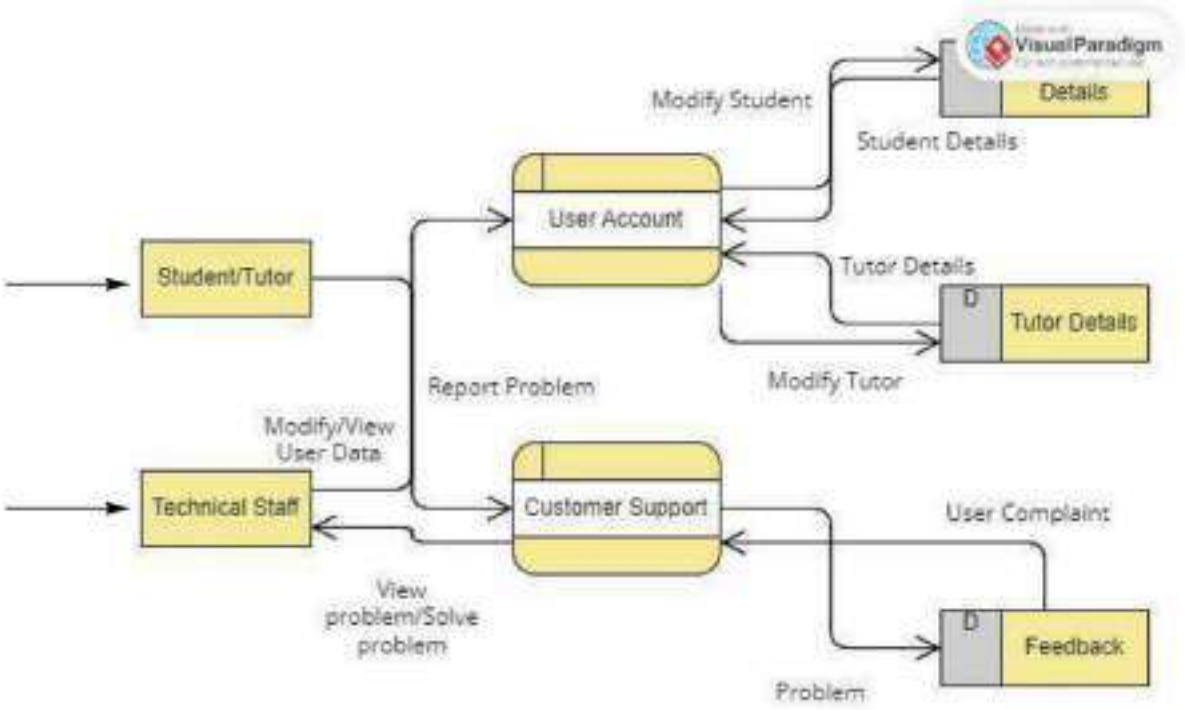
4. Quiz Platform



5.NGO Collaboration

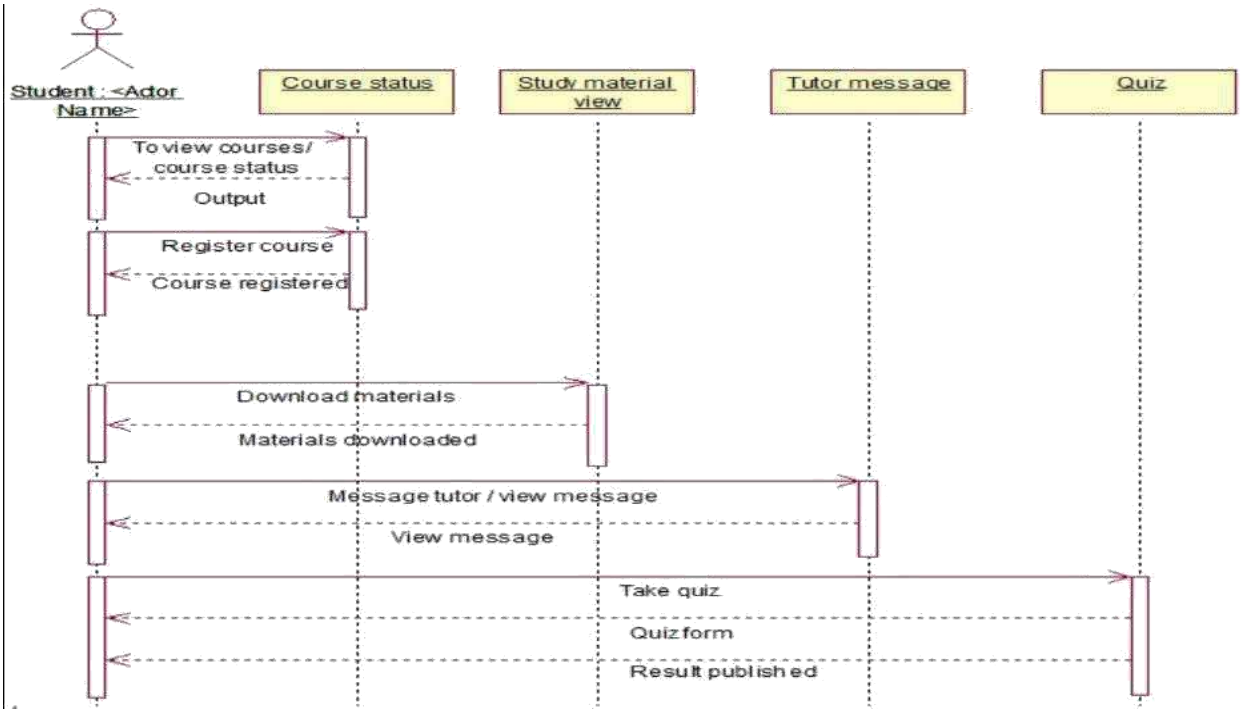


6. User Account and Customer Support:

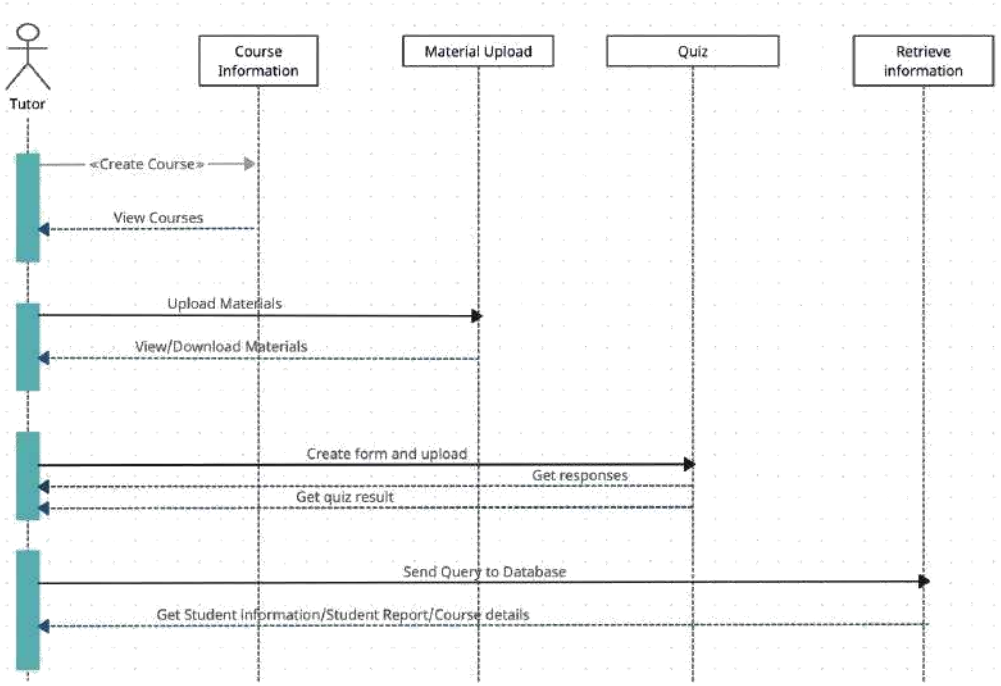


IV. Sequence diagrams:

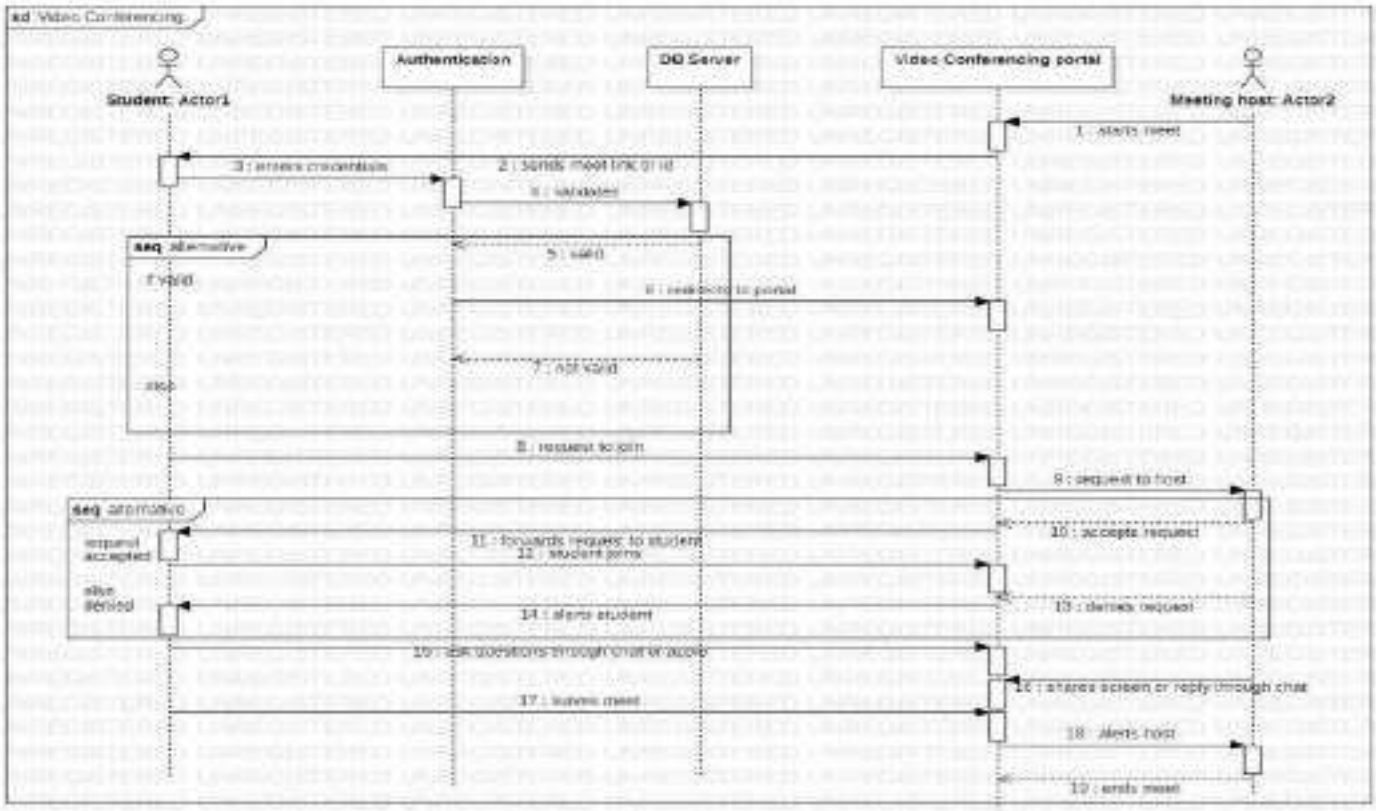
1. Student Module:



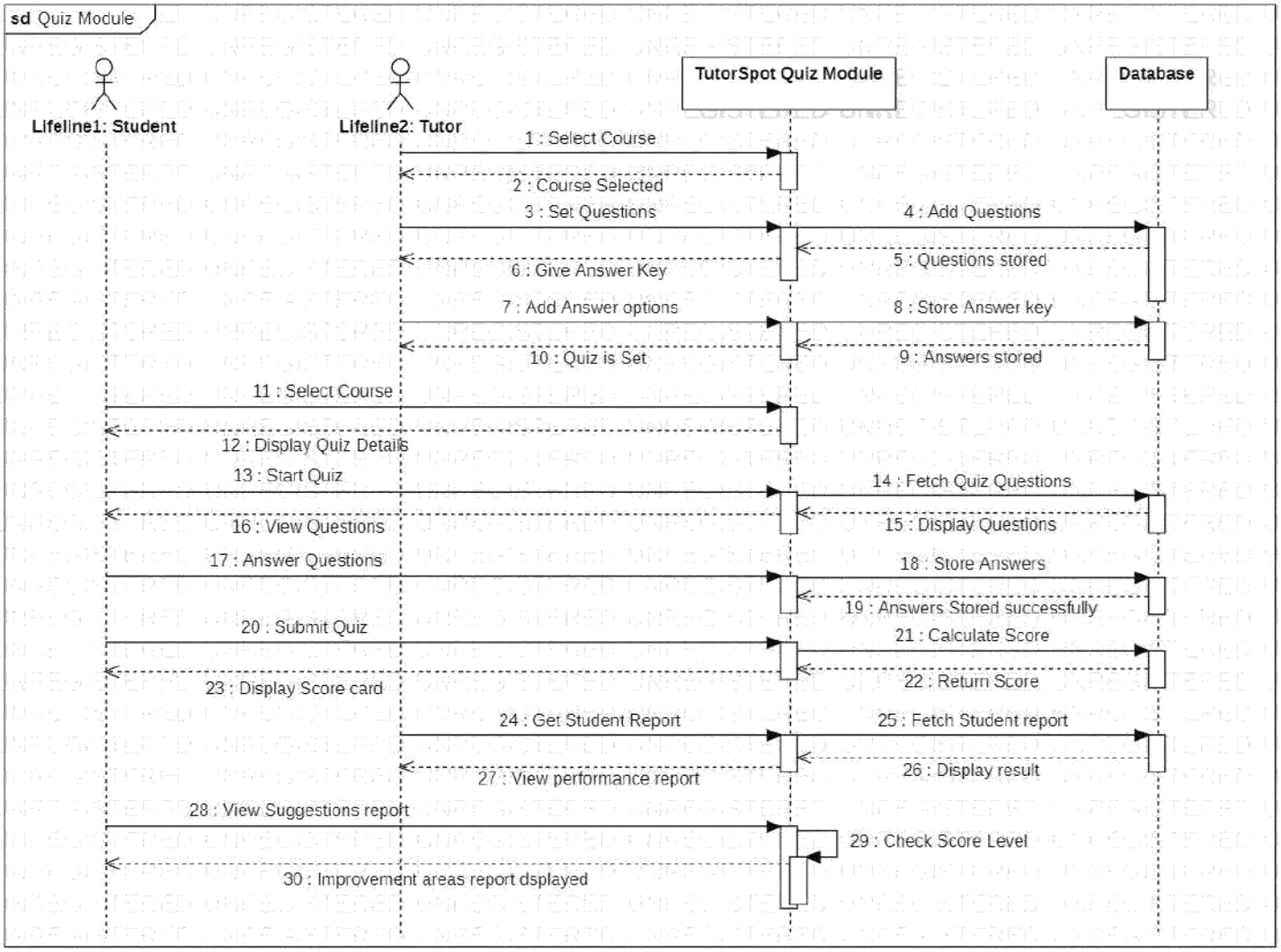
2. Tutor Module



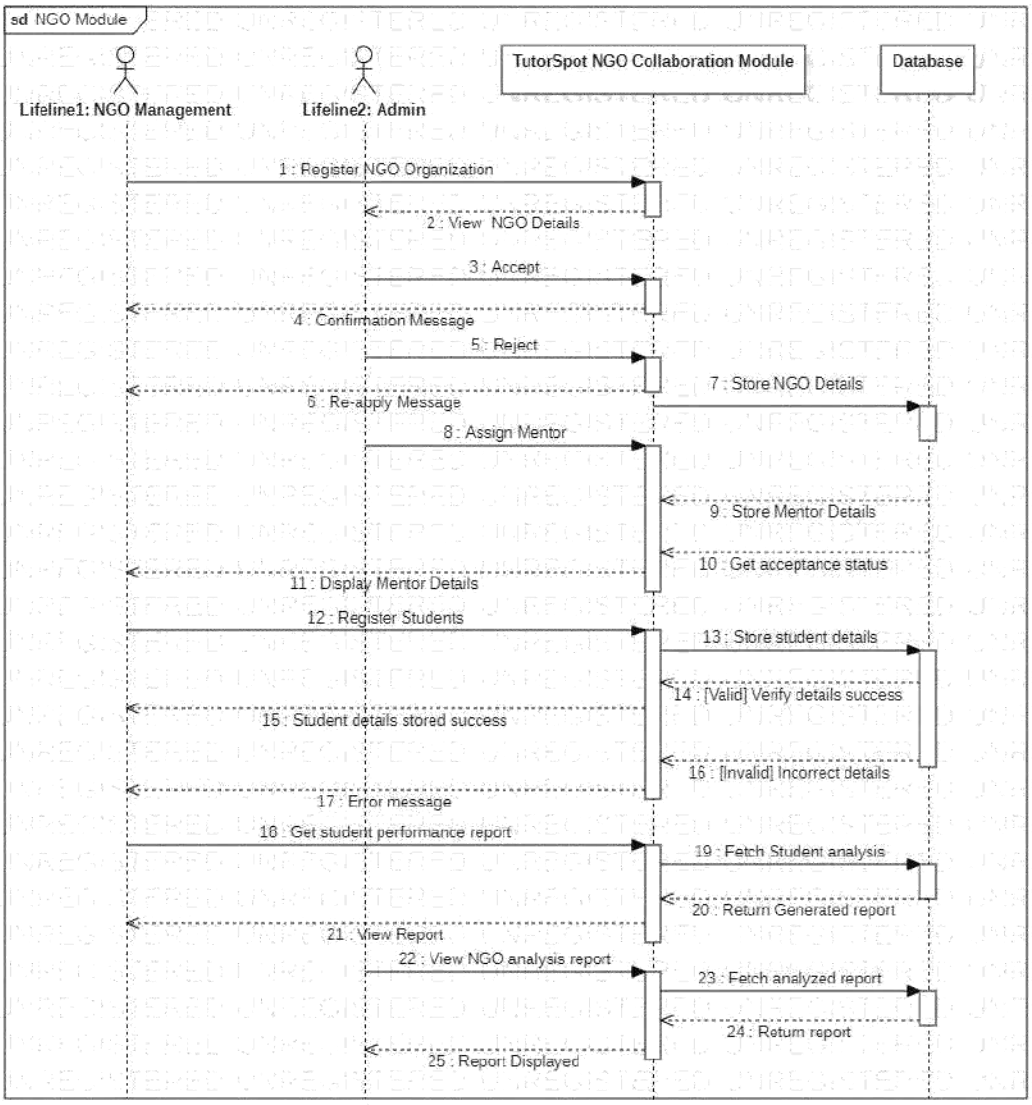
3. Video Conferencing:



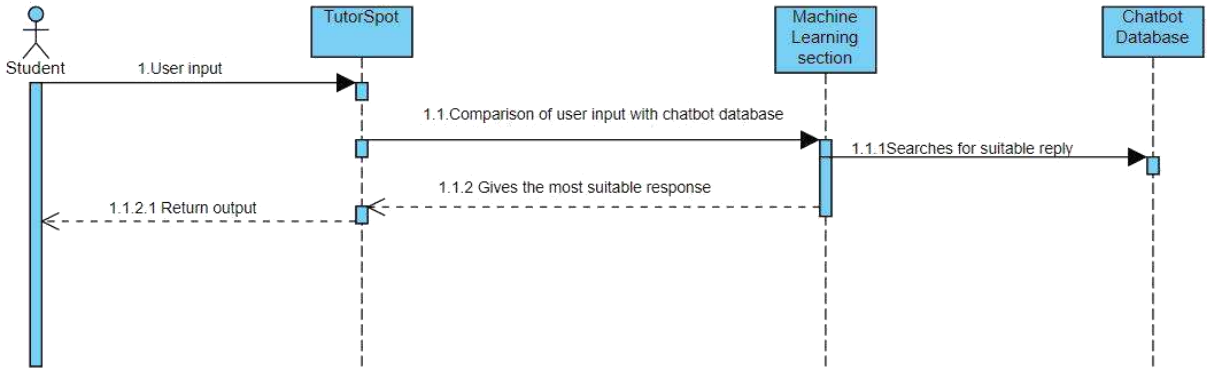
4. Quiz Module:



5. NGO Module:

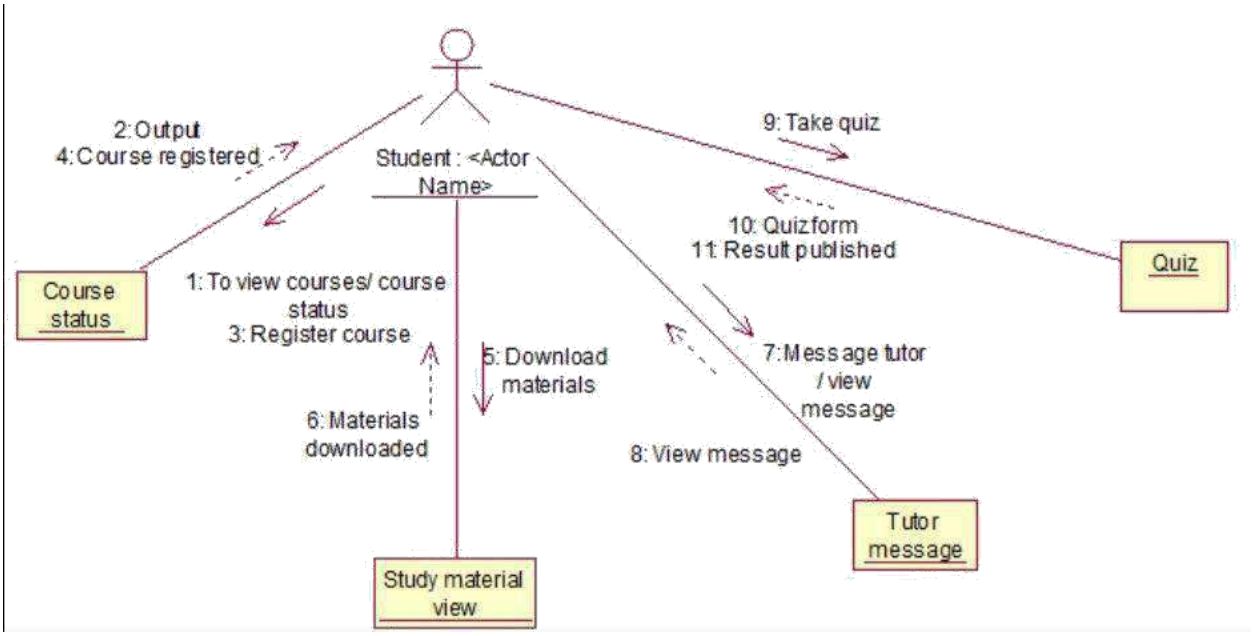


6. Chatbot:

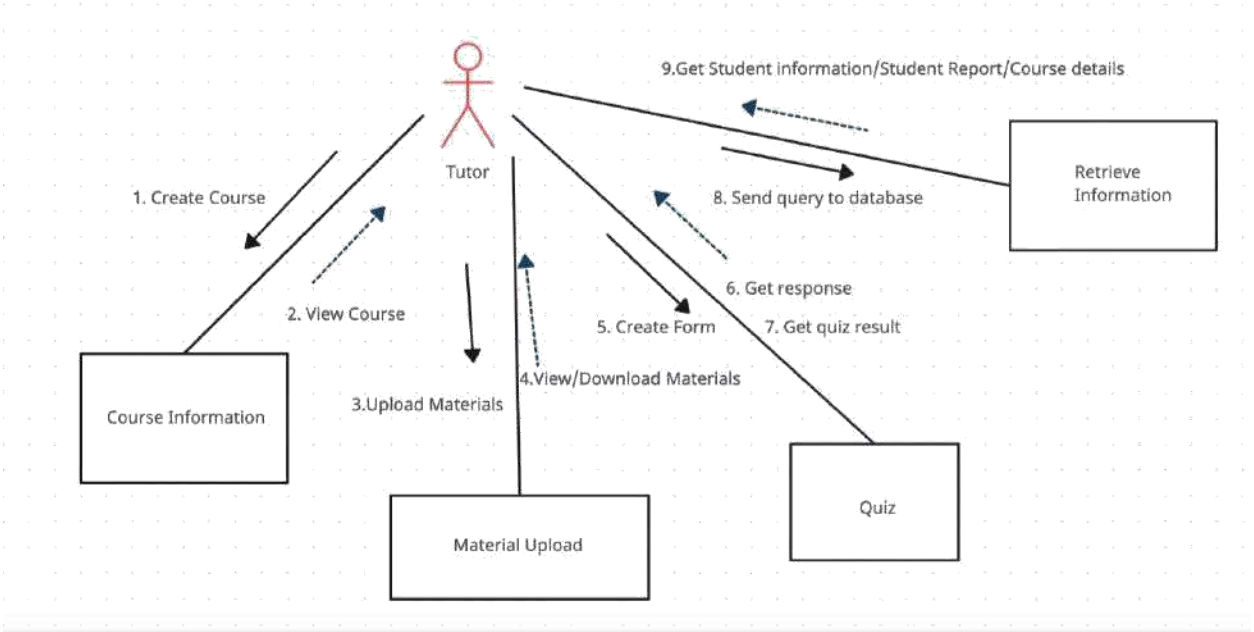


V. ***Collaboration diagrams:***

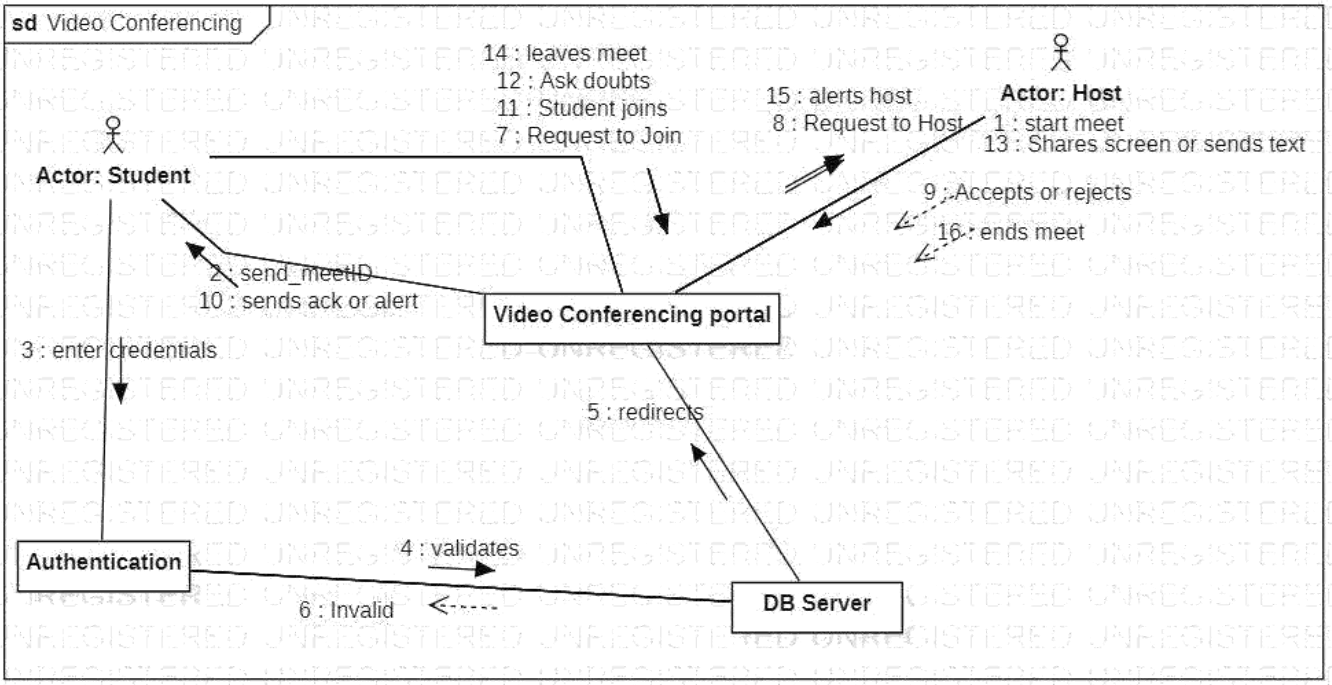
1. Student Module:



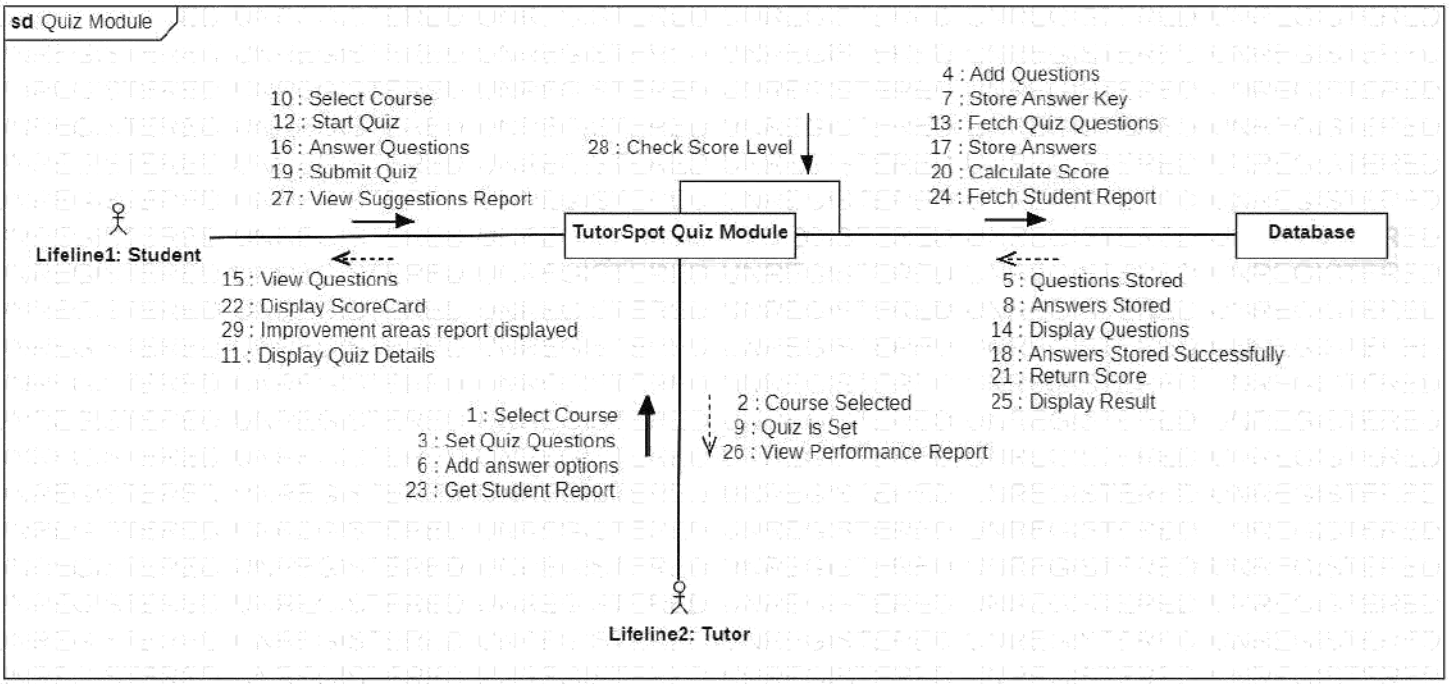
2. Tutor Module:



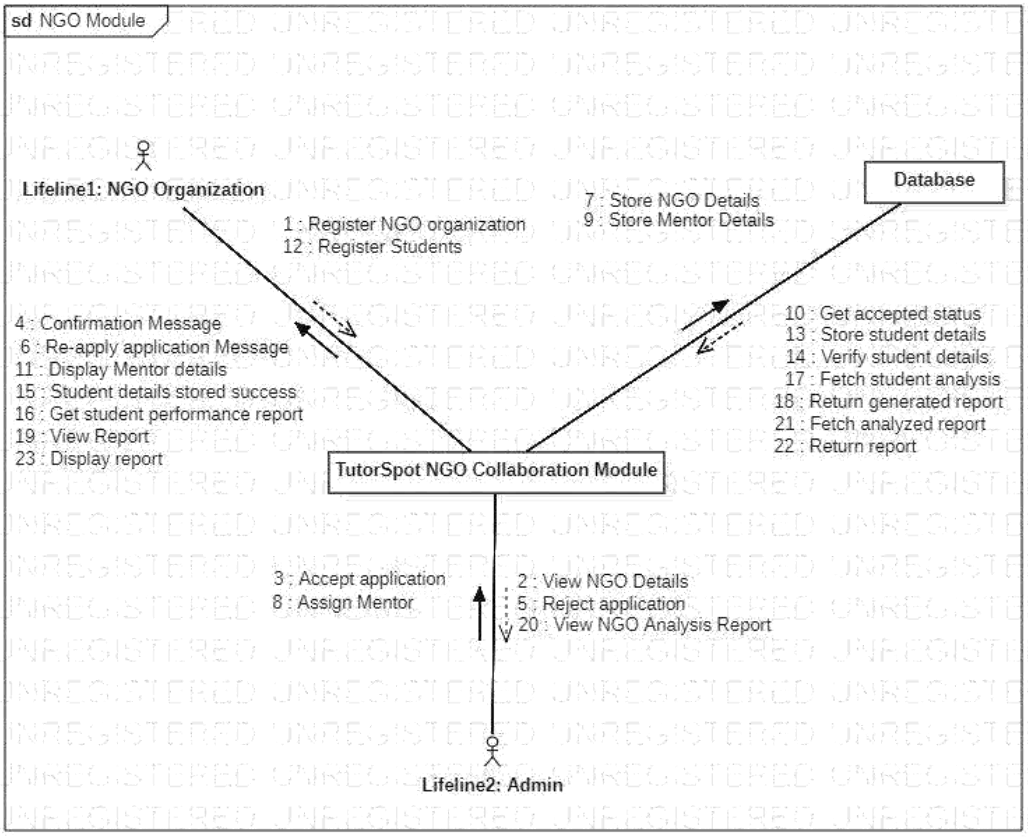
3. Video Conferencing:



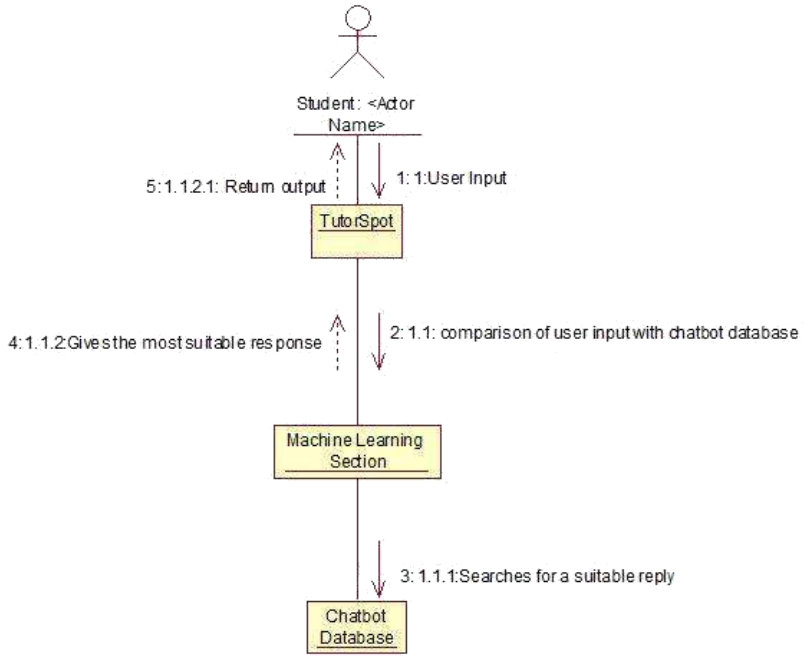
4. Quiz Module:



5. NGO Module:

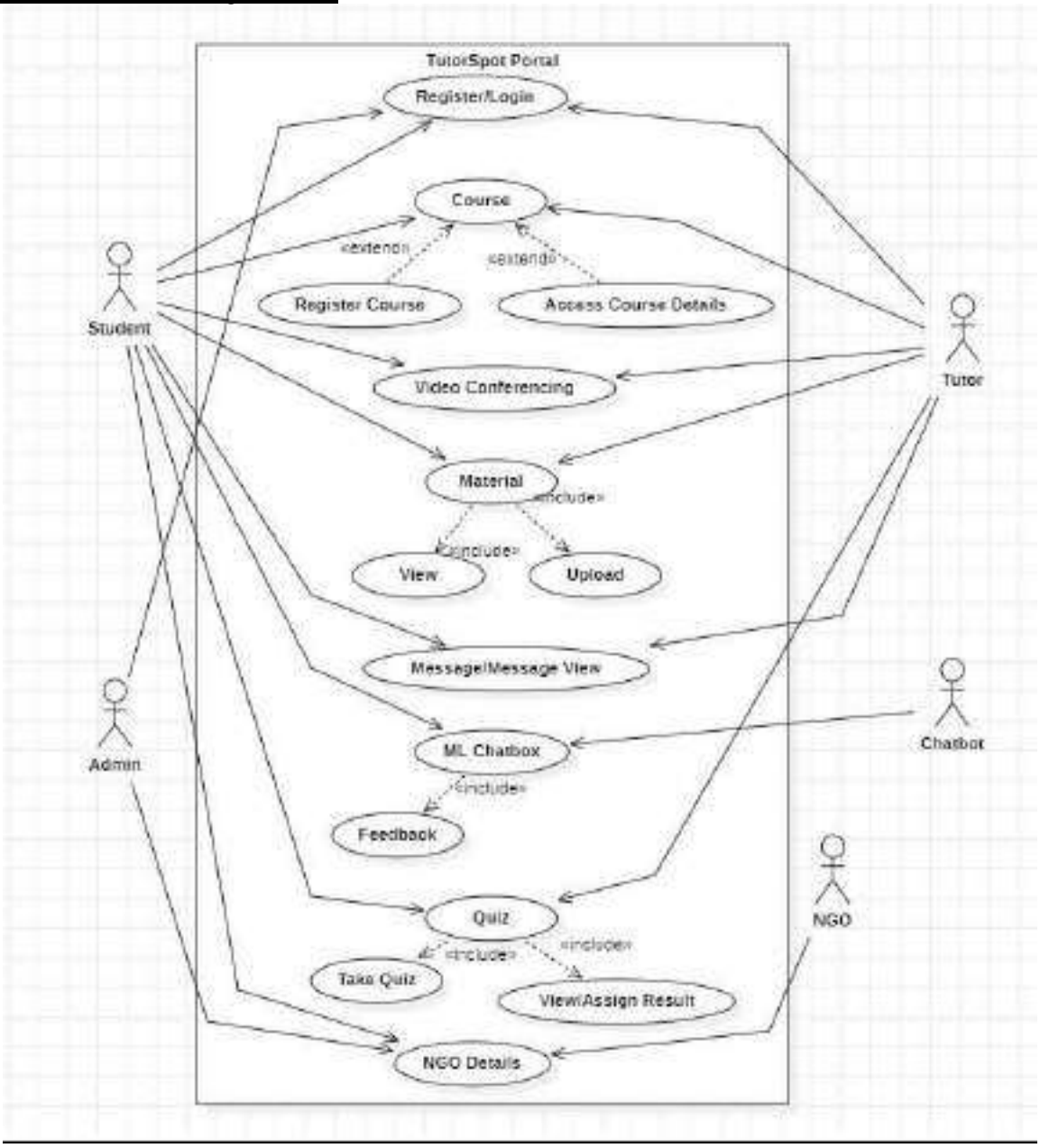


6. Chatbot:



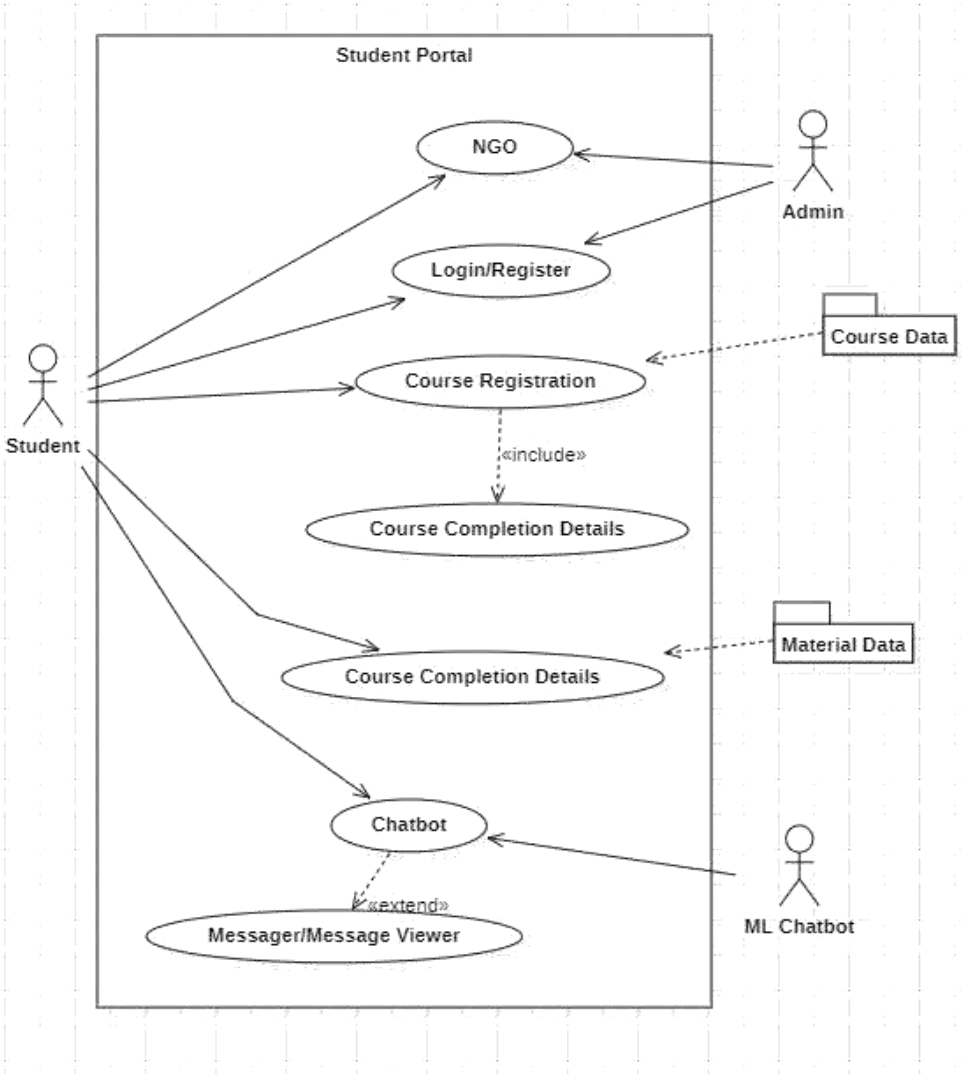
VI. Use-Case diagrams:

A. For the overall system:

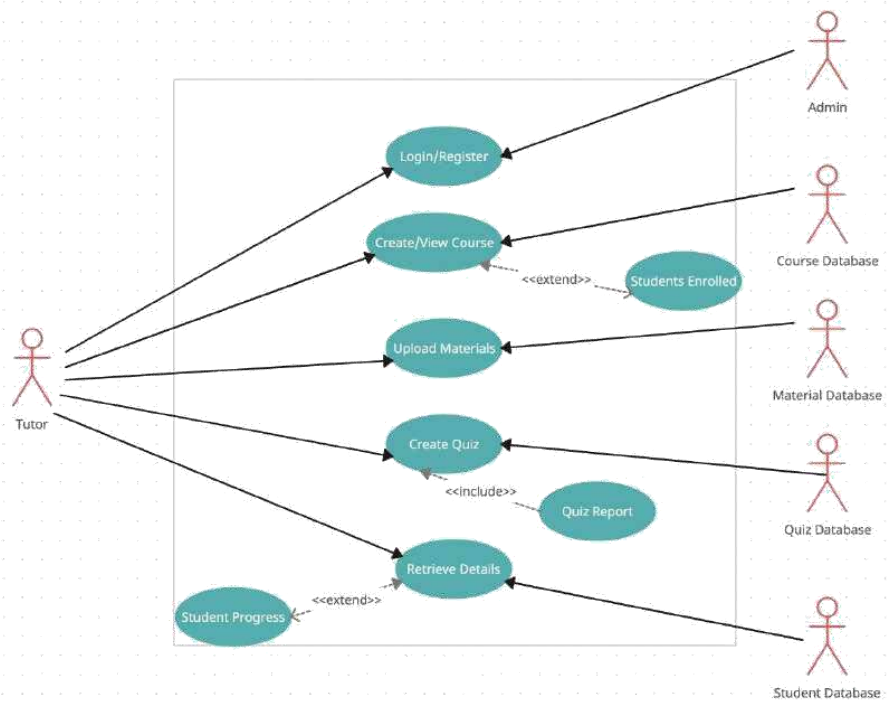


B. <u>For individual modules:</u>

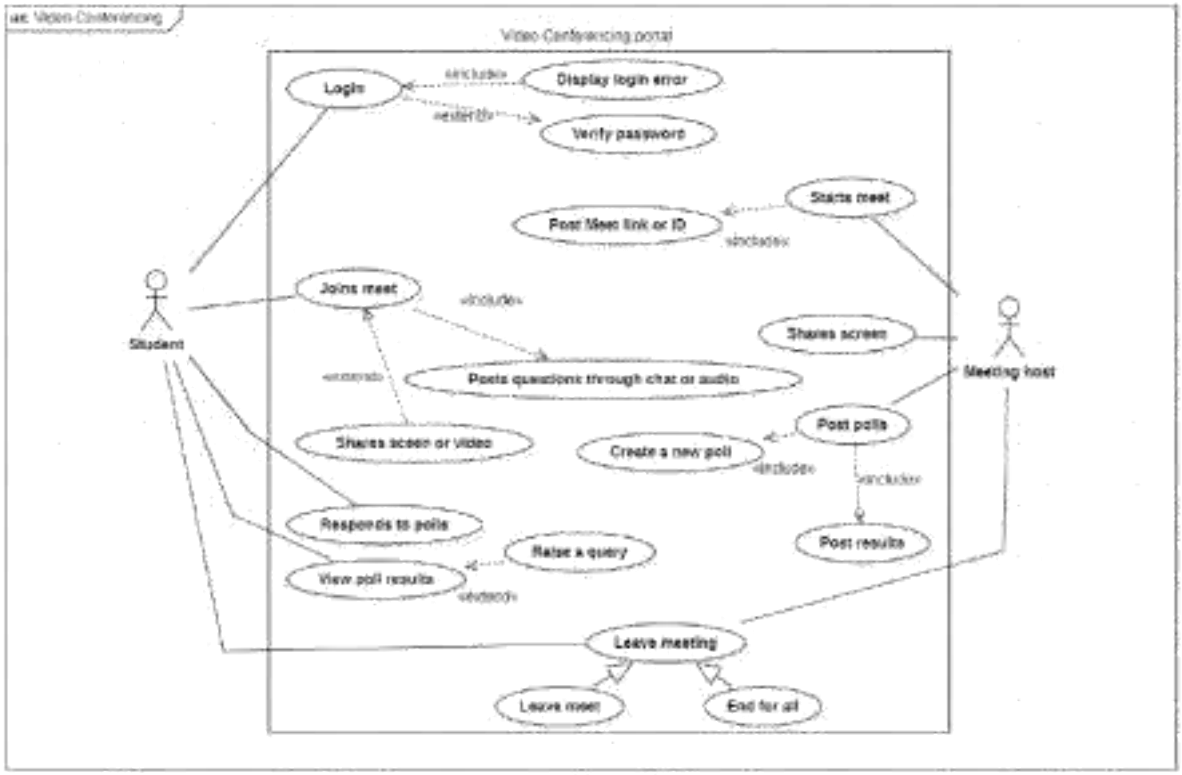
1. Student Module:



2. Tutor Module:

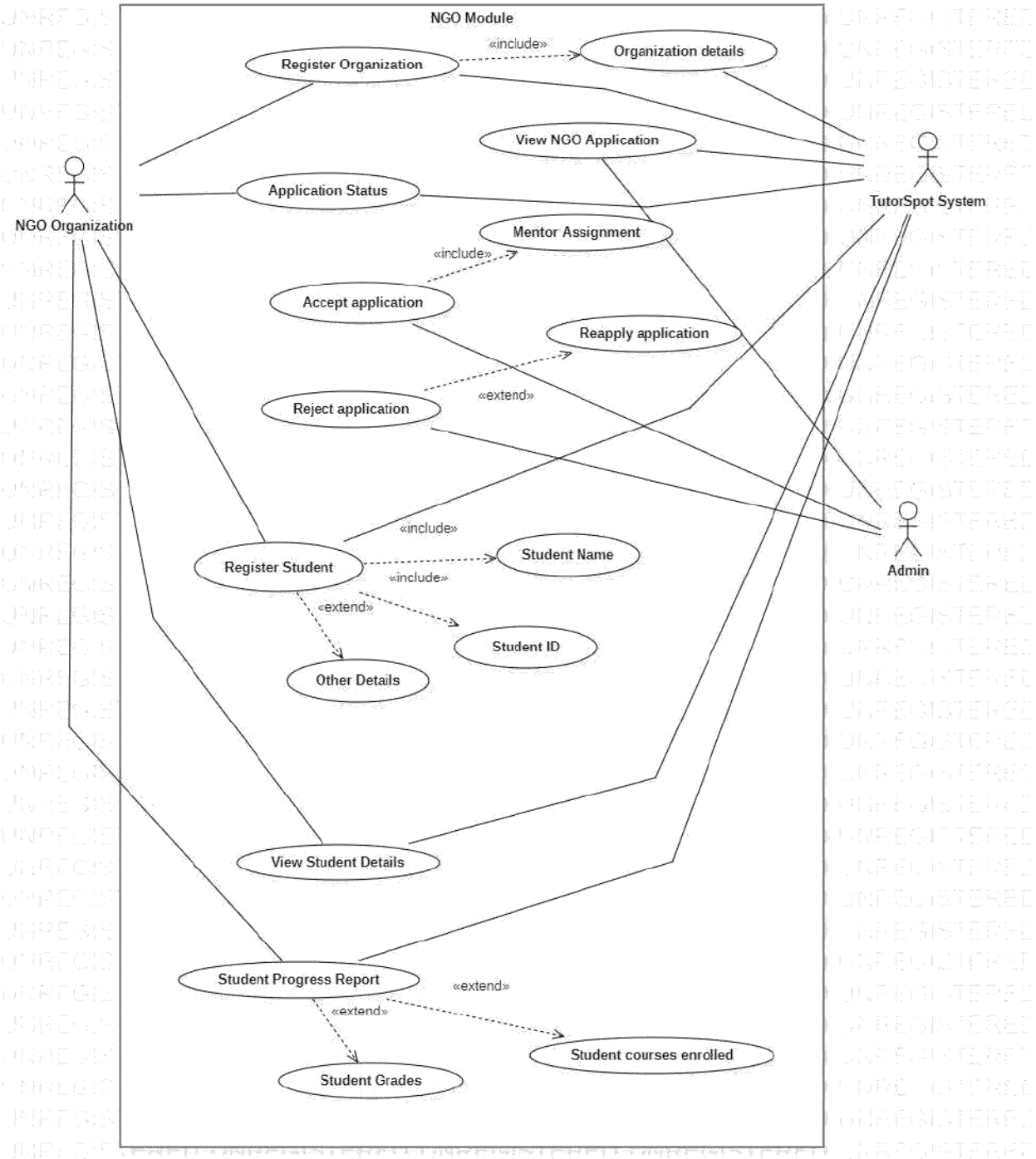


3. Video Conferencing:

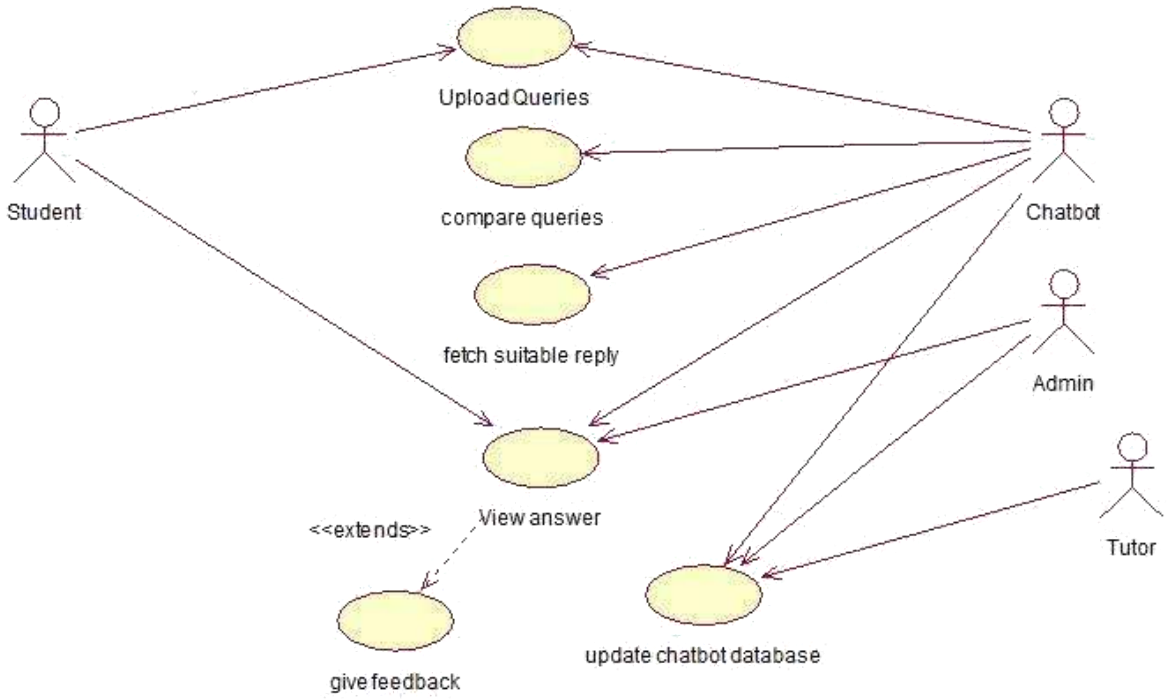


4. Quiz Module:

5. NGO module:


NGO Module
Register Organization
«include»
Organization details
View NGO Application
Application Status
NGO Organization
TutorSpot System
Mentor Assignment
«include»
Accept application
Reapply application
Reject application
«extend»
«include»
Register Student
Student Name
«include»
«extend»
Student ID
Other Details
Admin
View Student Details
Student Progress Report
«extend»
«extend»
Student courses enrolled
Student Grades

6. Chatbot:

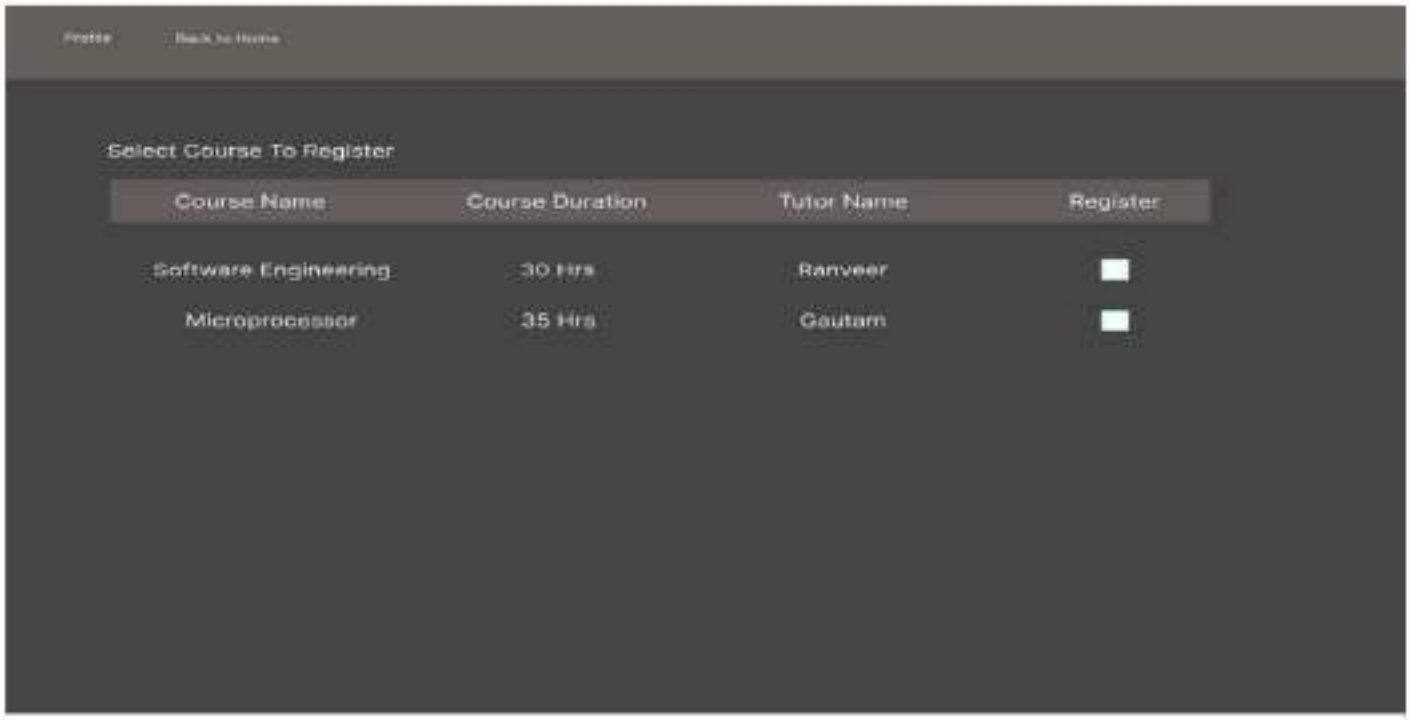

Upload Queries
Student
compare queries
Chatbot
fetch suitable reply
Admin
View answer
<<extends>>
Tutor
give feedback
update chatbot database

UI Design

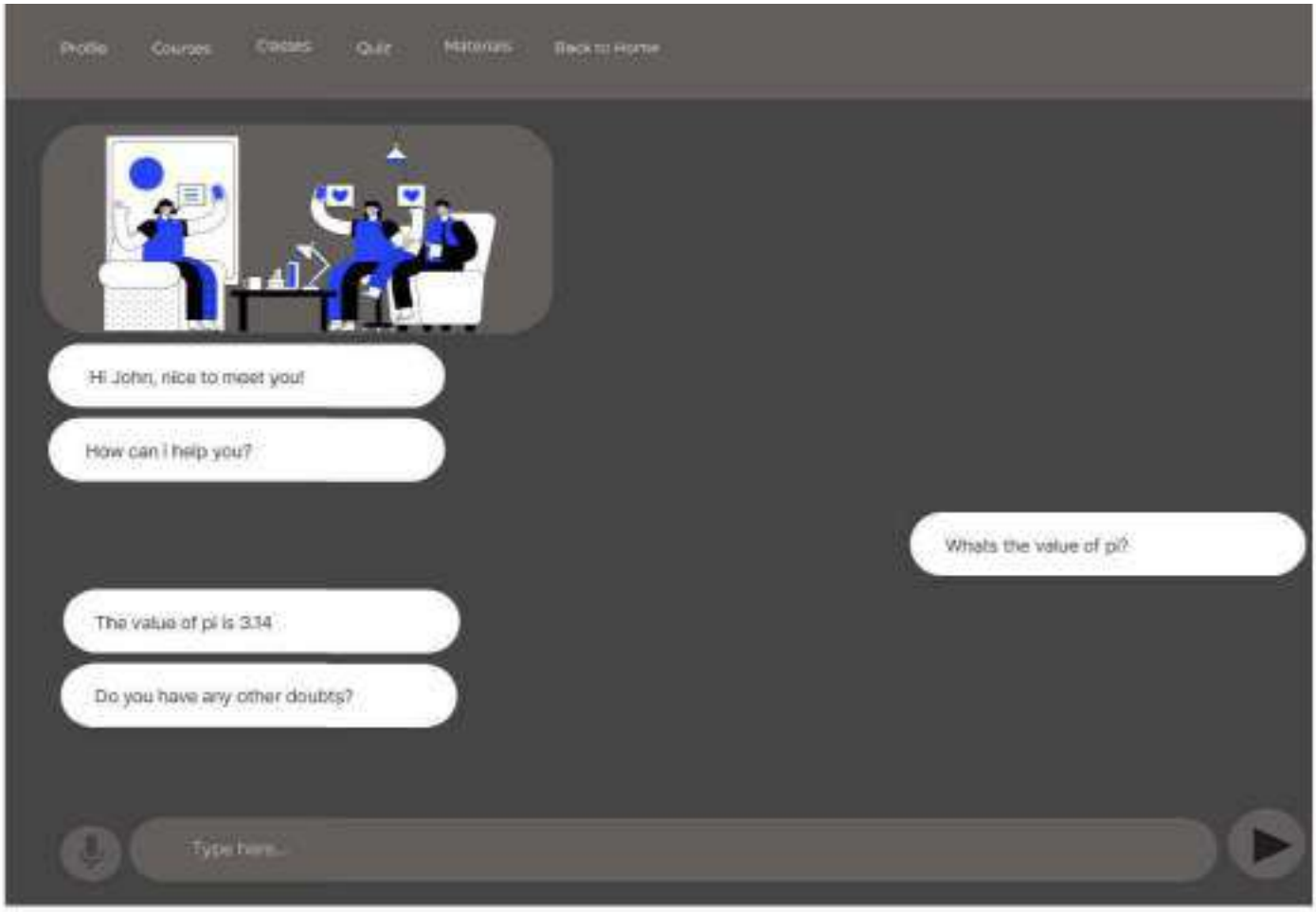
1. Student Dashboard

a. Student Home

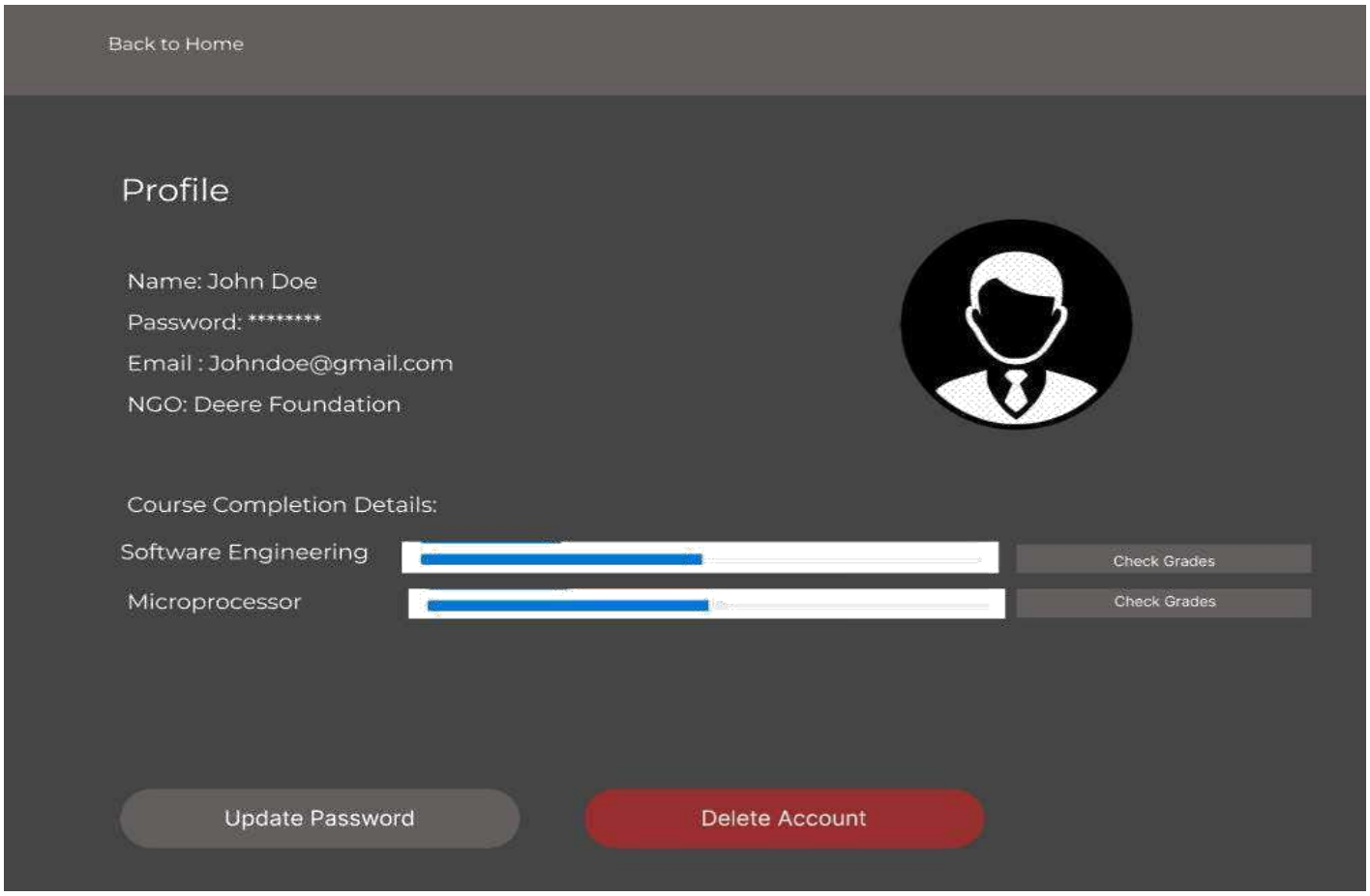
b. Student Course Registration:



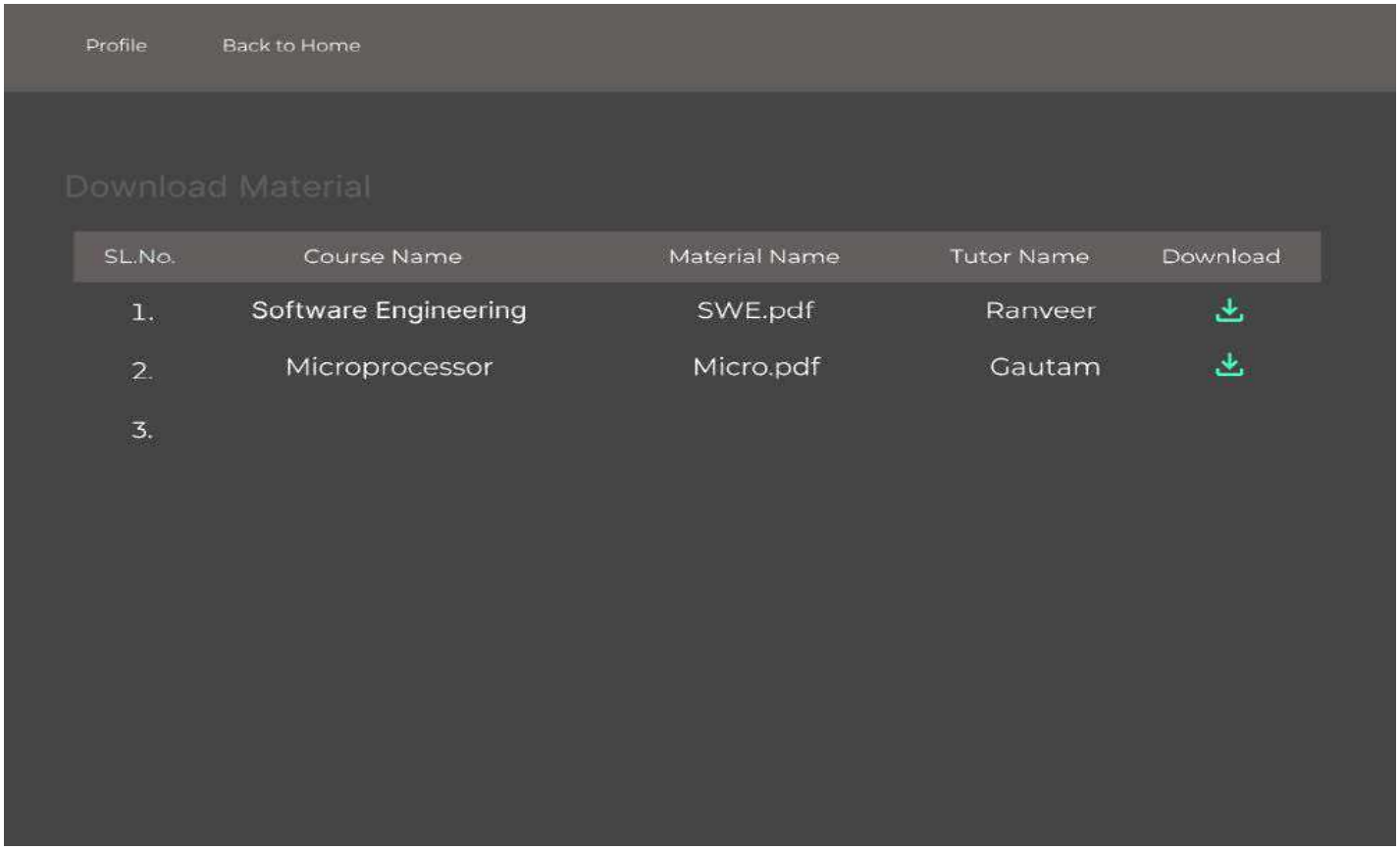
c. Student Chatbot



d. Student Profile

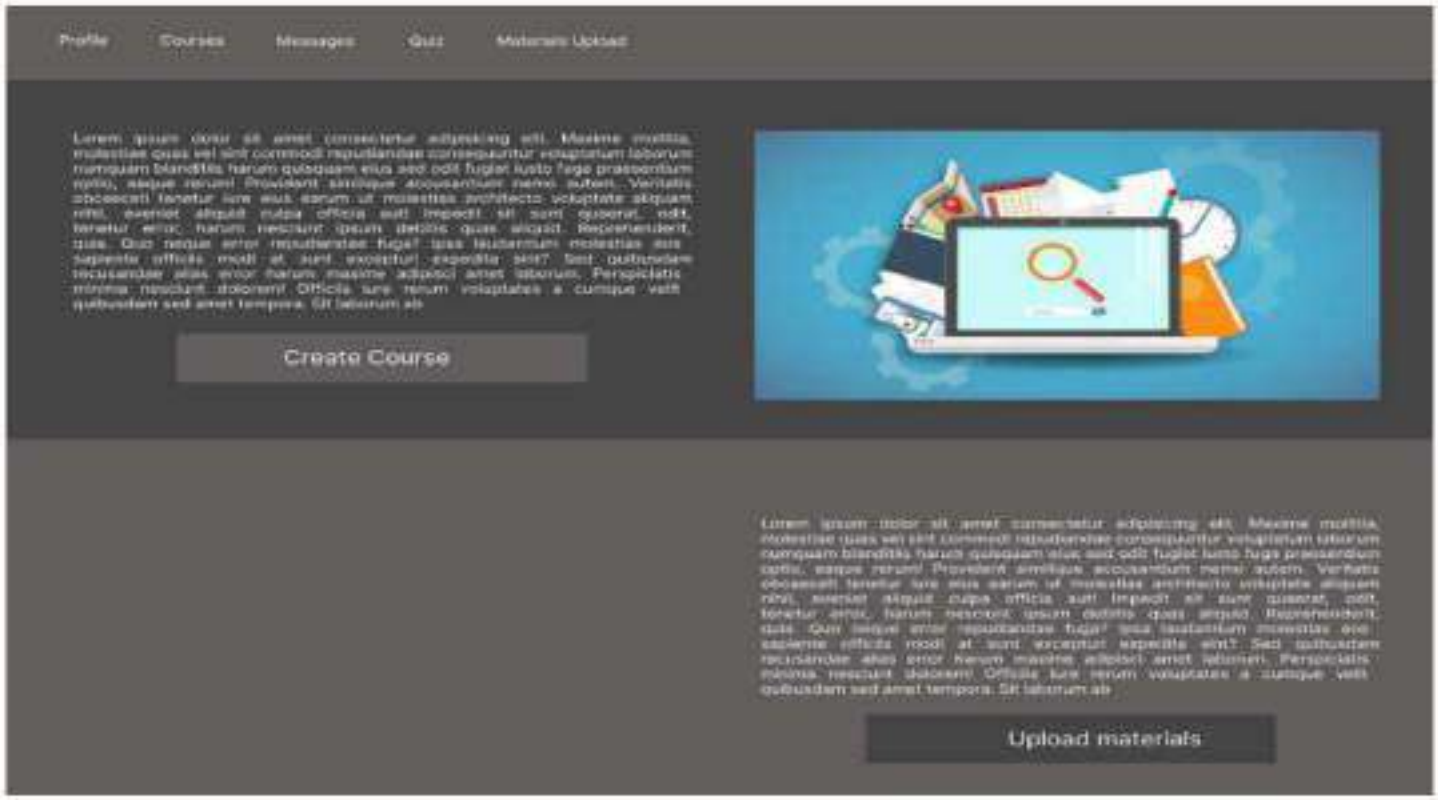


e. Student Materials

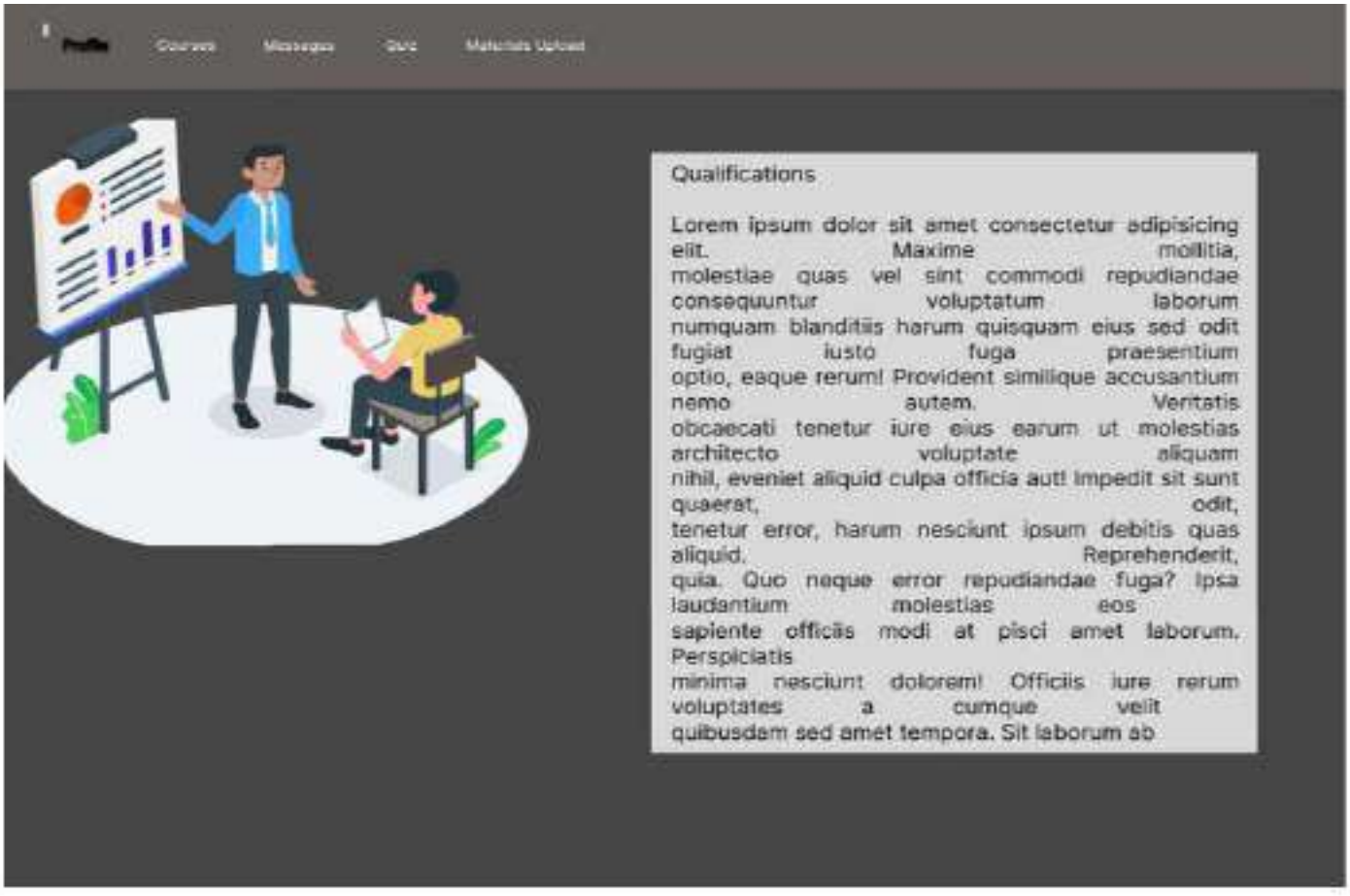


2. Tutor Dashboard

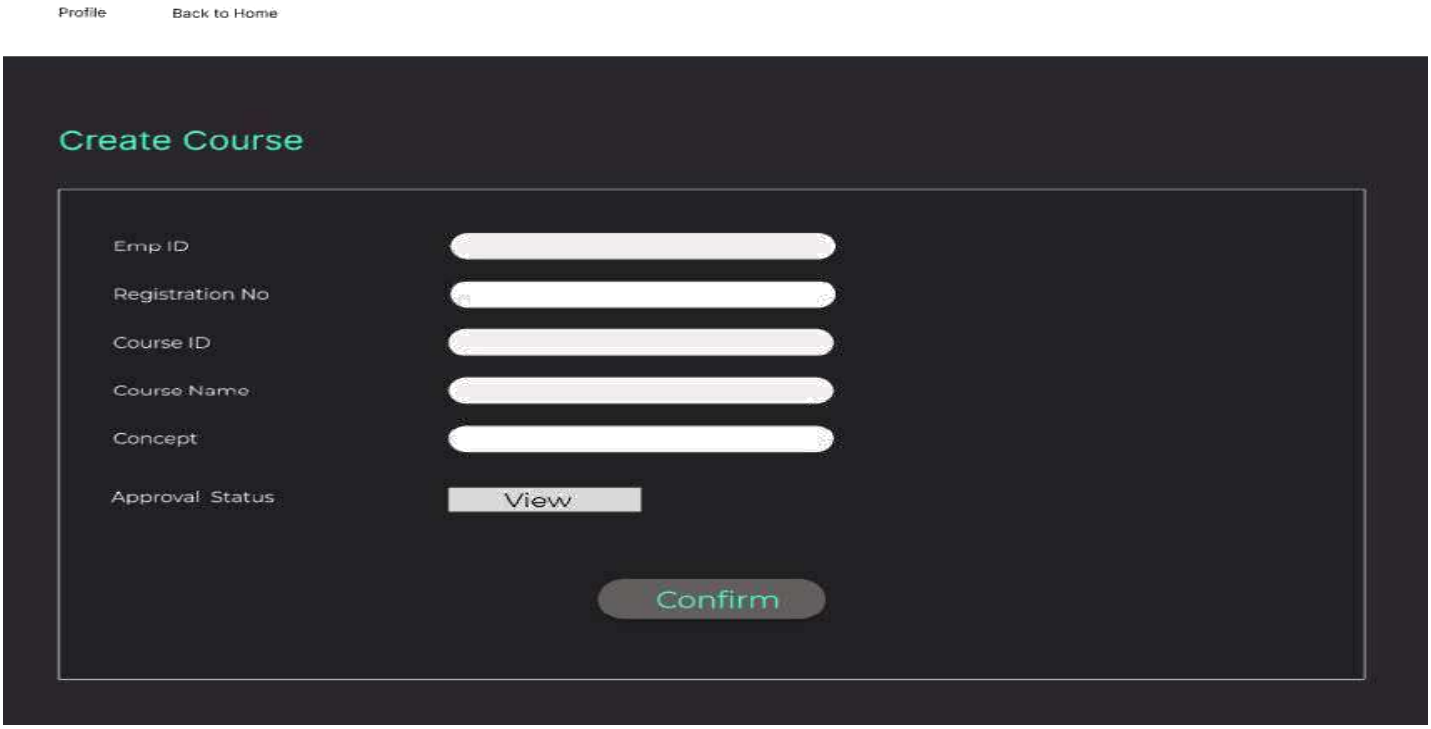
a. Tutor Home



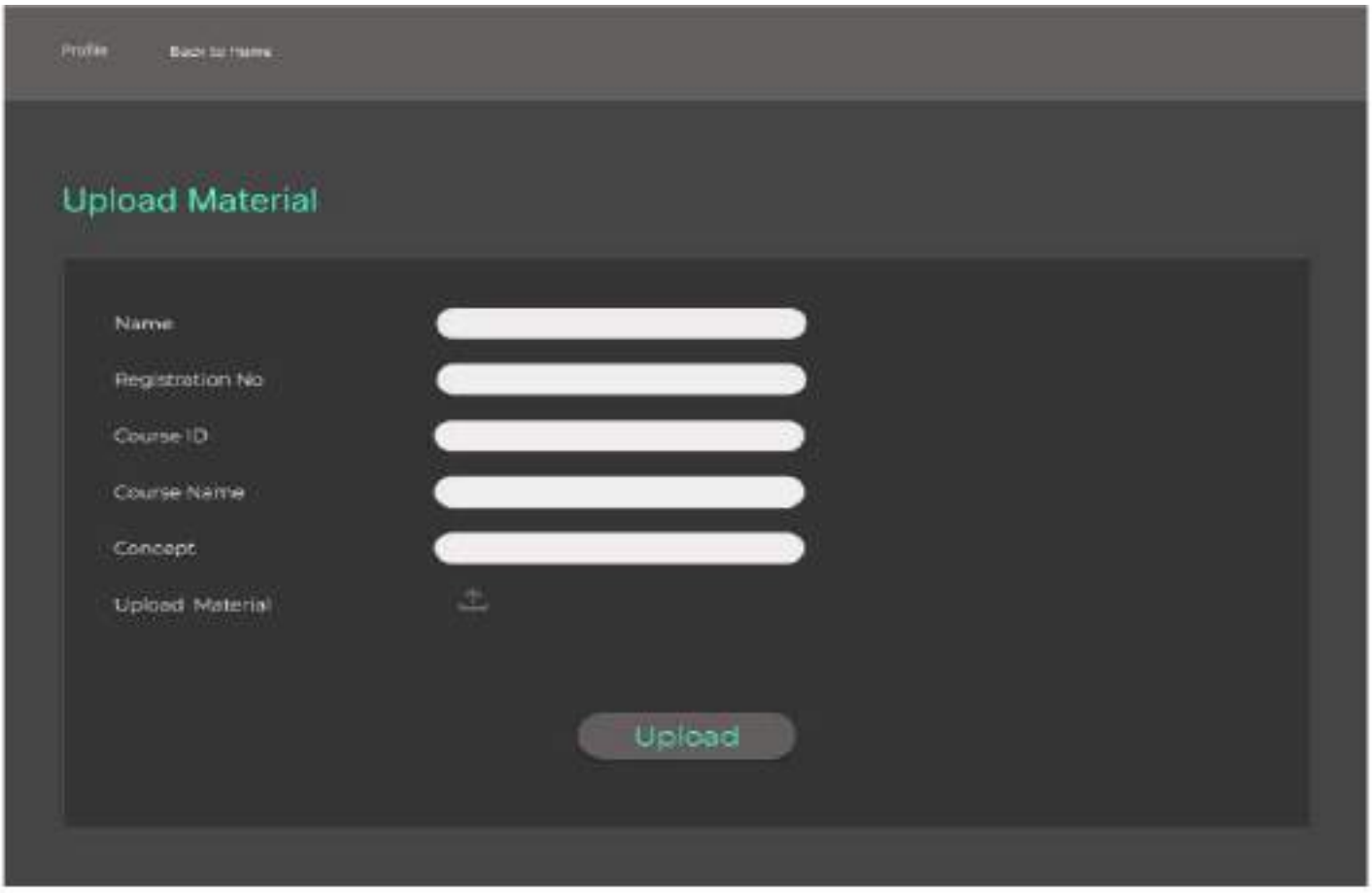
b. Tutor Profile



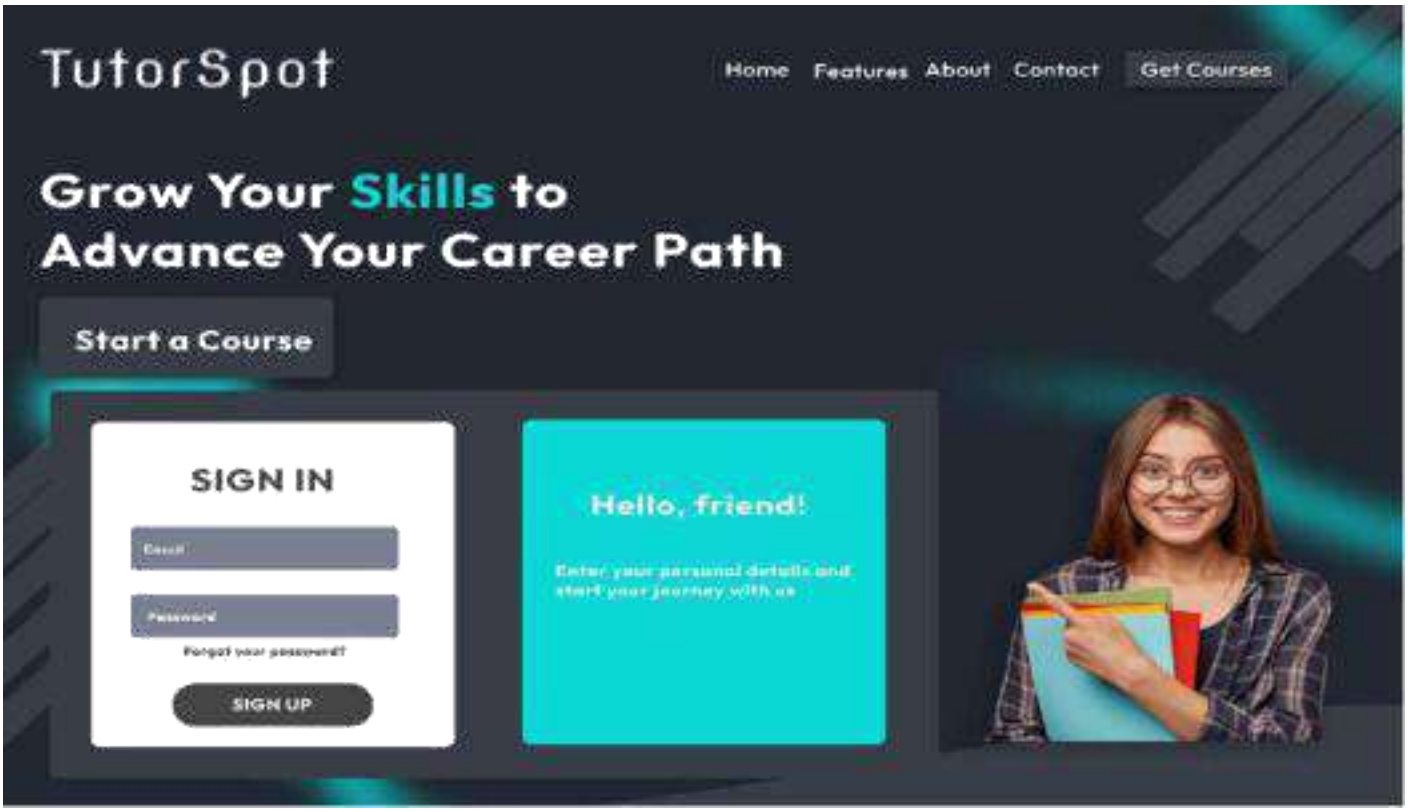
c. Tutor Course Creation



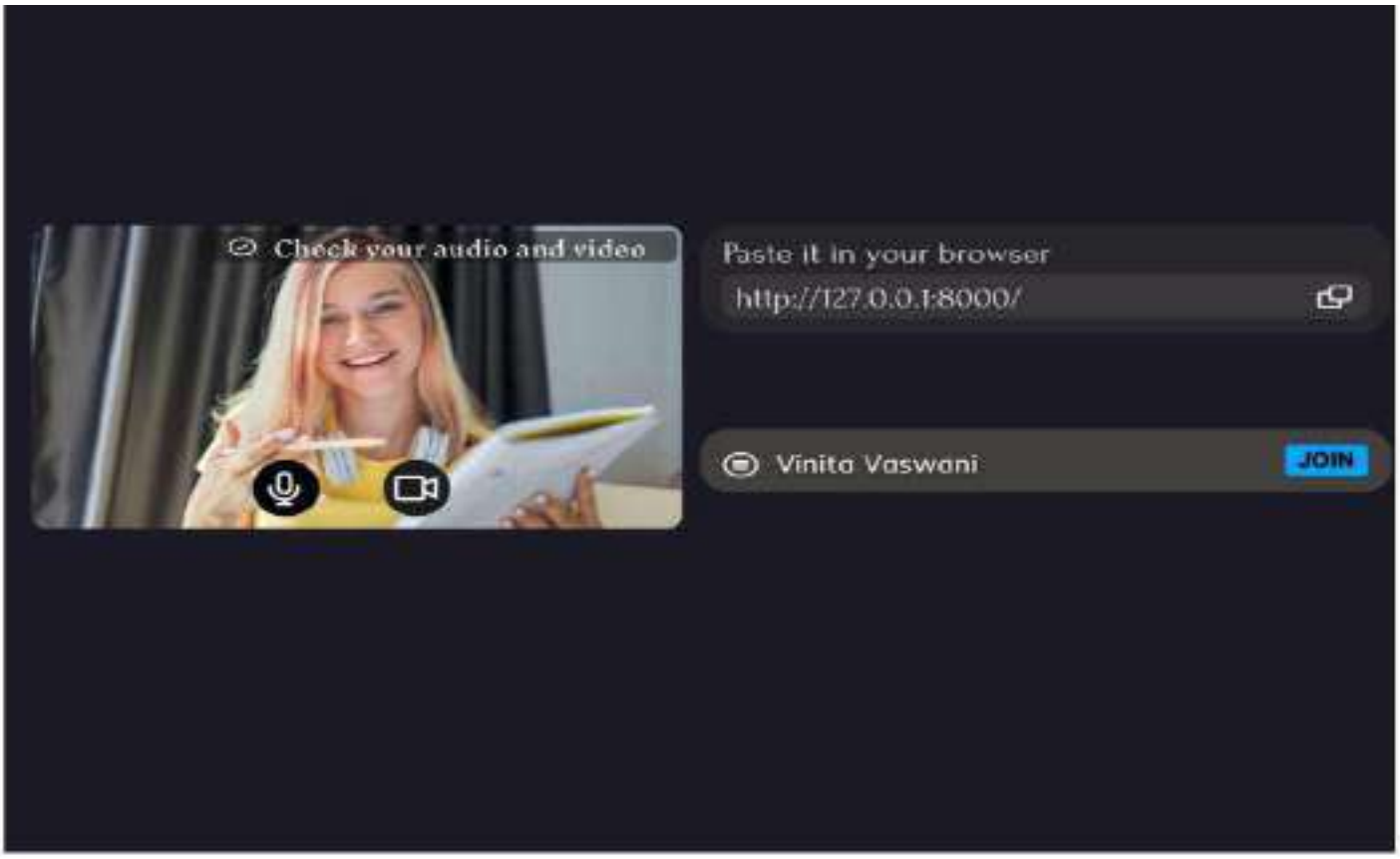
d. Tutor Material Upload

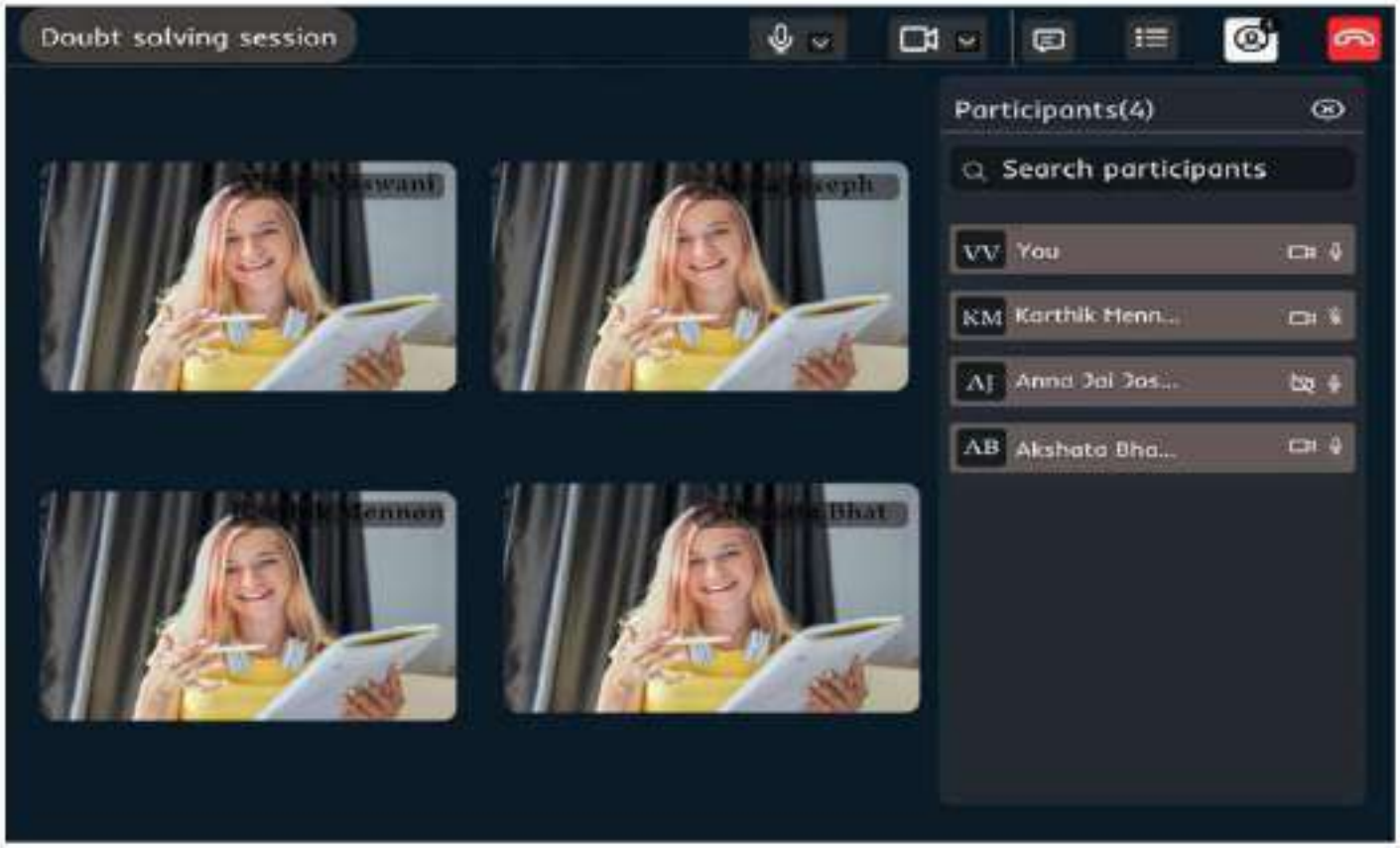


3. Video Conferencing

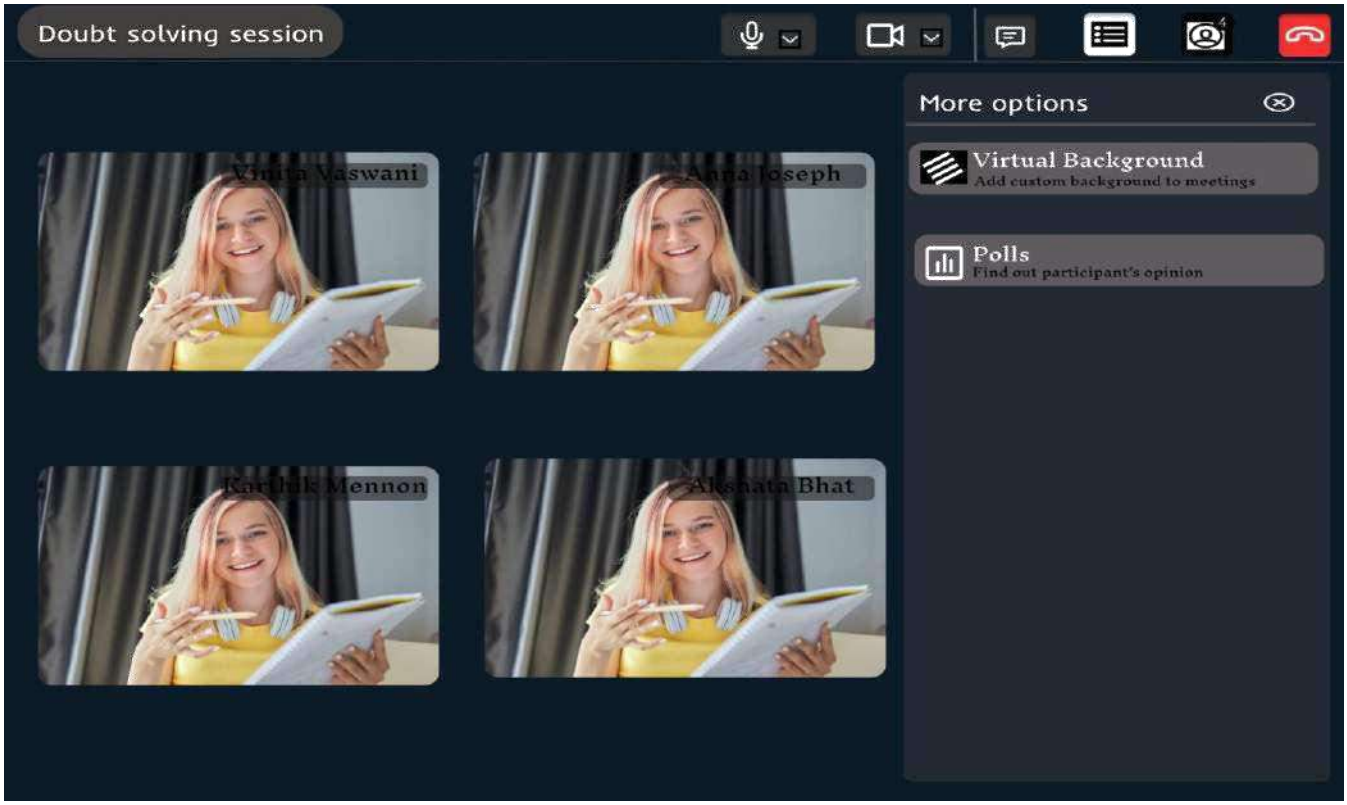


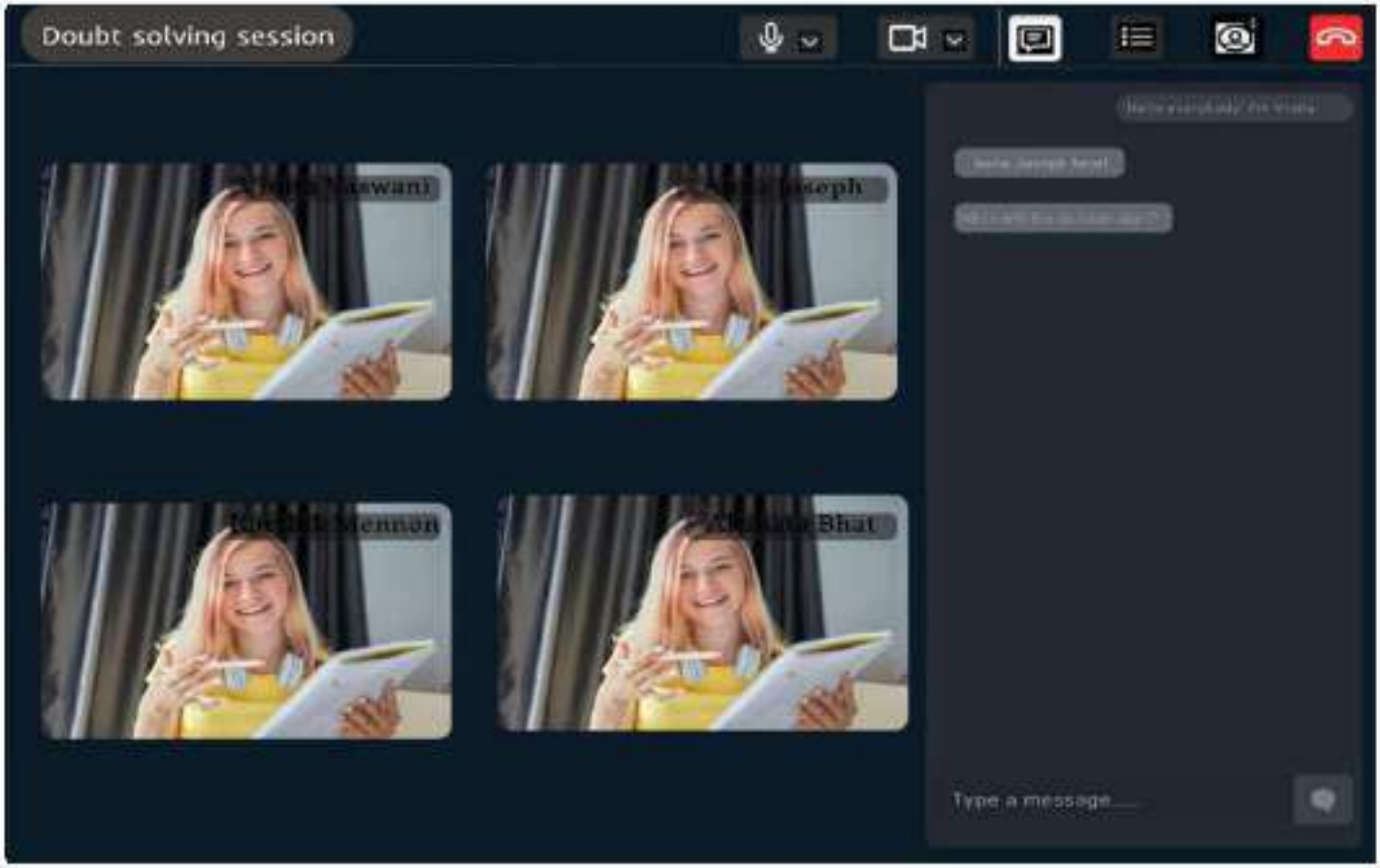
Enter meeting room:

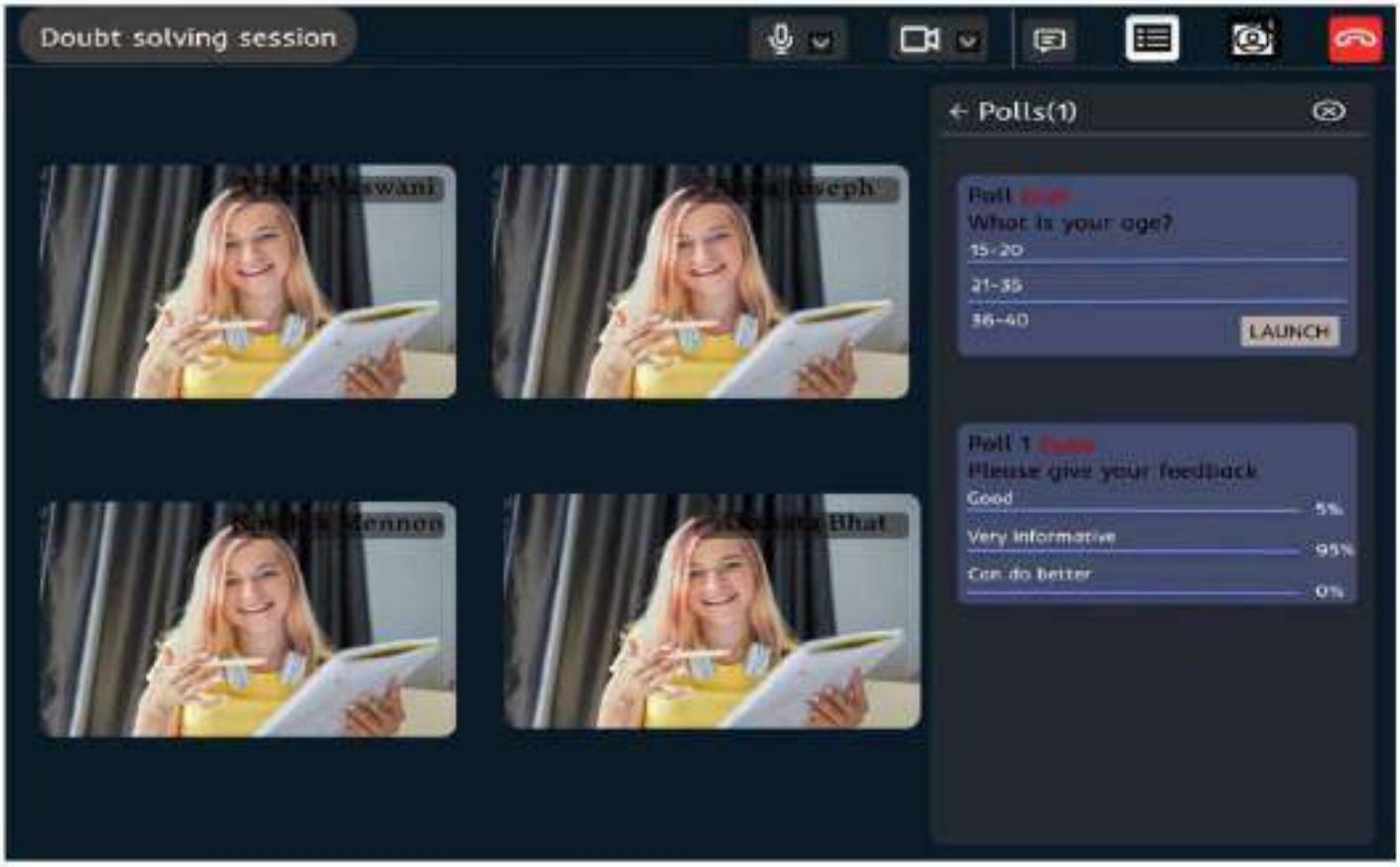




View more options:

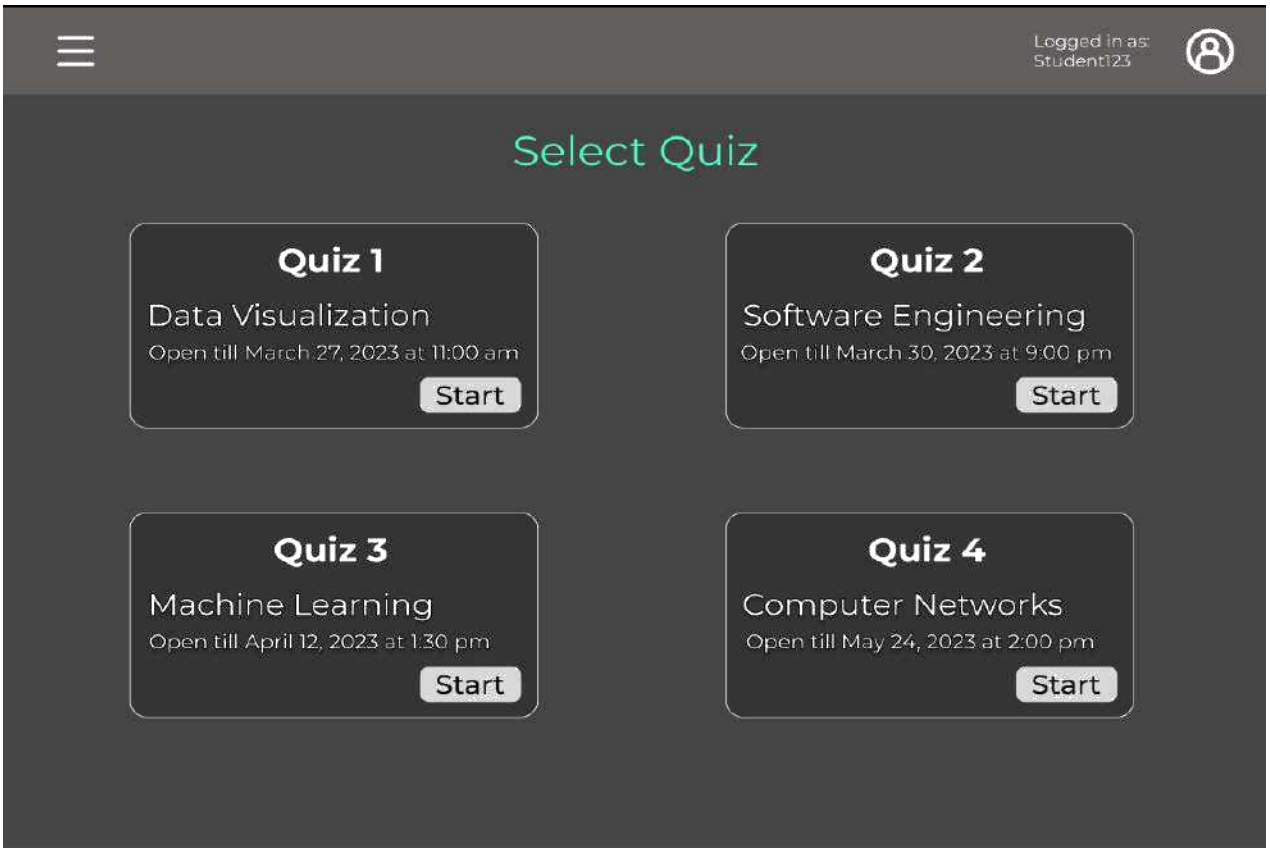


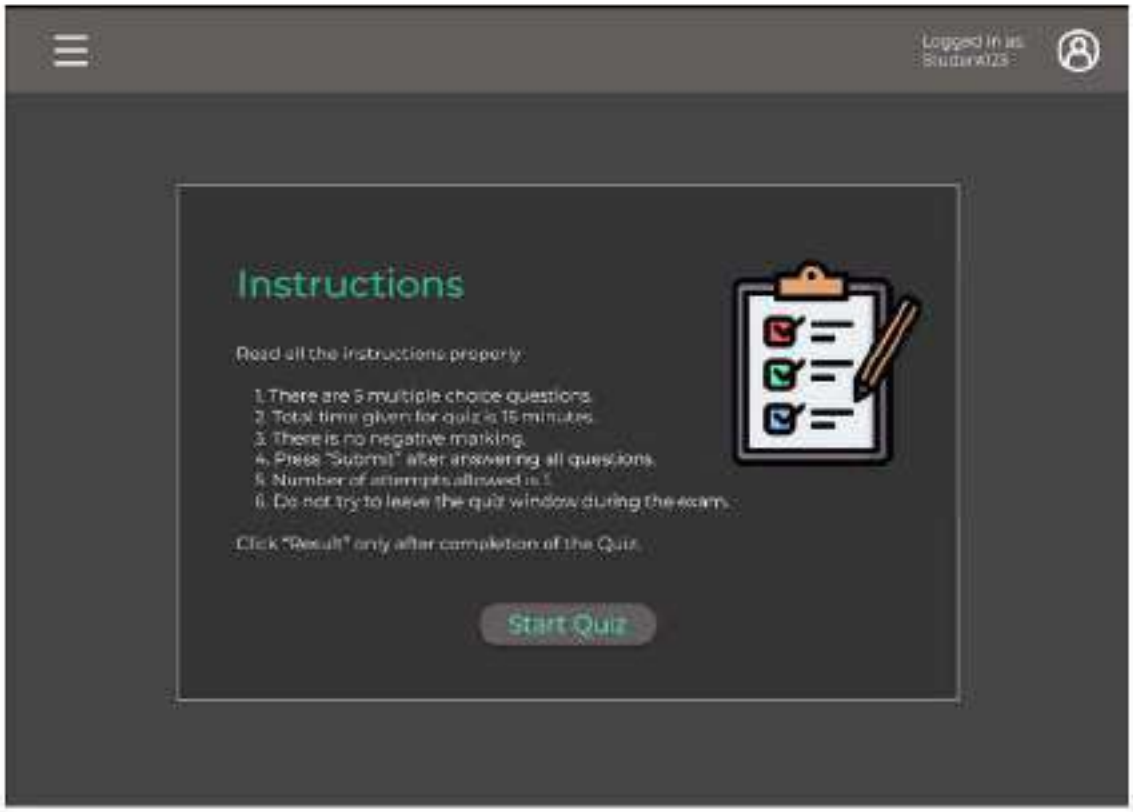

Doubt solving session
Type a message


Doubt solving session
Polls(1)
What is your age?
15-20
21-35
36-40
LAUNCH
Please give your feedback
Good
5%
Very informative
95%
Can do better
0%

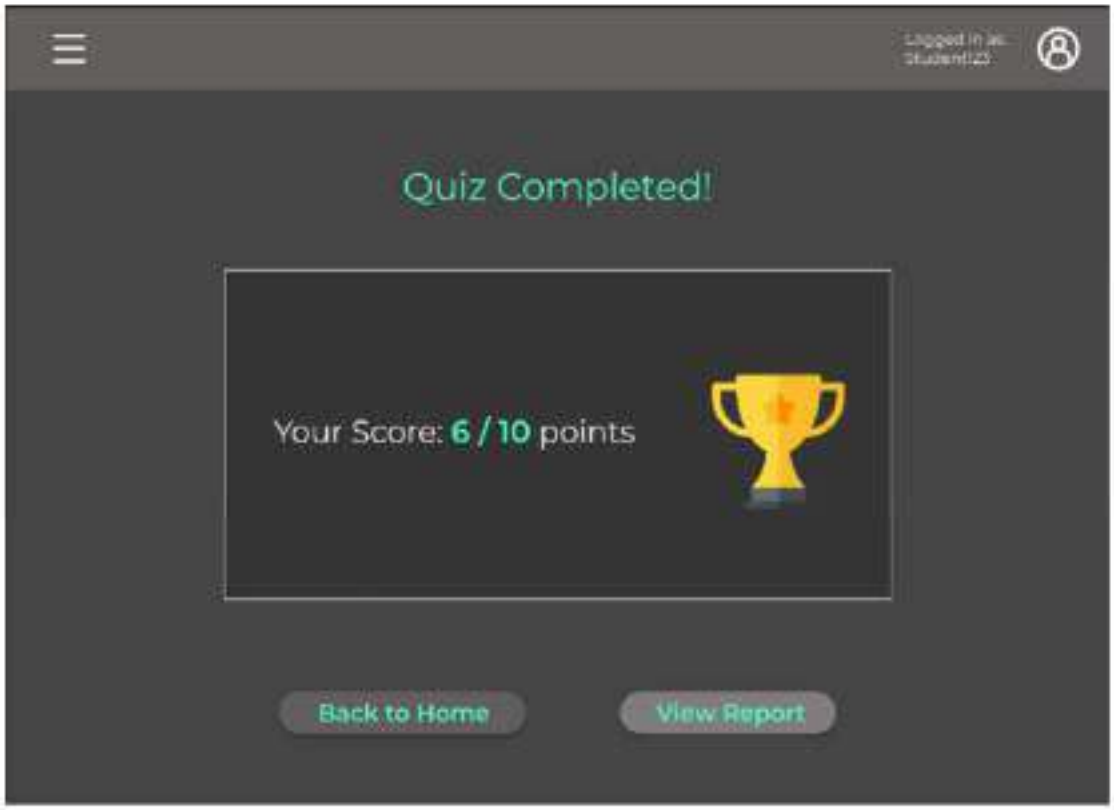
4. Quiz Platform

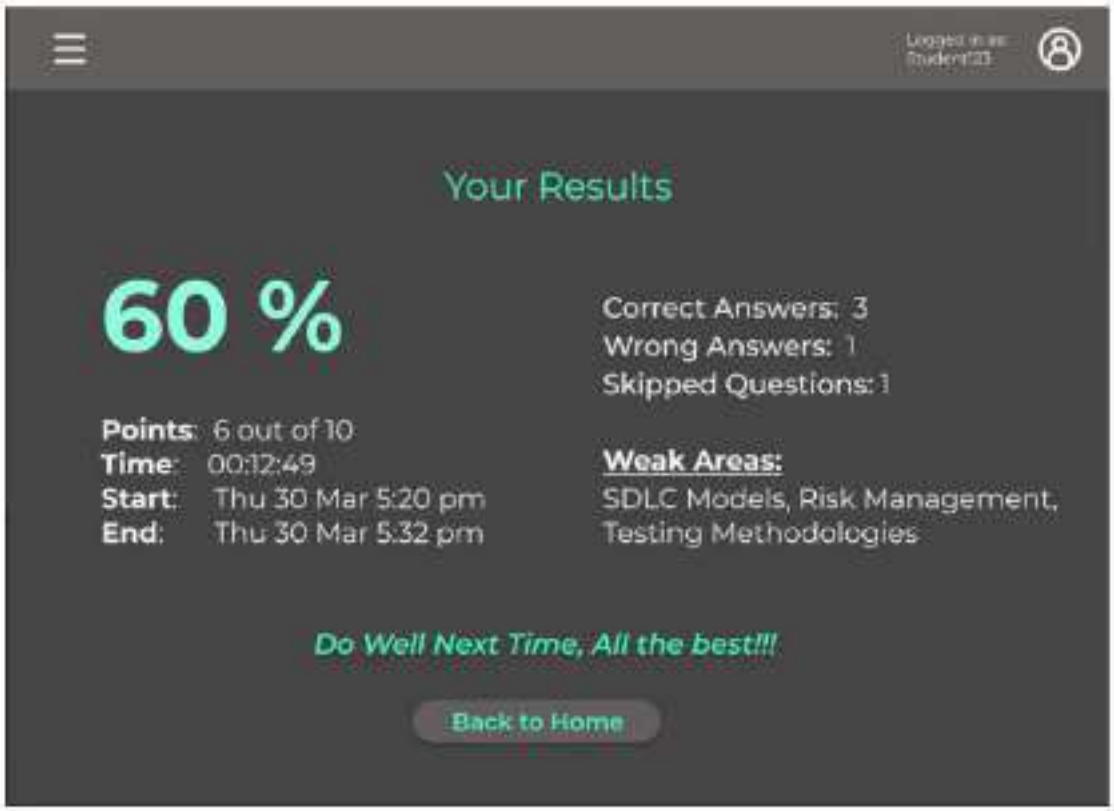
a. For Student




Logged in as:
Student123
Instructions
Read all the instructions properly
1. There are 5 multiple choice questions.
2. Total time given for quiz is 15 minutes.
3. There is no negative marking.
4. Press "Submit" after answering all questions.
5. Number of attempts allowed is 1.
6. Do not try to leave the quiz window during the exam.
Click "Result" only after completion of the Quiz.
Start Quiz

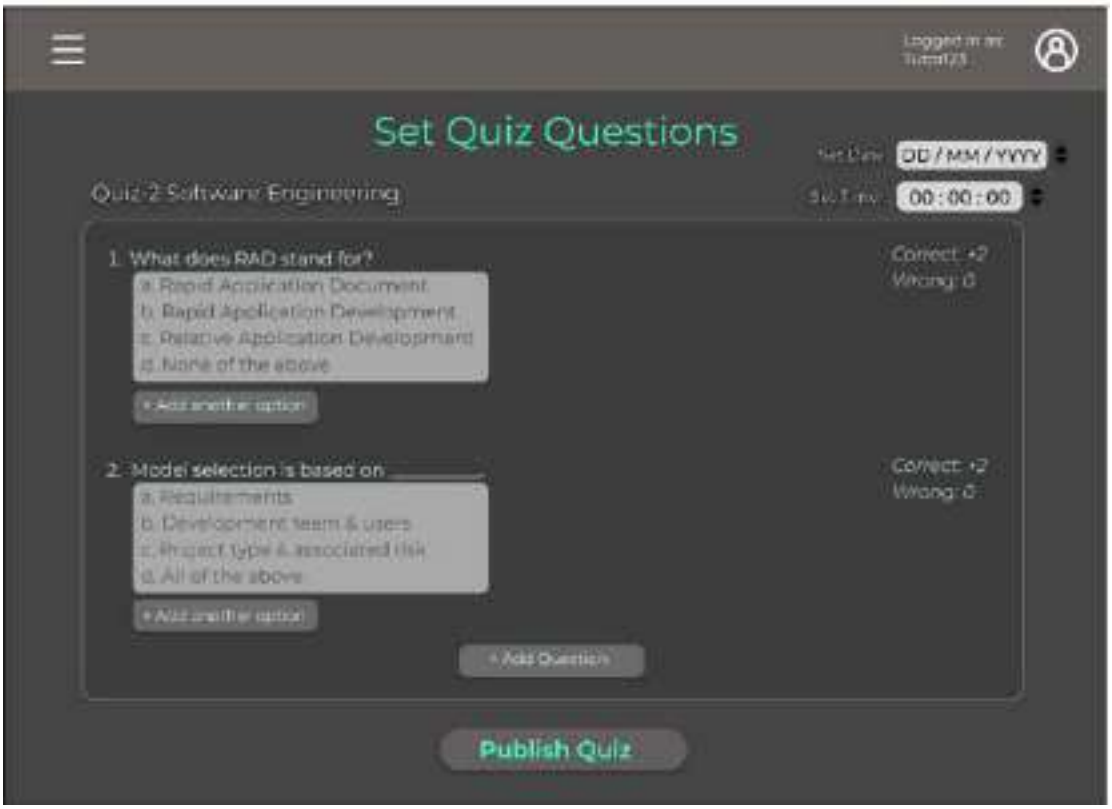
Logged in as:
Student123
Quiz 2 - Software Engineering
11:59
1. What does RAD stand for?
2 points
Rapid Application Document
Rapid Application Development
Relative Application Development
None of the above
2. Model selection is based on _____
2 points
Requirements
Development team & users
Project type & associated risk
All of the above
3. Which of the following option is correct?
2 points
The prototyping model facilitates the reusability of components
RAD Model facilitates reusability of components
Both RAD & Prototyping Model facilitates reusability of components
None
Submit

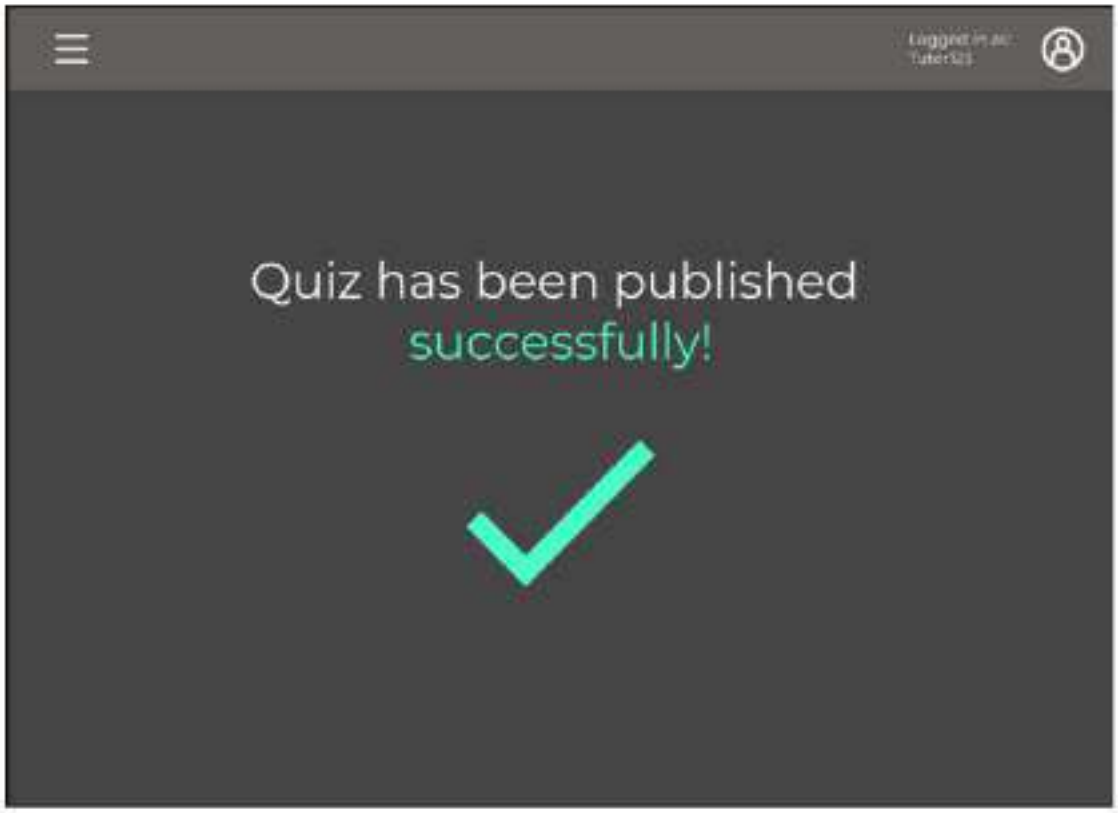

Quiz Completed!
Your Score: 6 / 10 points
Back to Home
View Report

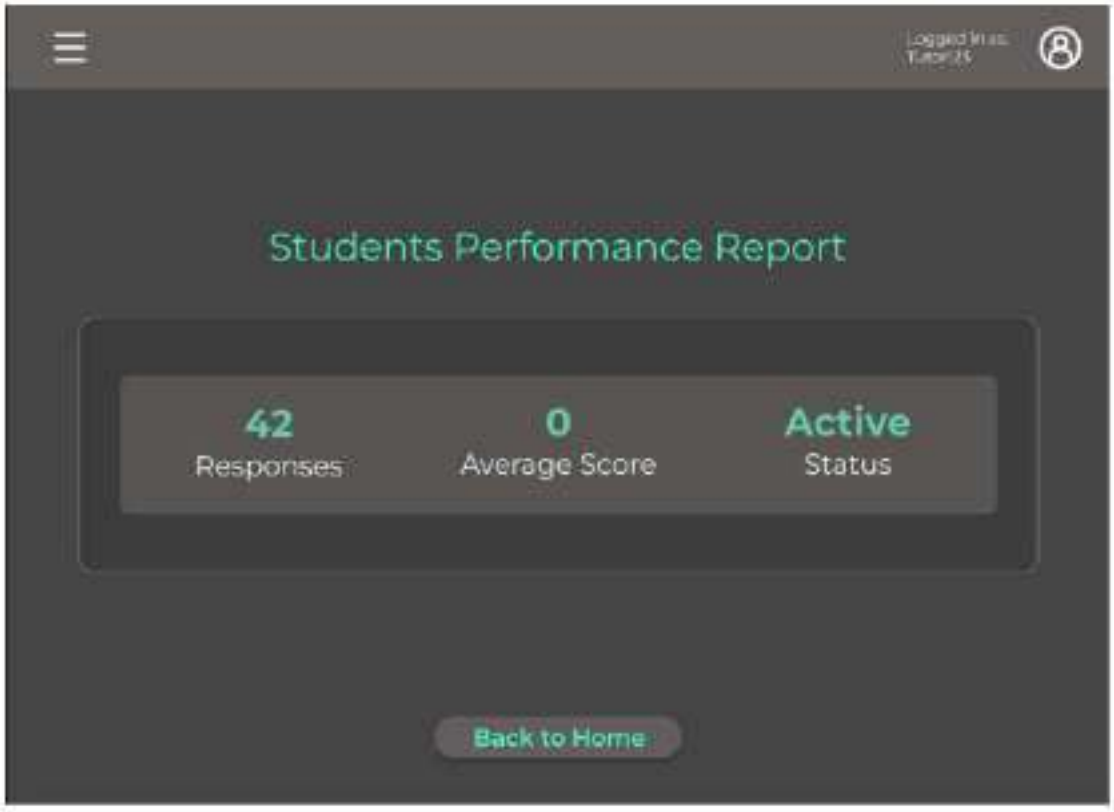

Your Results
60 %
Correct Answers: 3
Wrong Answers: 1
Skipped Questions: 1
Points: 6 out of 10
Time: 00:12:49
Start: Thu 30 Mar 5:20 pm
End: Thu 30 Mar 5:32 pm
Weak Areas:
SDLC Models, Risk Management, Testing Methodologies
Do Well Next Time, All the best!!!
Back to Home

b. For Tutor

Select Course
Data Visualization
Course Start Date: 02 Feb 2023
Course Duration: 12 Weeks
Course End Date: 09 May 2023
Number of Students enrolled: 27
Create Quiz
Software Engineering
Course Start Date: 27 Feb 2023
Course Duration: 08 Weeks
Course End Date: 27 Apr 2023
Number of Students enrolled: 65
Create Quiz

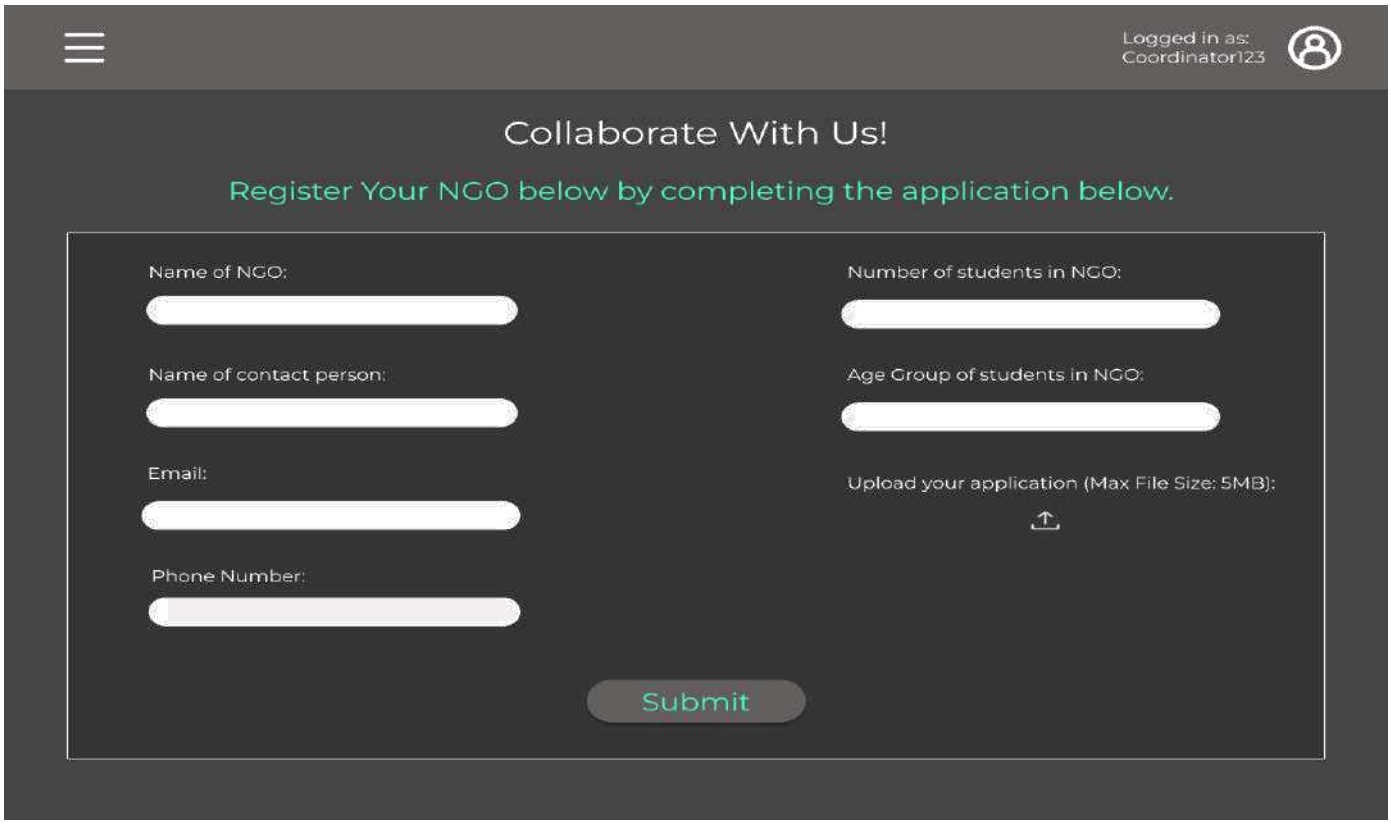

Set Quiz Questions
Quiz 2 Software Engineering
DD / MM / YYYY
00 : 00 : 00
1. What does RAD stand for?
a. Rapid Application Document
b. Rapid Application Development
c. Relative Application Development
d. None of the above
Correct: +2
Wrong: 0
2. Model selection is based on _____
a. Requirements
b. Development team & users
c. Project type & associated risk
d. All of the above
Correct: +2
Wrong: 0
Publish Quiz


Quiz has been published
successfully!

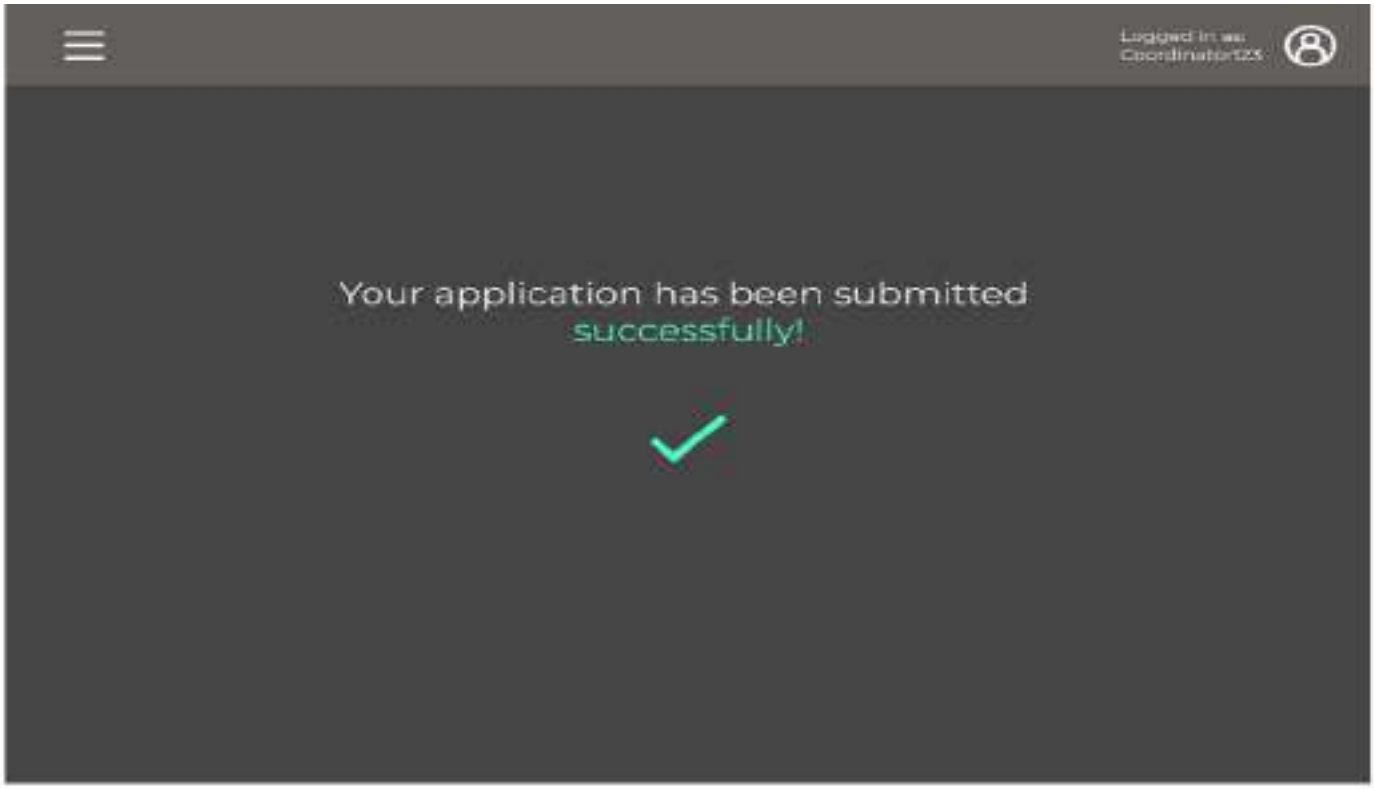

Students Performance Report
42
Responses
0
Average Score
Active
Status
Back to Home

5. Collaboration with NGOs

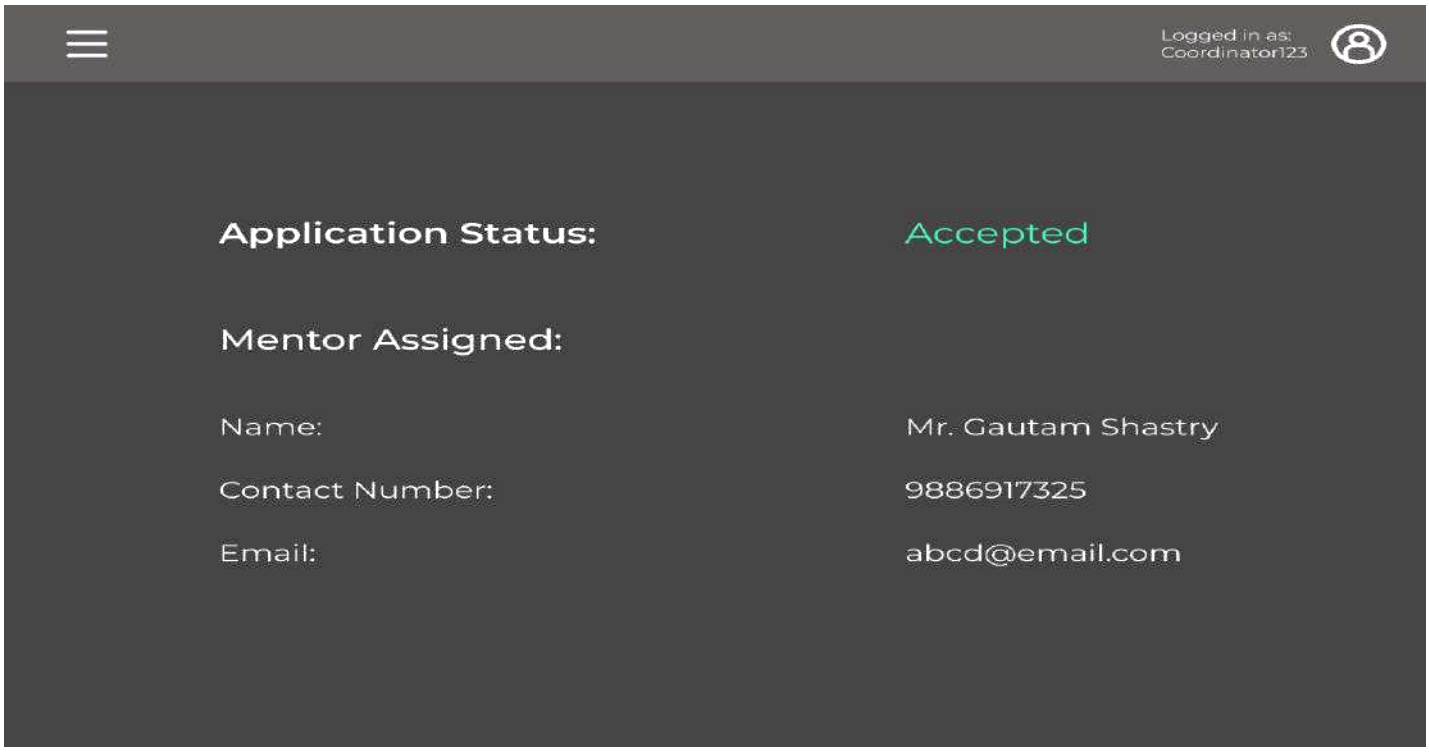
Register NGO:



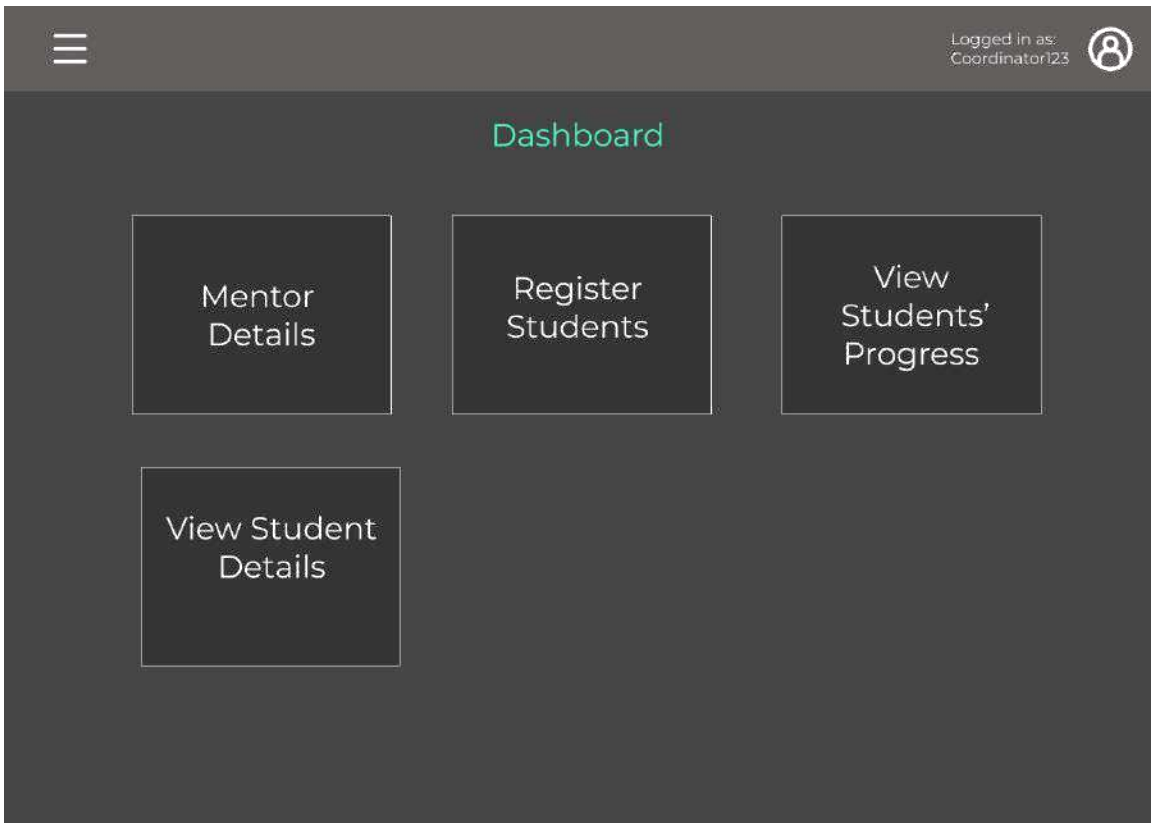
6. Confirmation of registration:



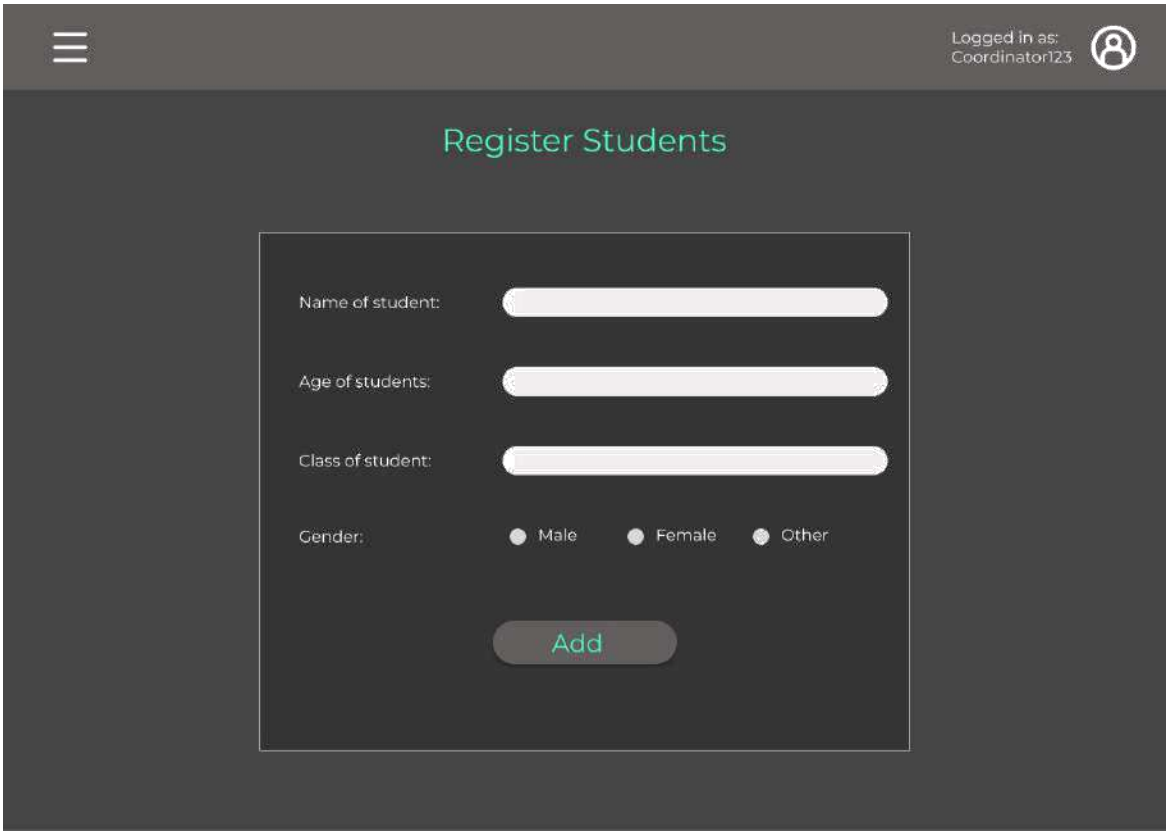
7. Application details page:



8. NGO Dashboard:

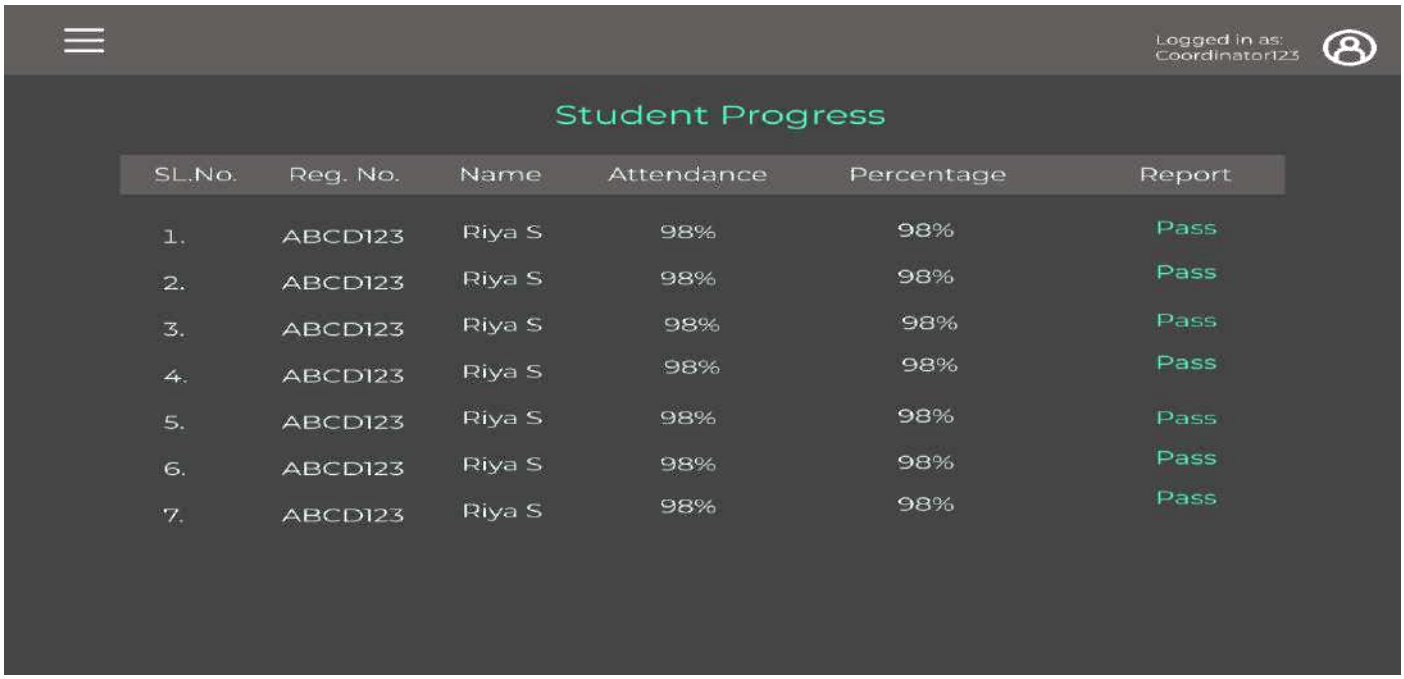


9. Register students:



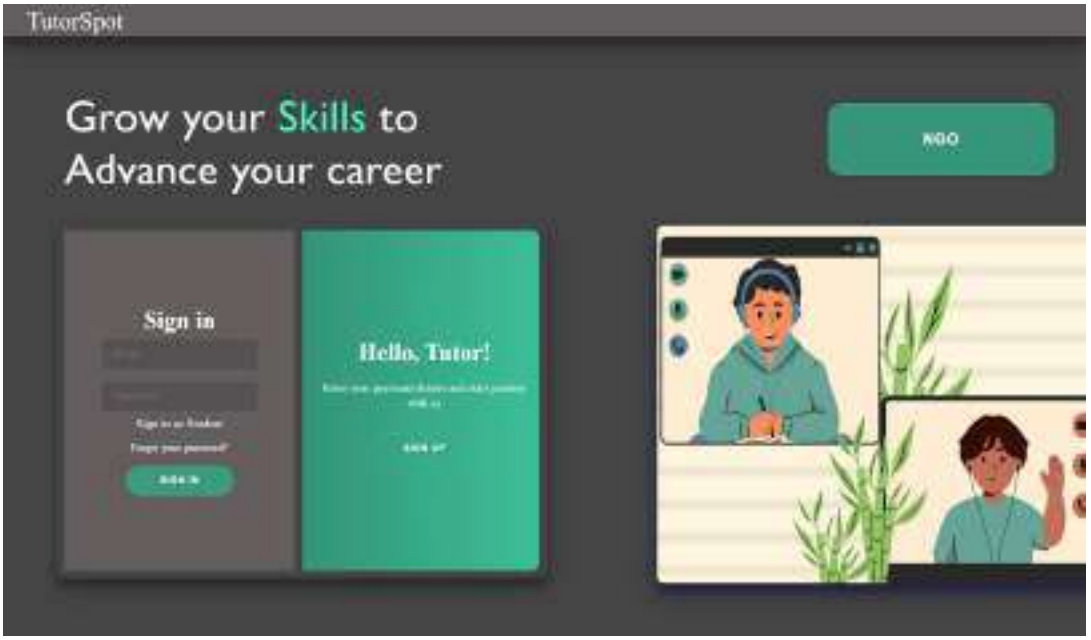
10. View students:

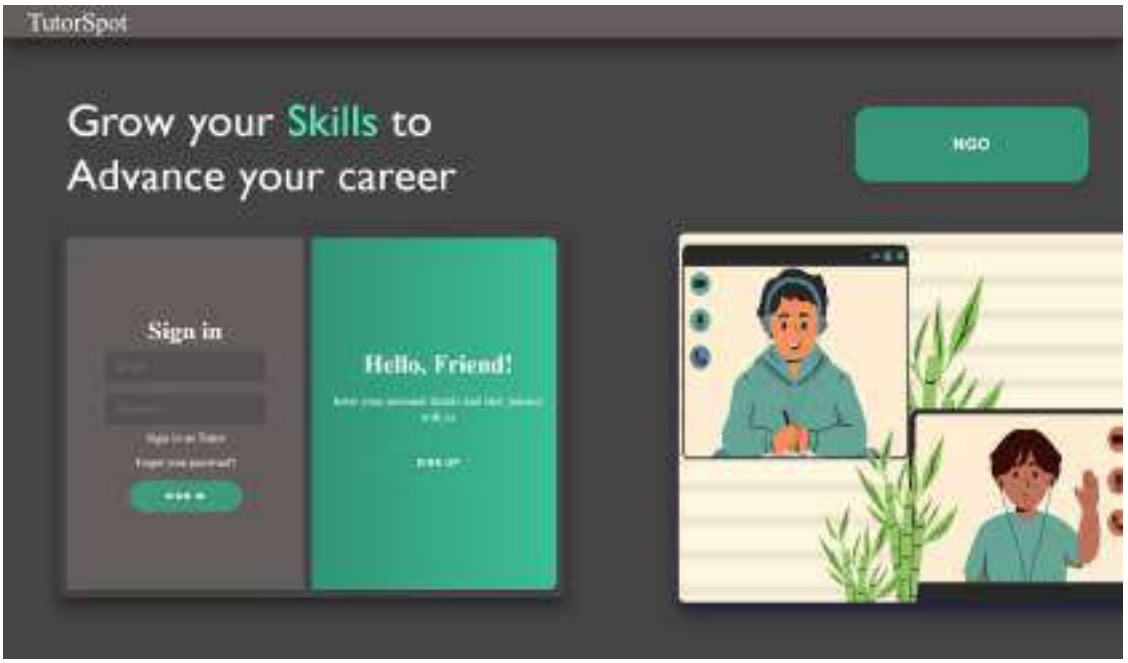
11. Student progress



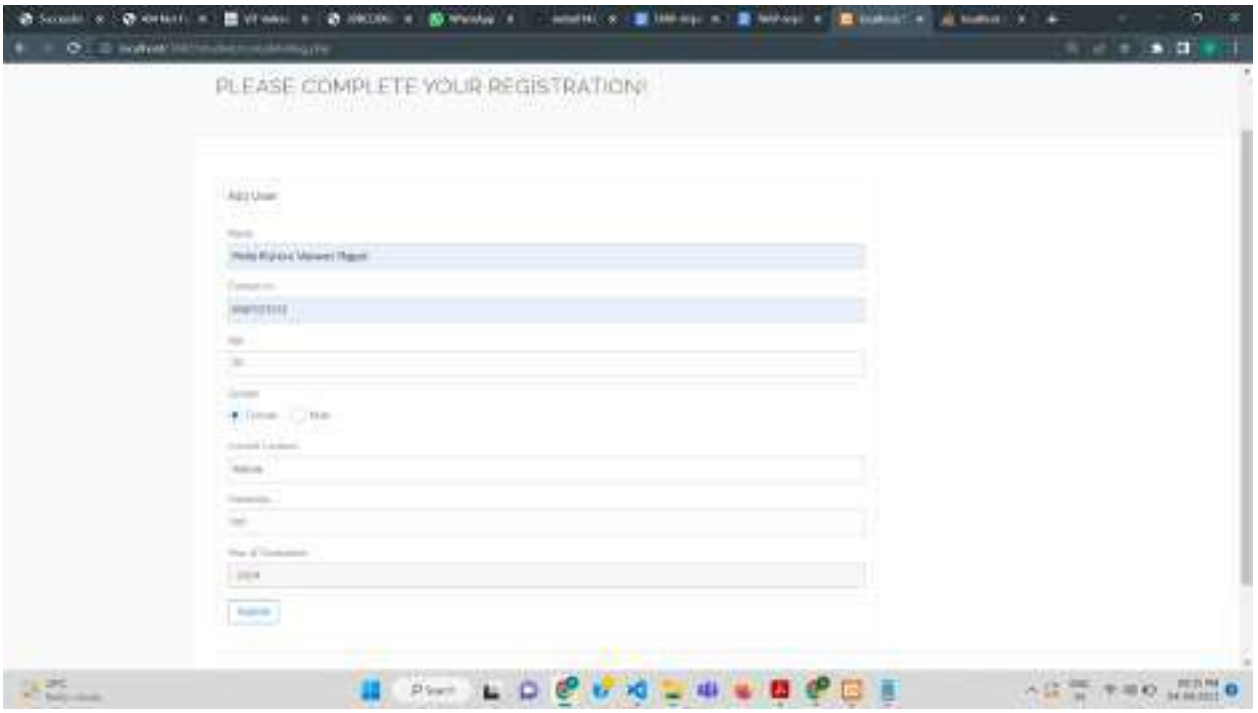
IMPLEMENTATION and RESULTS:

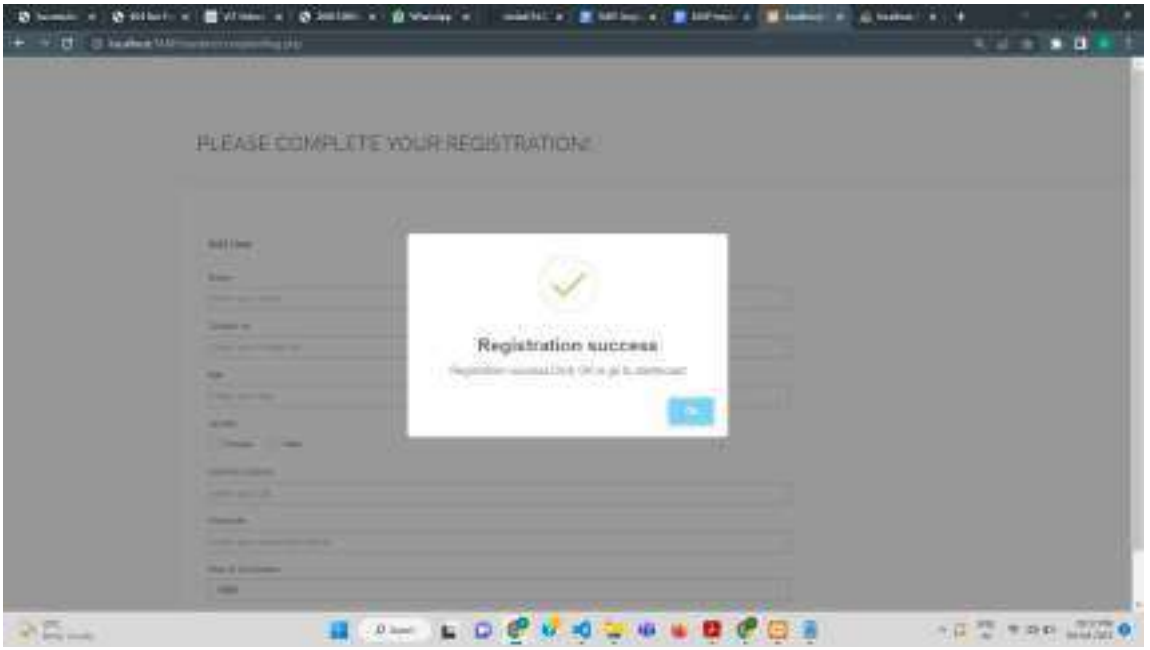
AUTHENTICATION:





Here we provide sign-in and register options. If a user visits the website for the first time, then he/she can use the register option else he/she can login. If the user logs in for the first time and registration is not completed, it gets redirected to the below page.





After successful registration the dashboard is displayed. Depending on the option selected by user i.e sign in as tutor/ student , clicking on the OK button redirects to the respective dashboard

	email	name	age	gender	phone	yearOfStudy	location	university	ngo
Edit Copy Delete	abc@gmail.com	Vinita Kishore Vaswani Rajpal	20	female	8591121312	2024	Mumbai	VIT	na
Edit Copy Delete	anna@gmail.com	Anna Jai Joseph	20	female	8591121312	2024	Vellore	VIT	na
Edit Copy Delete	vinita@gmail.com	Vinita Kishore Vaswani Rajpal	20	female	8591121312	2025	Mumbai	VIT	na

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	email	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
2	username	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
3	age	int(10)			No	None			Change Drop More
4	gender	varchar(10)	utf8mb4_general_ci		No	None			Change Drop More
5	phone	varchar(20)	utf8mb4_general_ci		No	None			Change Drop More
6	experience	int(10)			No	None			Change Drop More
7	location	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
8	university	varchar(40)	utf8mb4_general_ci		No	None			Change Drop More
9	ngo	varchar(20)	utf8mb4_general_ci		No	na			Change Drop More

All the student and tutor details get stored in a database in the above format.

MODULE WISE IMPLEMENTATION:

I.STUDENT MODULE:

1. **Home Page:**

Once the student logins into the website, a php session is created, he/she lands on a home page from where they can redirect to other pages for performing specific tasks like course registration, materials download, take quiz, attend online lecture, and take quiz. The student module is linked to the quiz and the video conference module and these co-exist helping the student to take an online class and also to get the grade of a quiz that they took.

2. Profile Page:

Once a student enters the profile section of the webpage, he/she can view all the details associated with them and the courses for which they have registered. The user can then logout from the site and thus destroys all the session cookies that were created.

←T→	email	username	password	completed	ngo
Edit Copy Delete	aadharsh.s2020@vitstudent.ac.i	adf	213	na	na
Edit Copy Delete	abc@gmail.com	abc	abc	completed	na
Edit Copy Delete	abcd@gmail.com	abcd	123445	na	na
Edit Copy Delete	adkj@gka	sjkd	1234	na	na
Edit Copy Delete	ads@gmail.com	adc	12345	na	na
Edit Copy Delete	alappattsaadharsh@gmail.com	aads	12334	na	na
Edit Copy Delete	anna@gmail.com	aNNa	anna123	completed	na

The student profile details are accessed from the above database.

3. Course Page:

If the student wants to register for a course, they enter the Course Page, where a list of available courses along with the tutor details are provided. The student can then select the course of his/her choice and proceed to registration. Once registered the student would be able to contact that tutor and attend the online classes for that course.

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	coursename	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
☐	2	username	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
☐	3	tutorname	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
☐	4	tutorid	int(10)			No	None			Change Drop More
☐	5	email	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More

Once student registers for a course, it is stored in a database of the above format.

4. Materials Page:

If student wants to download materials for reference, he/she enters the material section which displays all the materials available along with the tutor name and the course for which these materials where uploaded for. The student can download the material they prefer from this list.

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	coursename	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
☐	2	tutorname	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
☐	3	filename	varchar(60)	utf8mb4_general_ci		No	None			Change Drop More
☐	4	tutorid	int(10)			No	None			Change Drop More

The materials are accessed using the above database. The files are stored in a remote server and they are accessed using the filename in the database.

II. TUTOR MODULE:

1. Home Page:

Once the tutor logins into the website, a php session is created, he/she lands on a home page from where they can redirect to other pages for performing specific tasks like course creation, materials download, create quiz, take class, view details of all the students enrolled in a course. The tutor module is linked to the quiz and the video conference module and these co-exist helping the tutor to take an online class and also to assign quizzes to the students.

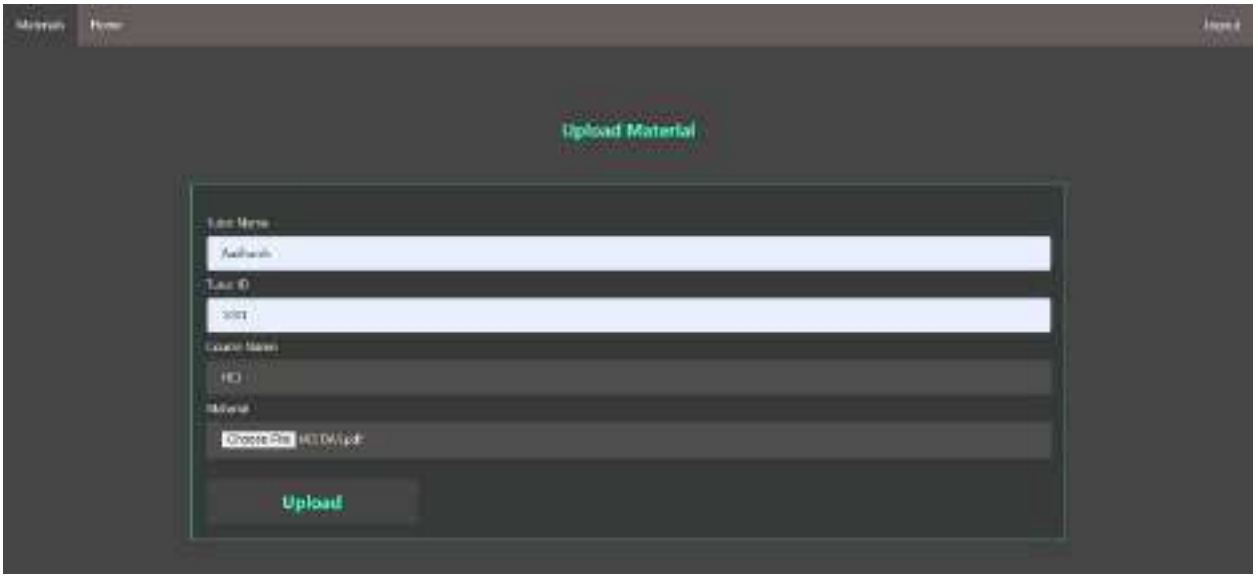
email	username	age	gender	phone	experience	location	university	ngo
alappattsaadharsh@gmail.com	Aadharsh	20	male	9994468003	0	Coimbatore	VIT	na
alappattsaadharsh@gmail.com	Aadharsh	20	male	8591121312	3	Mumbai	VJTI	na
qwe@gmail.com	qwe	20	male	6887	0	Coimbatore	VIT	na

2. Course Creation:

The tutor can create a course for the students to enroll themselves in by entering the above details and submitting the form. Once this is done, the course details are stored in a database from where it can be retrieved to be viewed by the students.

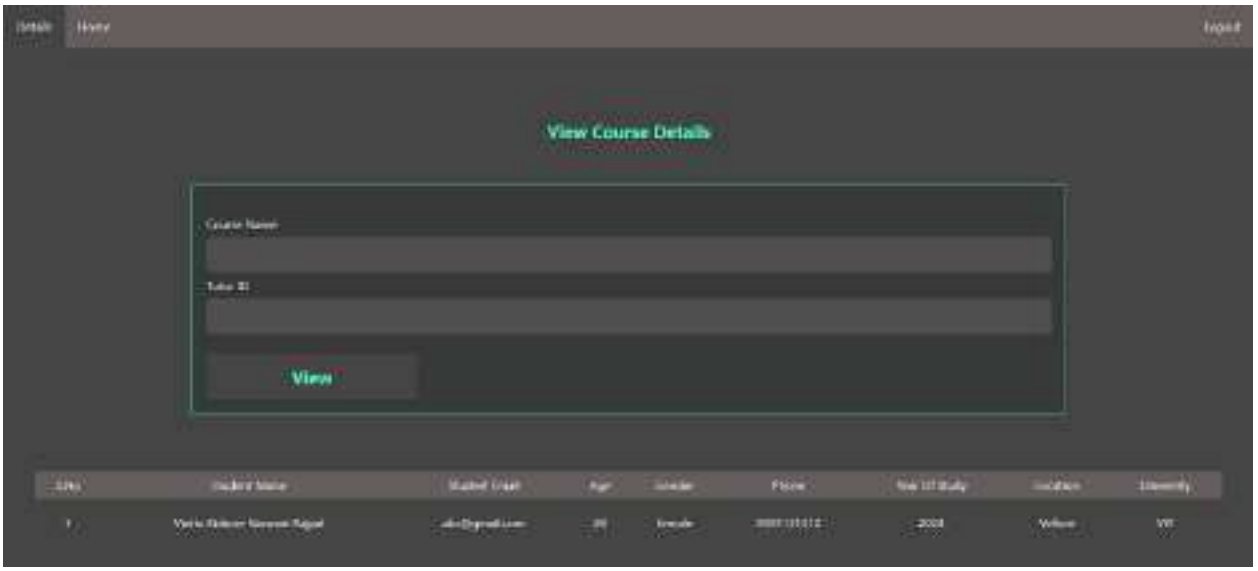
coursename	tutorname	duration	tutorid
Software Engineering	Shiva	30Hr	2001
Microprocessor	Gautham	30Hr	1001
PDC	Prasanth	30Hr	3001
ISM	Selvi	20Hr	5001
ISM	Selvi	20Hr	40003
ISM	Selvi	20Hr	40003
JavaProgramming			0

3. Upload Materials:



The tutor can upload materials related to the course that they take by filling the form and selecting the file to upload. Once the file is uploaded it is stored in a remote server location using its filename, from where it can later be retrieved and the students can download the material and use it for their reference.

4. View Course Details:



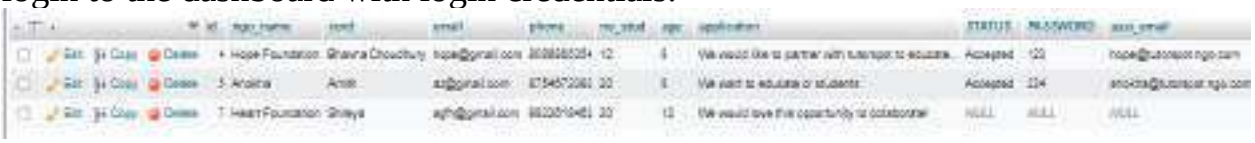
The tutor can view all the details of students who have enrolled under them for the a particular course that they are offering. The tutor enters the coursename and details of the students enrolled for that course is retrieved from the database and displayed for the tutor to view.

III. NGO MODULE:

1. NGO registration page:

Once a user clicks ‘NGO’ on the home page, they will be led to the NGO registration page. The NGO which wants to collaborate with TutorSpot for providing education to their students, will submit a registration form with details of name of NGO,name, email and phone number of NGO coordinator, number and age group of students, and an essay question on why they would like to collaborate with TutorSpot.

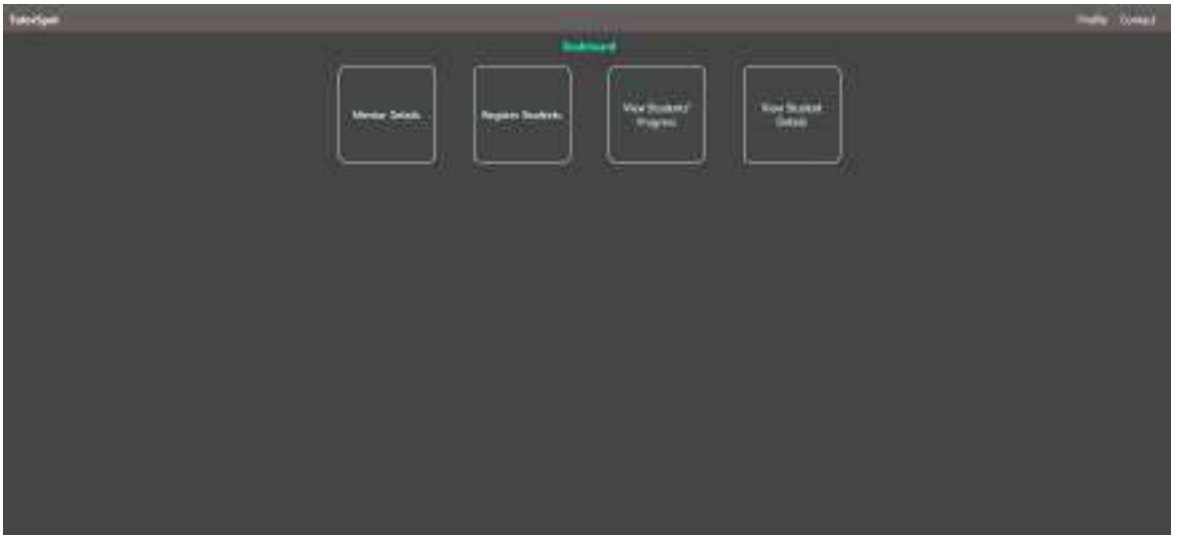
When a user fills the form, it will be stored in the database in the following manner. The admin can review the application and update the status of application as accepted/rejected. Once an application is accepted, the NGO will be assigned an email that ends with ‘tutorspot.ngo.com’. The NGO co-ordinator will then be able to login to the dashboard with login credentials.



The admin will be able to update the status of the application that was accepted/rejected. Once the application is accepted, the NGO co-ordinator will be able to login to their dashboard.

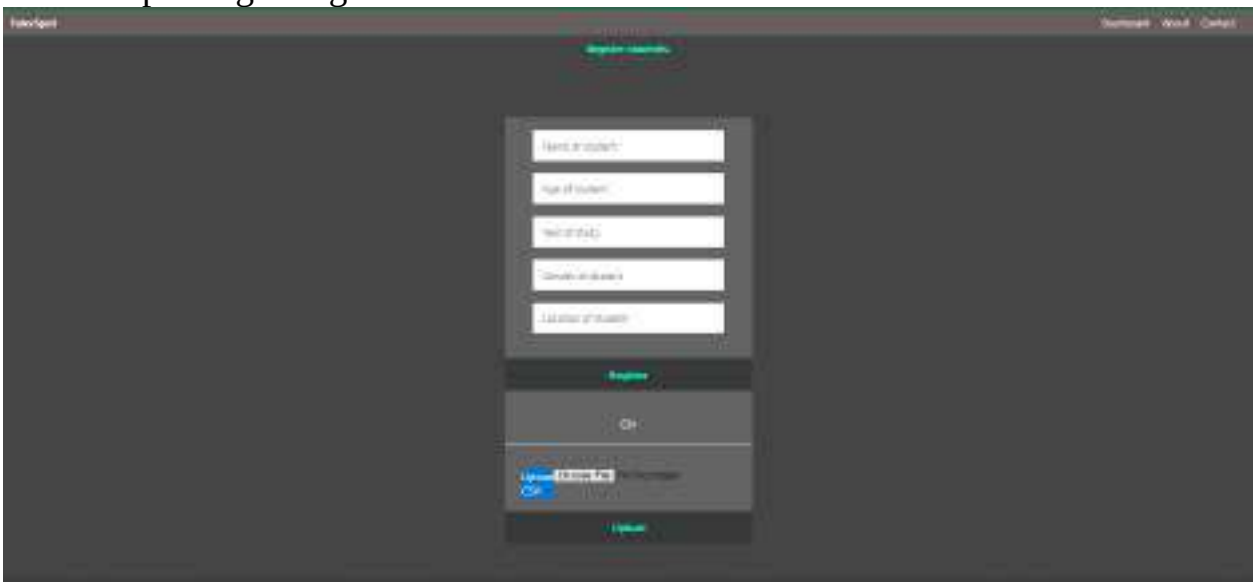
2. Dashboard:

The dashboard has the actions that will be visible to NGO coordinator-view assigned mentor details, register students, view student progress and view registered students details.



a. Mentor details: Once application is accepted, the assigned mentor details can be viewed.

b. Register students: The co-ordinator can add students individually or upload a csv file for updating a large number of students.



It will be stored in the database as follows:

	id	name	age	class	gender	location	ngo_email
Edit Copy Delete	2	Dhathri B	12	5	Female	Vellore	hope@tutorspot.ngo.com
Edit Copy Delete	4	ganga	8	4	Female	Bangalore	hope@tutorspot.ngo.com
Edit Copy Delete	5	Chandra	6	3	Male	Kerala	hope@tutorspot.ngo.com
Edit Copy Delete	6	sumukh	7	6	Male	Vellore	hope@tutorspot.ngo.com
Edit Copy Delete	7	Ram	12	8	Male	Vellore	hope@tutorspot.ngo.com
Edit Copy Delete	26	Sumana	6	3	Female	Vellore	anokha@tutorspot.ngo.com
Edit Copy Delete	31	Akshata	20	2024	Female	Vellore	anokha@tutorspot.ngo.com
Edit Copy Delete	33	abc	12	2024	Female	Vellore	anokha@tutorspot.ngo.com
Edit Copy Delete	34	abc	12	2024	Male	Vellore	anokha@tutorspot.ngo.com

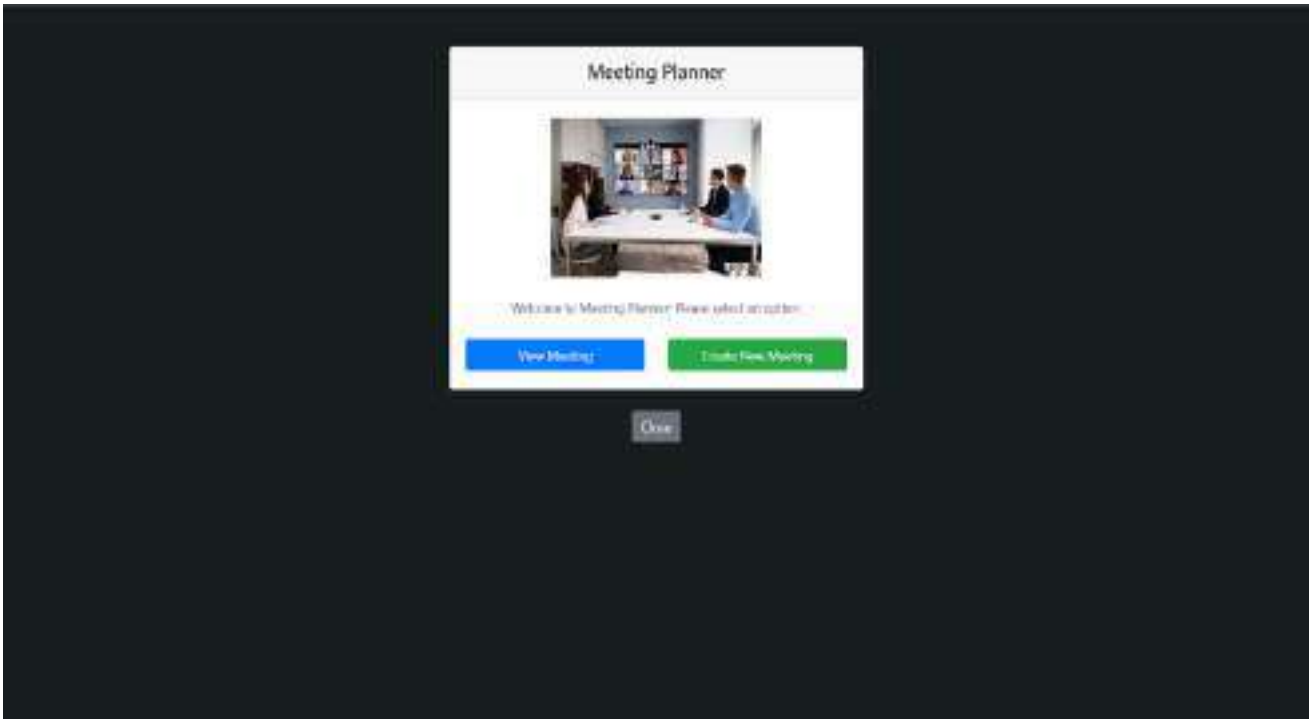
c. View student details:

Student details for the specific NGO are fetched from the database and displayed as follows:

IV. VIDEO CONFERENCING:

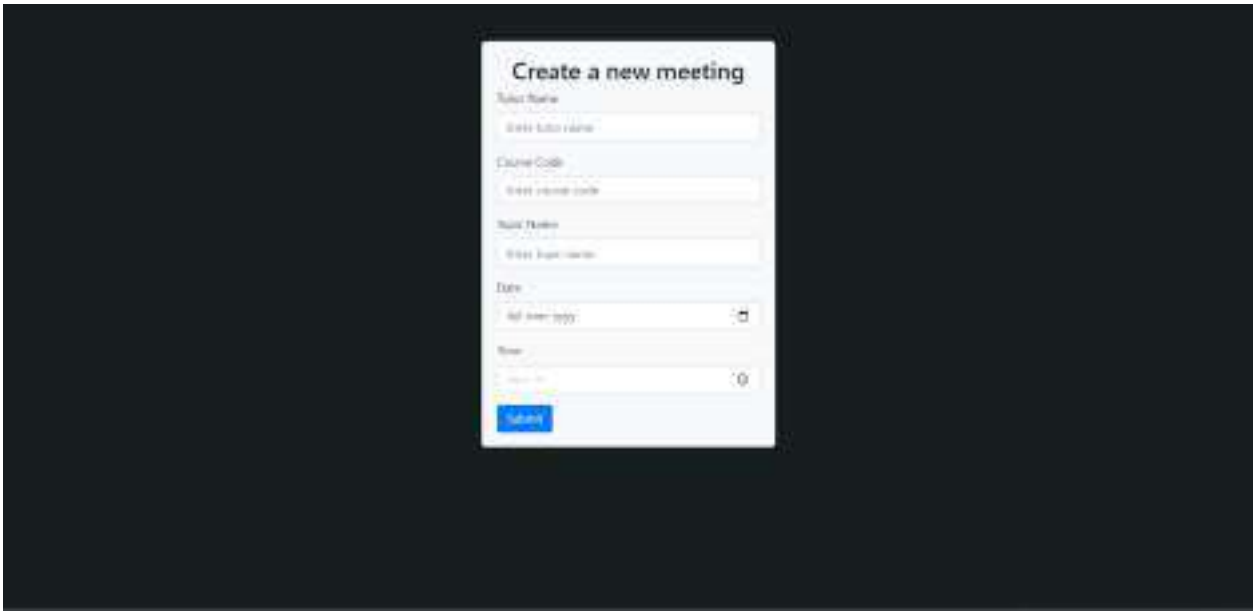
This module is used to conduct doubt solving sessions.

For tutor:Tutor will be given an option to create a new meeting and view old meetings



View meetings:

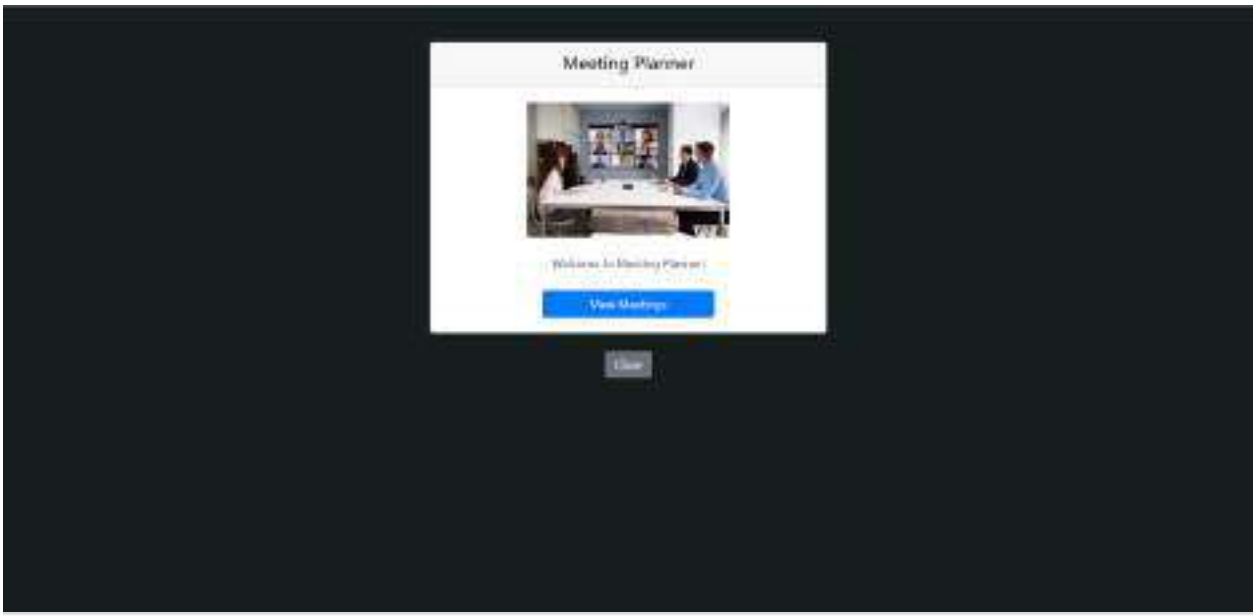
Create a new meeting:

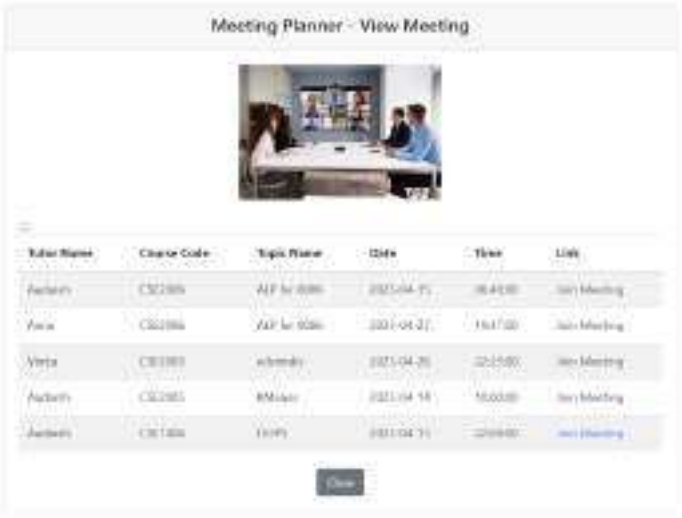


The tutors can fill this form to generate a meeting link. It takes course code, topic, start date and time. On the student side, the link for meetings will be only activated one the same day and same time, rest of the times it will be inactive.

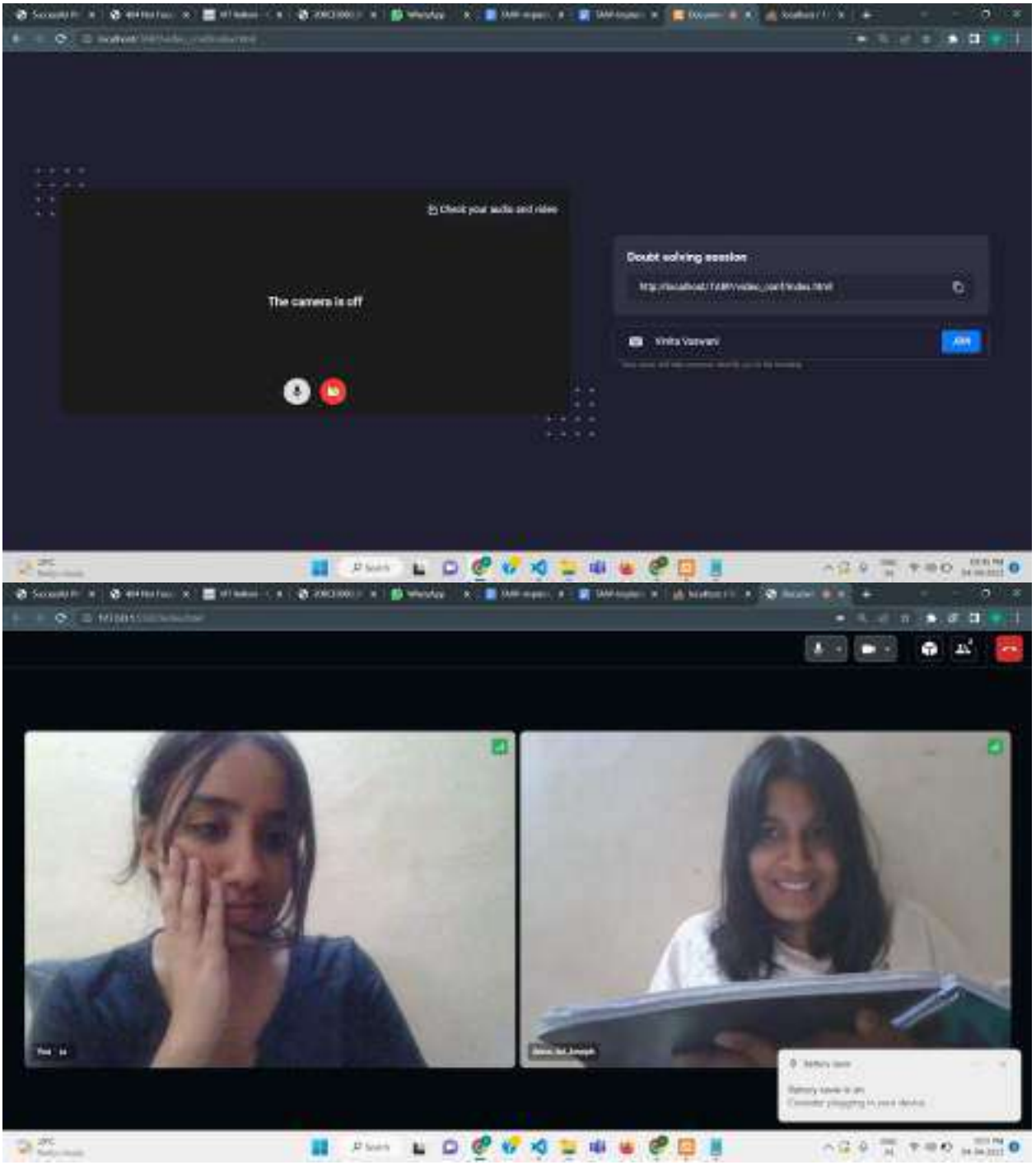
Student:

Will be provided with only view meetings options.



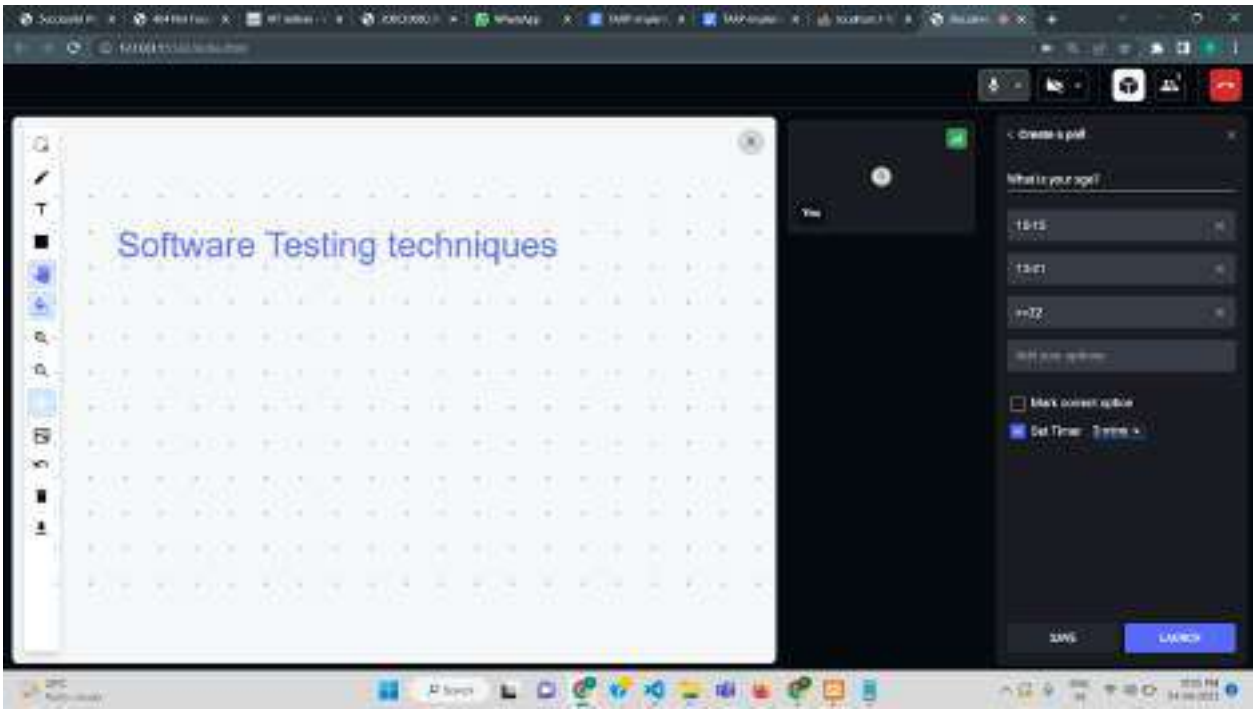


As we can see, since the first 4 meetings are scheduled for the future, hence links are not active.



Once getting into the meeting, the tutor is provided with the following functionalities:

1. **Creating a poll**
   It has options for marking the correct option and setting a timer as well



After setting the question and putting the options, a poll is created

2. Sharing a whiteboard: provides the tutor the facility to write, insert images, pan the screen and save the workspace

3. All other basic features like sharing screen, removing participants and ending the call for everyone.

The student can answer the poll, send messages in the chat and view the whiteboard

Whiteboard

Message facility

Creating and launching a poll:

Once launched:

Student answering the poll:

Response percentage on tutor side:

Basic functionalities for tutor side:

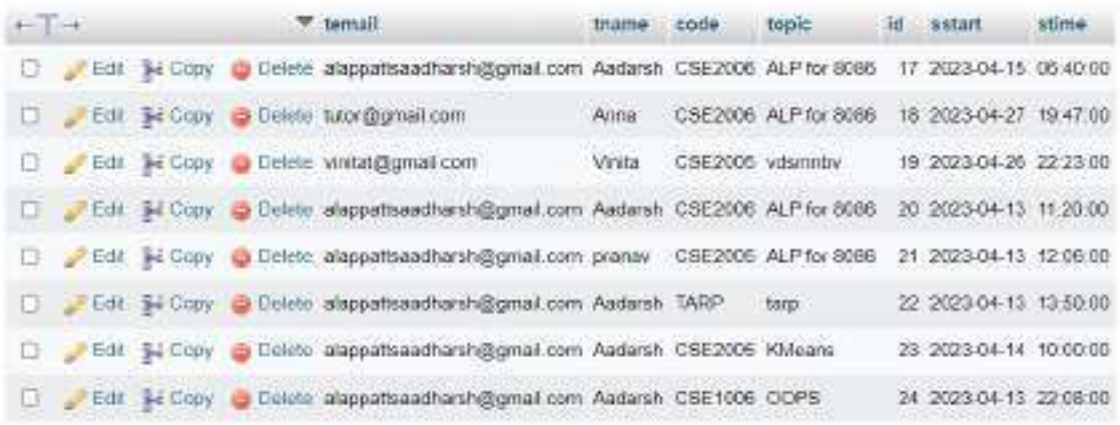
1. **Remove participant**

2. **End call for all**

3. Virtual Background:

Student is also provided with same functionalities except for ending call for all

Database tables:



←T→	temail	tname	code	topic	id	sstart	stime
Edit Copy Delete	alappatsaadharsh@gmail.com	Aadarsh	CSE2006	ALP for 8086	17	2023-04-15	06:40:00
Edit Copy Delete	tutor@gmail.com	Anna	CSE2006	ALP for 8086	18	2023-04-27	19:47:00
Edit Copy Delete	vinitat@gmail.com	Vinita	CSE2006	vdsmnbv	19	2023-04-26	22:23:00
Edit Copy Delete	alappatsaadharsh@gmail.com	Aadarsh	CSE2006	ALP for 8086	20	2023-04-13	11:20:00
Edit Copy Delete	alappatsaadharsh@gmail.com	pranav	CSE2006	ALP for 8086	21	2023-04-13	12:06:00
Edit Copy Delete	alappatsaadharsh@gmail.com	Aadarsh	TARP	tarp	22	2023-04-13	13:50:00
Edit Copy Delete	alappatsaadharsh@gmail.com	Aadarsh	CSE2006	KMeans	23	2023-04-14	10:00:00
Edit Copy Delete	alappatsaadharsh@gmail.com	Aadarsh	CSE1006	OOPS	24	2023-04-13	22:06:00

V. Quiz Module

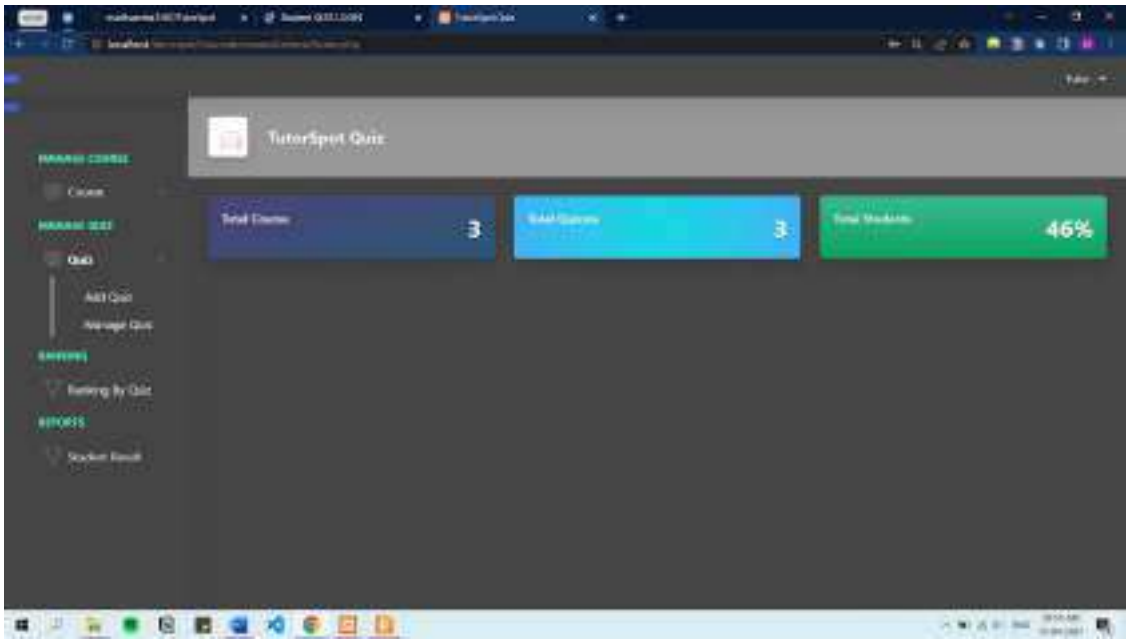
Quiz platforms offer a range of benefits for both tutors and students, including increased engagement, enhanced knowledge retention, and streamlined assessment.

Tutors can use quiz platforms to assess student learning and understanding, identify knowledge gaps, and tailor teaching strategies accordingly. Students can use quiz platforms to practice and reinforce their knowledge, receive immediate feedback, and monitor their own progress.

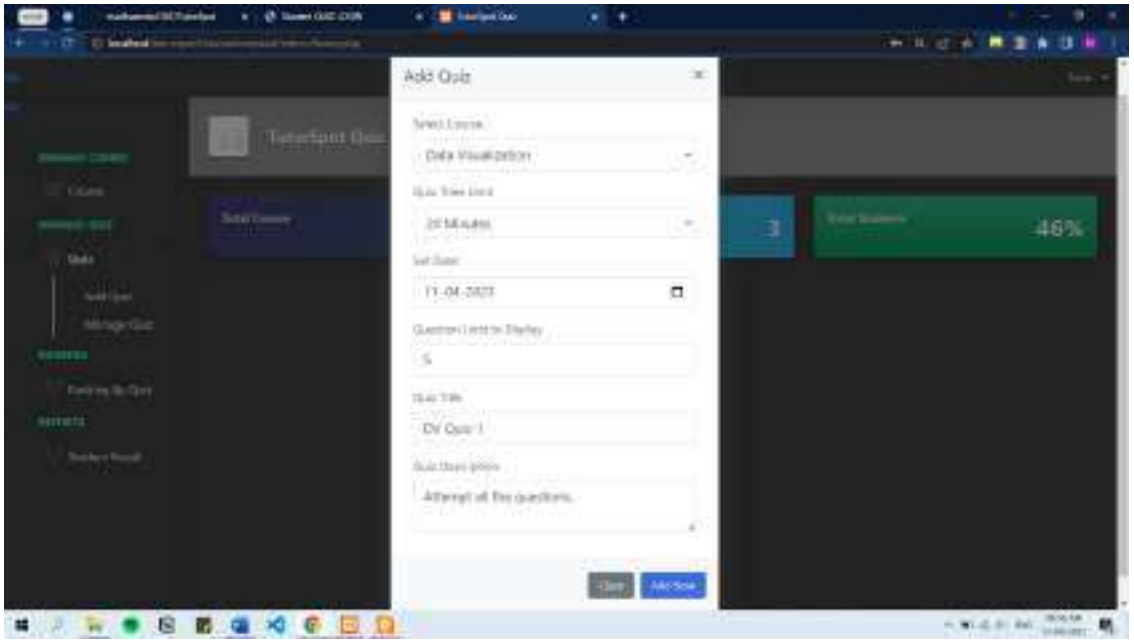
Additionally, quiz platforms can provide a fun and interactive learning experience, encouraging students to actively participate in their own education. Overall, this quiz module is a valuable tool for tutors and students alike, facilitating more effective teaching and learning in the 21st century.

a. For Tutor

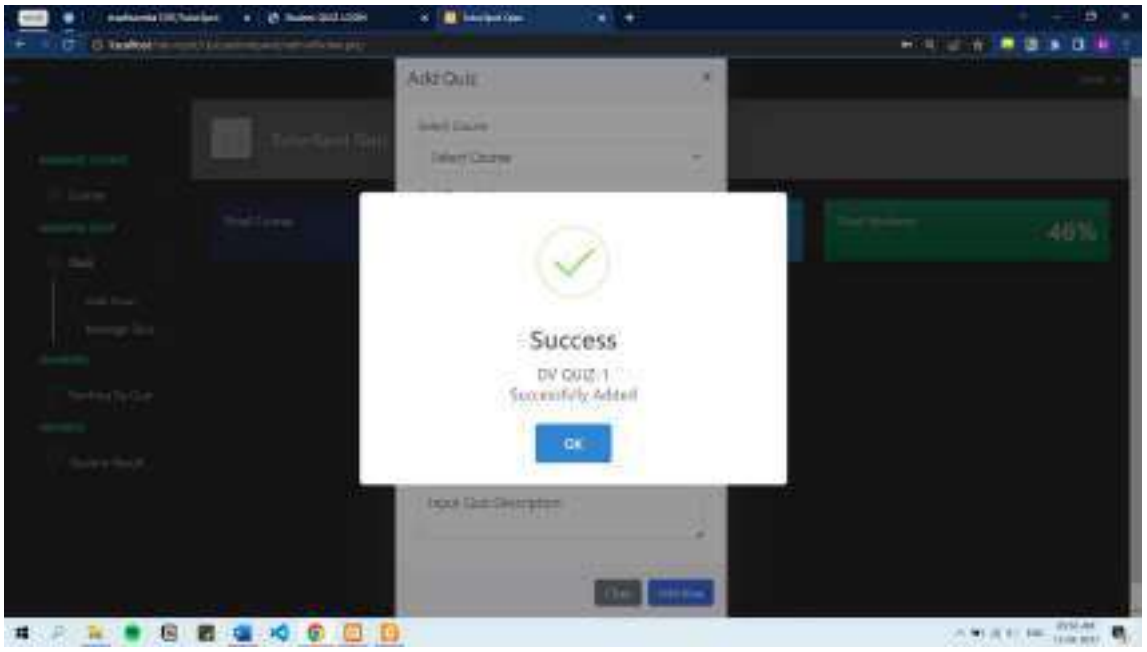
Tutor is now inside the quiz portal.



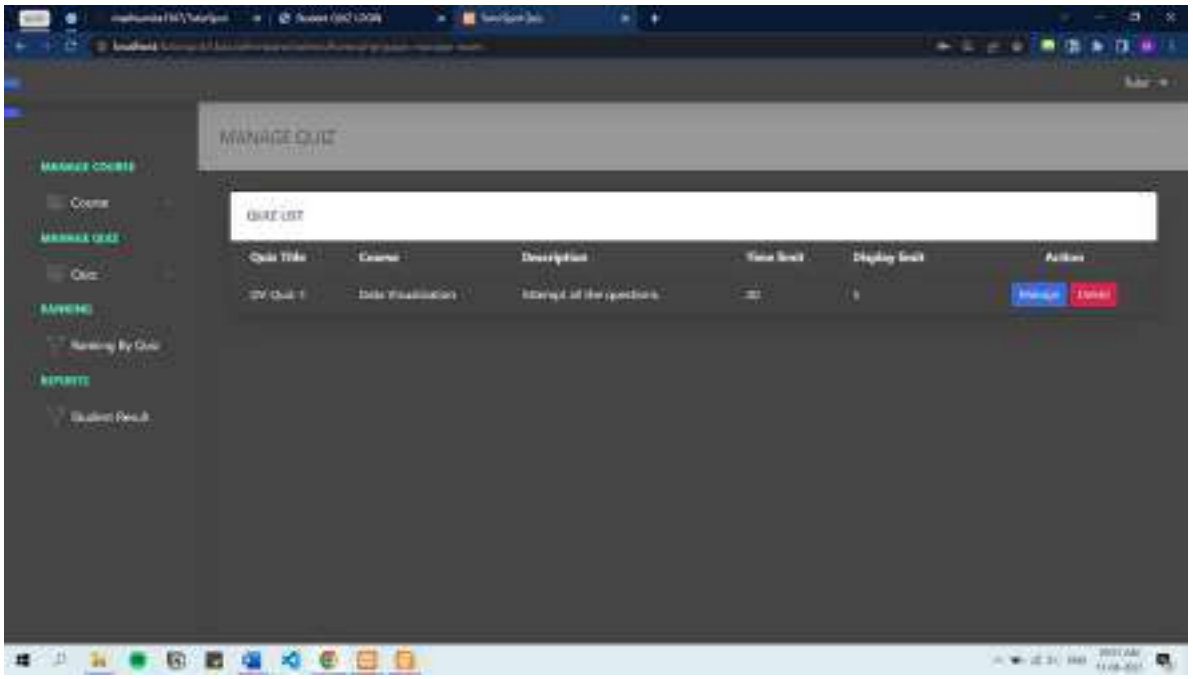
Tutor is setting up the quiz by clicking on the ‘add quiz’ present on the sidebar and is filling the following details.



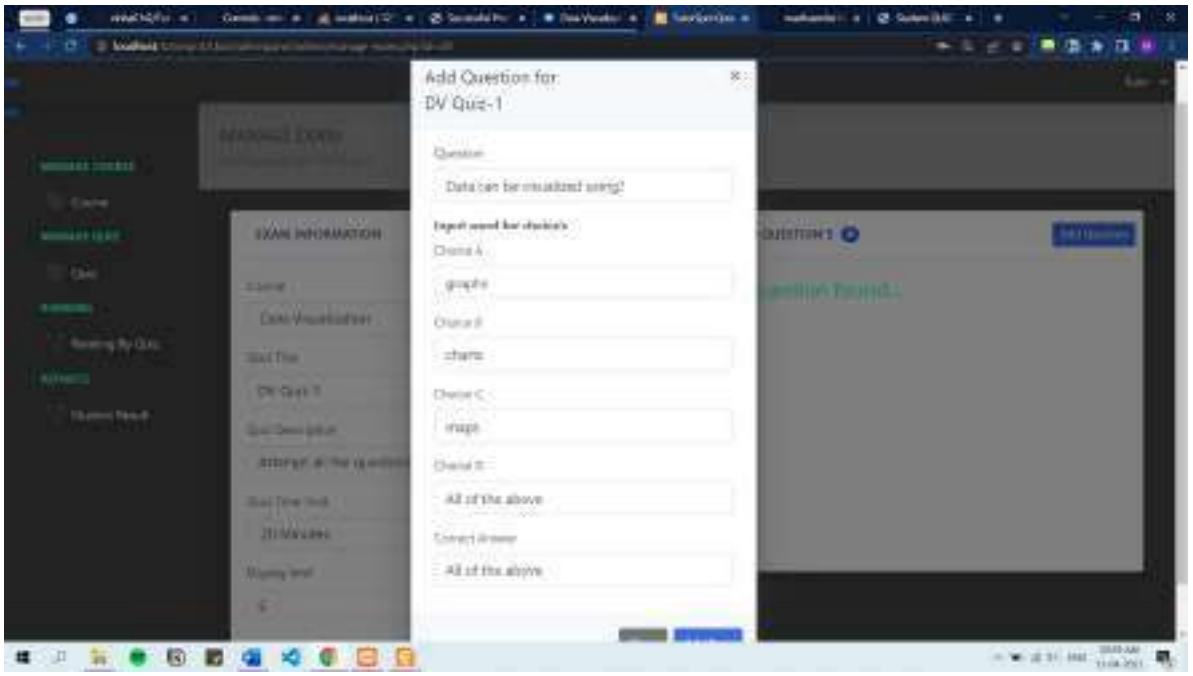
We get the success alert when the Quiz details has been set and added successfully.



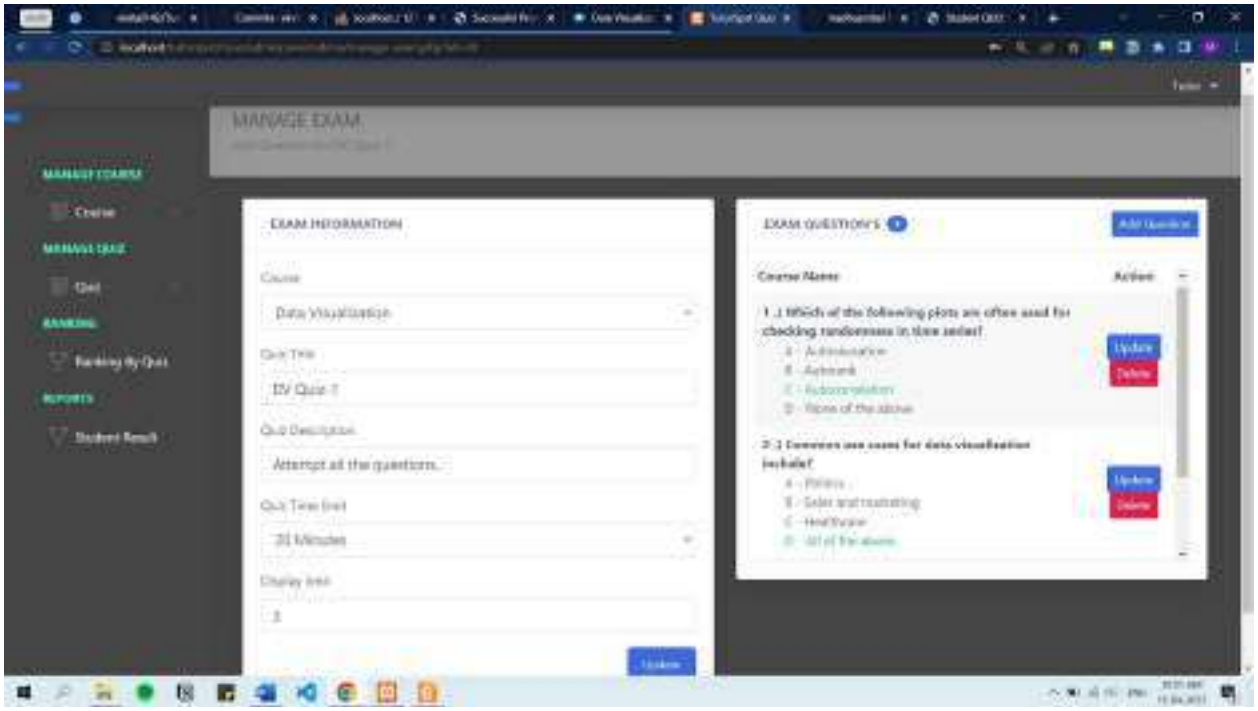
Upon choosing ‘manage quiz’ the tutor will be able to set the questions for the quiz.



By clicking on add question, user can add the question and the answer options along with correct answer option.



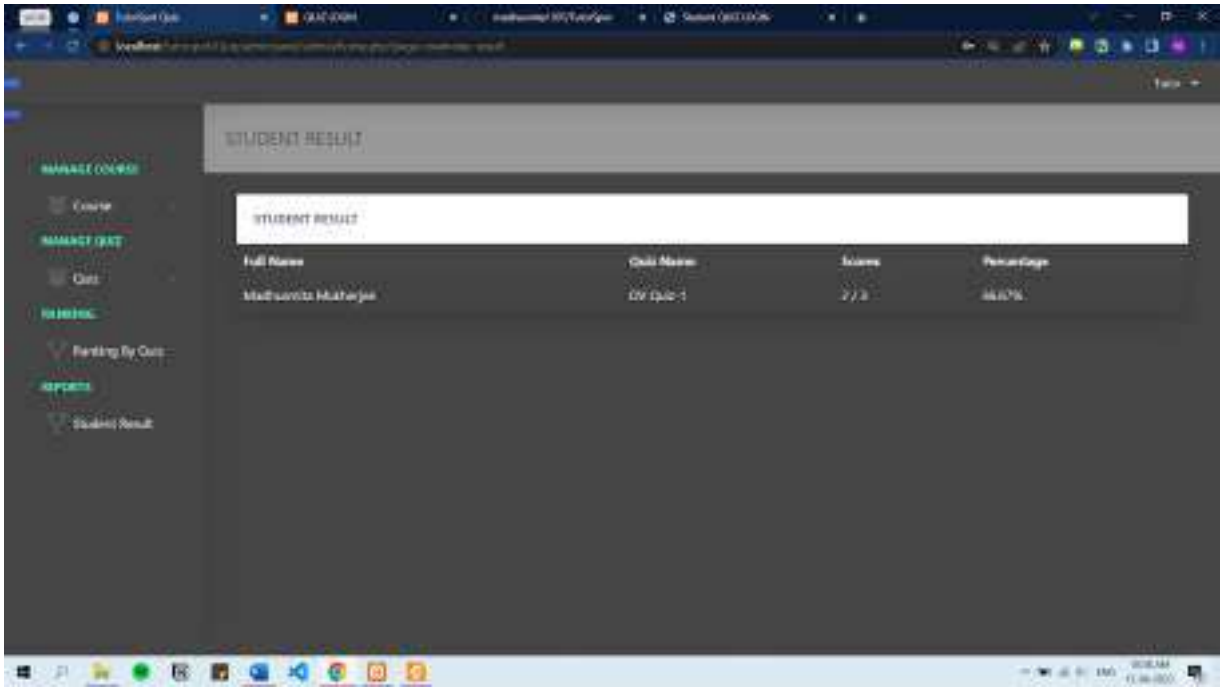
Similarly, other questions will be added.



Now the quiz is set for the student to attempt.

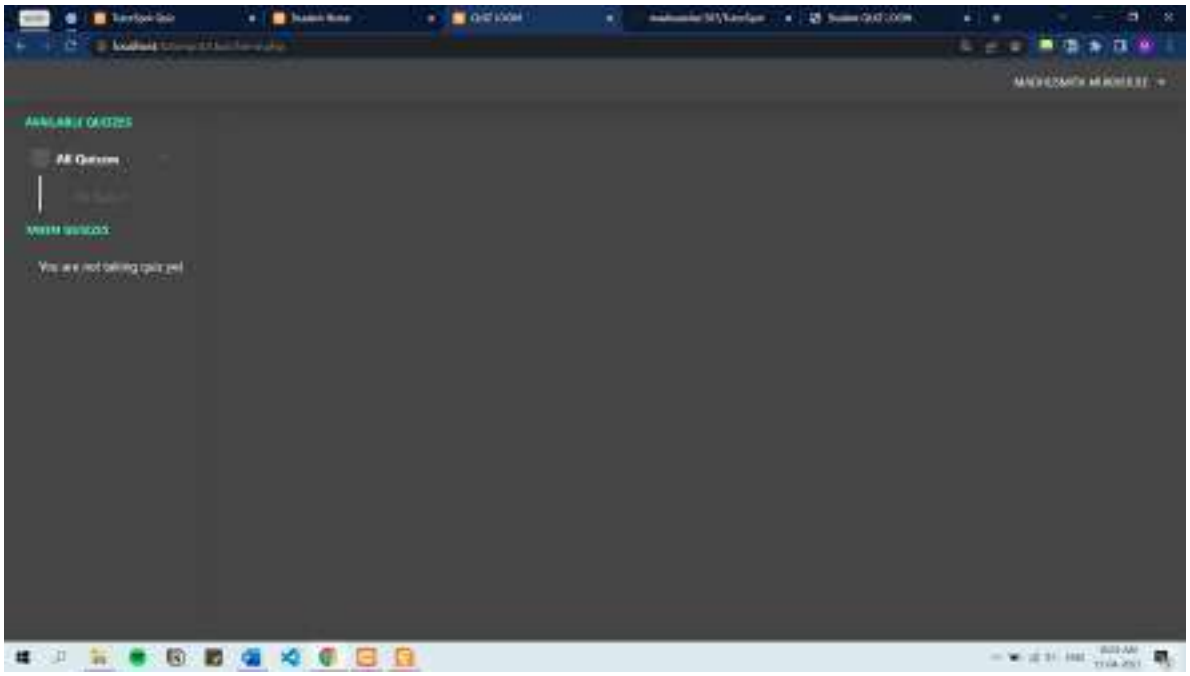
The details of the quiz are now set in the database also.

After the student has attempted the quiz, the tutor will be able to see students' results.

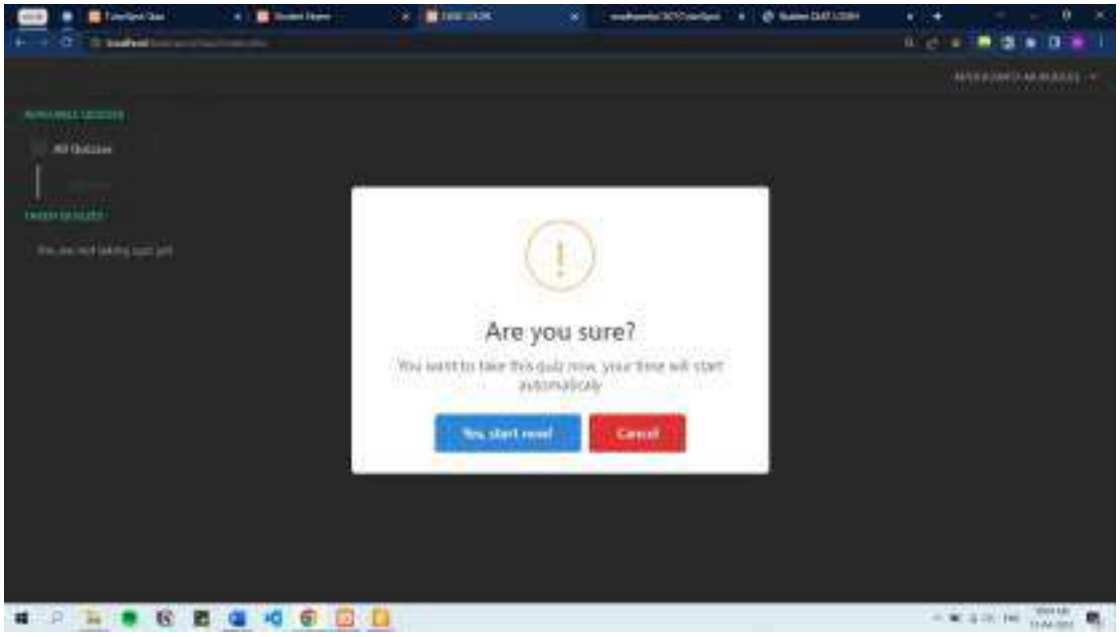


b. For Student

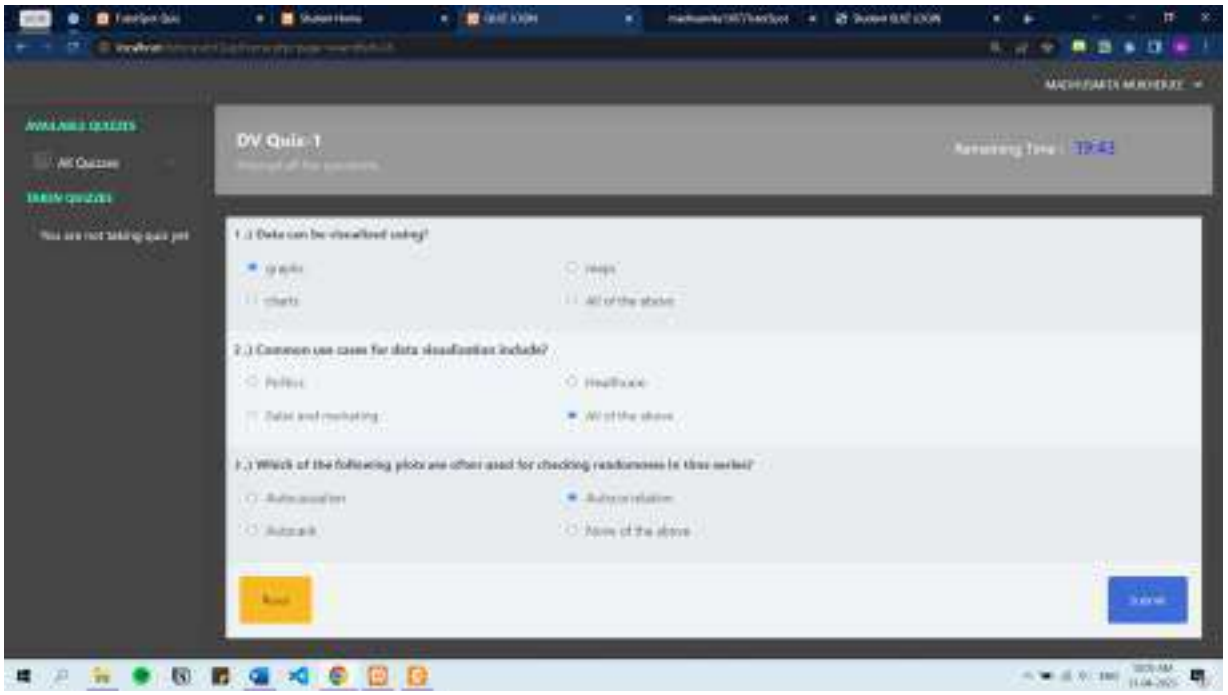
Student is now inside the quiz portal. Under all quizzes, they can attempt the available quiz.



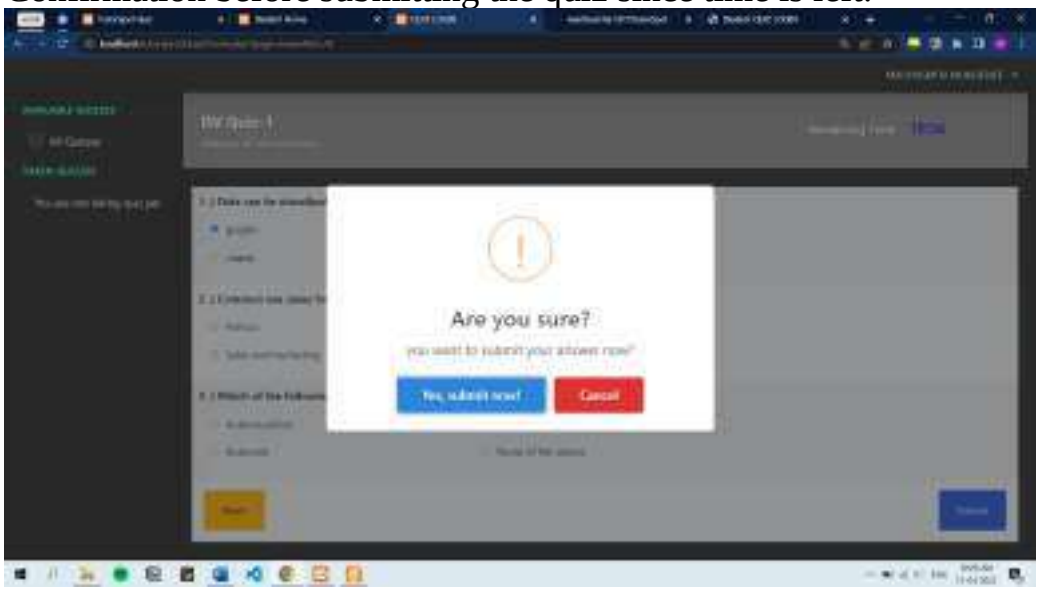
Now, the student will attempt the quiz upon clicking on quiz name and start now button



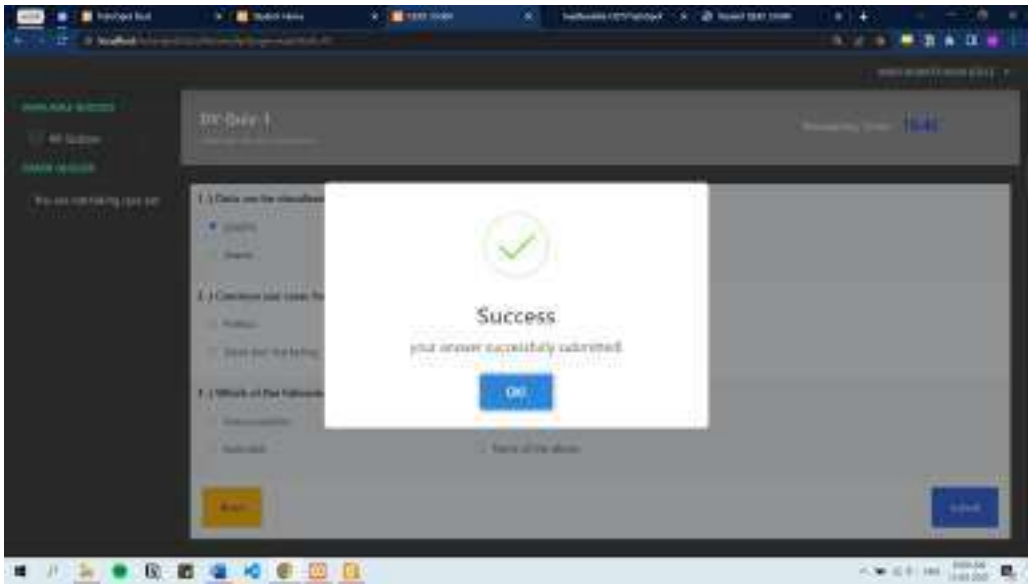
Student can see the quiz questions with options and has to answer them within the time limit. They can also reset the quiz options, in order to choose the answers again but within the time limit allotted for the quiz.



Confirmation before submitting the quiz since time is left.

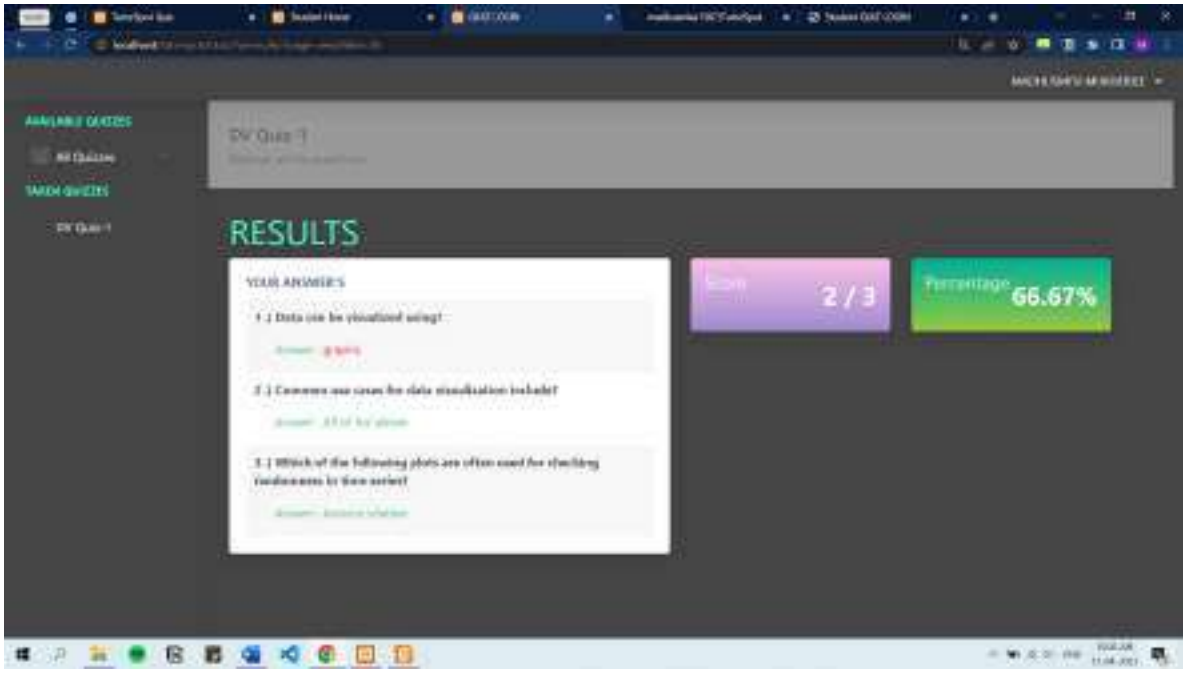


Success message upon completion of quiz

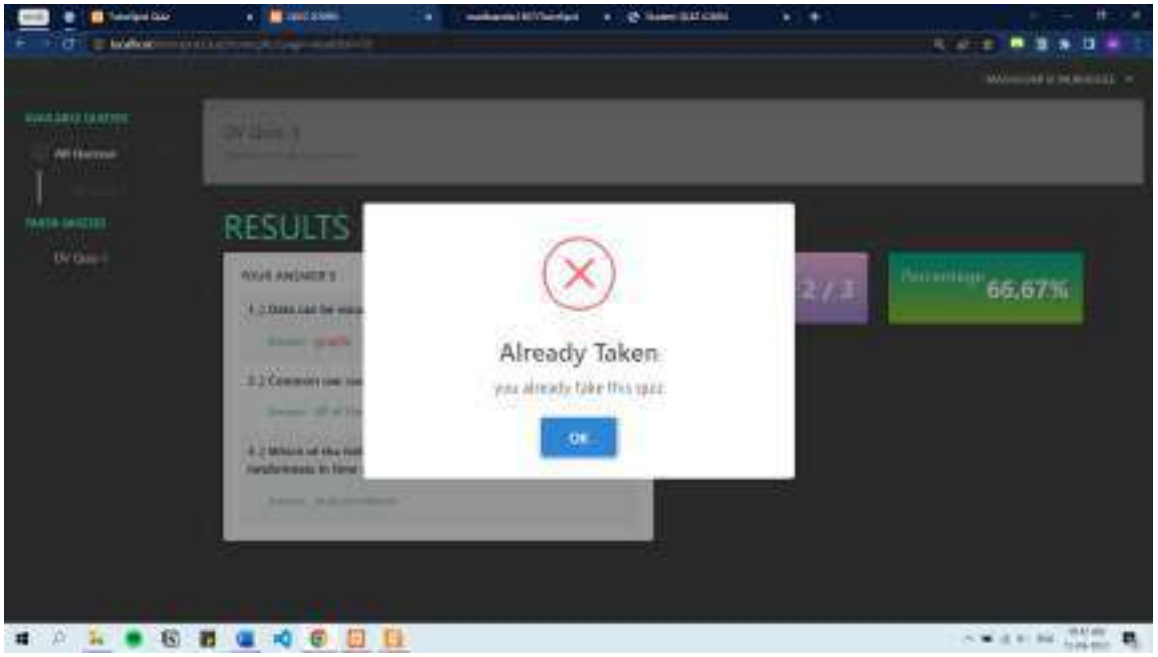


Student answers are stored in the database and on based on that their score is calculated.

Student’s quiz result with score and wrong and correct options.



Student cannot retake the quiz once it’s done, since Only 1 attempts allowed.



TEST CASE REPORT:

Test Case 1: Verifying Admin Login Test Cases

Verify Login Credentials using Email and Password;
E.g.: **Email**- admin@gmail.com; **Password**: 123456

Test Scenario	**Test Case**	**Pre-Condit ion**	**Test Steps**	**Test Data**	**Expecte d Result**	**Post Cond ition**	**Actua l Resul t**	**Statu s (Pass/ Fail)**
Verify Login Credential	Enter valid Email and valid Password	Need a valid Email and Passwo rd	1. Enter Email 2. Enter Passwo rd	valid email and valid Password IF: **Email**	Successf ul login.	Redire cted to home page.	Login Succe ssful	Pass

			3. Click Login Button	admin@gmail.com; **Password** : 123456				
Verify Login Credential	Enter invalid Email and valid Password	Need a valid Email and Password	1. Enter Email 2. Enter Password 3. Click Login Button	invalid Email and valid Password IF: **email**- admin@gil.com; **Password** : 123456	"Email is wrong" – Messag e shown.	Remains in same page. Because of unsuccessful login.	Login unsuccessful. Invali d username	Fail
Verify Login Credential	Enter valid Email and invalid Password	Need a valid email and Password	1. Enter email 2. Enter Password 3. Click Login Button	valid Email and invalid Password IF: **email**- admin@gmail.com; **Password** : 148752	"Password is wrong" – Messag e shown.	Remains in same page. Because of unsuccessful login.	Login unsuccessful. Invali d Password.	Fail
Verify Login Credential	Enter invalid Email and invalid Password	Need a valid email and Password	1. Enter Username 2. Enter Password 3. Click Login Button	invalid Email and invalid Password IF: **email**- admn@yahoo.com; **Password** : adminpass word	"email and Password are wrong" – Messag e shown.	Remains in same page. Because of unsuccessful login.	Login unsuccessfu l. Invali d username and Password	Fail

Test Case 2: Register Courses

Course Enrollment Course Name.
Sample Input Case which is Valid: Course Name: Software Engineering

Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition	Actual Result	Status (Pass/ Fail)
Verifying Course Name and then registering the course	Enter valid Course Name: **E.g.: Software Engineering** **CSE3001**	1. Successful Login	1. Enter Course Name 2. Enter Course ID. 3. Click "Register" button.	Valid Course Name and Valid CourseID	Course will be added successfully	Course will be added to database and Page will be again ready to take inputs to add next course.	"Course registered successfully" – Message is shown	Pass
Verifying Course Name and then registering the course	Enter coursename already registered **E.g.: Software Engineering**	1. Successful Login	1. Enter Course Name 2. Enter Course ID. 3. Click "Register" button.	Invalid Coursename	Course will not be added and error message is shown.	Course will not be added to database and Page will be again ready to take inputs to add next course.	"Error: Course already Registered" – Message is shown.	Fail

Test Case 3: Access Materials

Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition	Actual Result	Status (Pass/Fail)
Searching Database with course name and listing the materials	Enter Valid Course Name	1.Successful Login. 2. Available materials under the course name	1. Enter course name 2. Click the 'Search' button	Valid Course Name	Materials will be listed as a table format	Successfully able to download the materials	Successful download and Viewable Materials	Pass

Test Case 4: Upload of New Materials

Valid Upload of the Materials by the tutors
Valid Upload Condition: Filename of the material must be unique and it must not be present already

Test Scenario	**Test Case**	**Pre-Condition**	**Test Steps**	**Test Data**	**Expected Result**	**Post Condition**	**Actual Result**	**Status (Pass /Fail)**
Verify file name and upload the details of the file to database	Enter valid File name	1. Successful Login.	1. Enter File details with File name 3. Click "Upload" button.	Valid File name Eg: SWE handwritten.pdf	File will be uploaded successfully	File and its details will be added to database	Upload Material Success	Pass
Verify file name and upload the details of the file to database	Enter invalid file name	1. Successful Login.	1. Enter File details with File name 3. Click "Upload" button.	Invalid File name Eg: **SWE notes.pdf (File name is already present)**	File will not be uploaded successfully	File and its details will not be added to database	Customer will not be added and error message will be shown	Fail

Test Case 5: Course Registration by Tutors

Valid Course Name and Tutor Status: The course name and the tutor name both must be present in the database (in order to get tutor status, user must register as tutor first) Eg:
Course Name Added: Software Engineering

Test Scenario	**Test Case**	**Pre-Condition**	**Test Steps**	**Test Data**	**Expected Result**	**Post Condition**	**Actual Result**	**Status (Pass /Fail)**
Verify course name and the tutor status	Enter valid Course name and tutor status is present **Eg: Course Name: Software Engineering**	1. Successful Login for tutor id 2. Course must be available in the database	1. Enter Course Name and Tutor Name 2. Click "Register Course" button.	Valid Course name and user is a tutor	Course will be registered successfully under the particular tutor	Course details along with the tutor details will be updated to the database and the user is now tutor for that course	Course Registration as a tutor is successfull	Pass
Verify course name and the tutor id	Enter invalid Course name **Eg: Course name: SWE**	1. Successful Login for tutor id 2. Course must be available in the database	1. Enter Course Name and Tutor Name 2. Click "Register	Invalid Course name	Course will not be registered successfully under the particular tutor and error	Course details along with the tutor details will not be updated to the database	Error Message 'You cannot register for the course or you are not a tutor' – message	Fail

			Course" button.		message is shown	and the user is now tutor for that course	will be shown	
Verify course name and the tutor status	Enter Invalid id/email of the tutor **Eg:** User is not permitted as tutor	1. Successful Login for tutor id 2. Course must be available in the database	1. Enter Course Name and Tutor Name 2. Click "Register Course" button.	User is not a valid tutor	User cannot register as a tutor for a course and redirected to tutor account creation page and the user must create new tutor account and get verified	User will be redirected to tutor account registration and prompted to register as tutor or unless they cannot register for course as tutor	Error Message will be displayed as 'You are not a tutor. First create a tutor account' - message will be shown	Fail

Test Case 6: Student list view by tutor

Viewing Student List by the tutor and student list not available error message if there are no students

Table 8: Test Case 6

Test Scenario	**Test Case**	**Pre-Condition**	**Test Steps**	**Test Data**	**Expected Result**	**Post Condition**	**Actual Result**	**Status (Pass / Fail)**
Verify student list under the particular tutor	Enter the tutor's name	1. Successful Login by tutor 2. Student list must be available in the database	1. Enter the tutor's name 2. Click the 'Student list' button	Valid tutor name and students present under the tutor	Successful Listing of the student list	Display the student list registered under the tutor	Successful fetching of the student list	Pass
Verify student list under the particular tutor	Enter the tutor's name	1. Successful Login by tutor 2. Student list must be available in the database	1. Enter the tutor's name 2. Click the 'Student list' button	Valid tutor name but no students registered	Unsuccessful Listing of the student list	The window will not Display the student list registered under the tutor	Error message will be shown like 'There are no students registered under the tutor'	Fail

Testing report :

USABILITY TESTING

For Quiz Module

S.no.	Tests
1.	Verify if login functionality for both tutor and student accounts is working.
2.	Verify the creation of a new quiz by the tutor, including adding questions, answer choices, and correct answers.
3.	Verify the editing of an existing quiz by the tutor, including adding, modifying, or deleting questions and answer choices.
4.	Verify the deletion of a quiz by the tutor.
5.	Verify if the student is able to view available quizzes and select one to take.
6.	Verify the display of questions and answer choices to the student during the quiz.
7.	Verify the submission of answers by the student and the scoring of the quiz.
8.	Verify the display of quiz results to the student, including the number of correct and incorrect answers and the overall score.
9.	Verify the ability of the tutor to view the quiz results for each student who took the quiz.
10.	Verify the generation of a report for the tutor that summarizes the quiz results for all students who took the quiz.

Tests	Passed or failed	Time Taken
Verify if login functionality for both tutor and student accounts is working.	PASSED	1 min
Verify the creation of a new quiz by the tutor, including adding questions, answer choices, and correct answers.	PASSED	4 mins
Verify the editing of an existing quiz by the tutor, including adding, modifying, or deleting questions and answer choices.	PASSED	3 mins
Verify the deletion of a quiz by the tutor.	PASSED	1 min
Verify if the student is able to view available quizzes and select one to take.	PASSED	1 min
Verify the display of questions and answer choices to the student during the quiz.	PASSED	1 min
Verify the submission of answers by the student and the scoring of the quiz.	PASSED	2 mins
Verify the display of quiz results to the student, including the number of correct and incorrect answers and the overall score.	PASSED	1 min
Verify the ability of the tutor to view the quiz results for each student who took the quiz.	PASSED	2 mins
Verify the generation of a report for the tutor that summarizes the quiz results for all students who took the quiz.	PASSED	2 mins

Summary:

1. No of test cases planned vs executed: 10 V 10
2. No of test cases passed vs failed: 10 V 0

Test cases planned	Test cases executed	Test cases passed	Test cases failed
10	10	10	0

For NGO Module

S.no.	Tests
1.	Verify if login functionality is working
2.	Verify the ability to register students individually
3.	Verify the ability to register students through csv file upload
4.	Verify the ability to view student details

Tests	Passed or failed	Time Taken
Verify if login functionality is working	PASSED	1 min
Verify the ability to register students individually	PASSED	3 mins
Verify the ability to register students through CSV file upload	PASSED	2 mins
Verify the ability to view student details	PASSED	1 min

Summary:

3. No of test cases planned vs executed: 4 V 10
4. No of test cases passed vs failed: 4 V 0

Test cases planned	Test cases executed	Test cases passed	Test cases failed
4	4	4	0

For Video Conferencing Module:

S.no.	Tests
1.	Verify if student and teacher are able to join the meet
2.	Verify if teacher can publish a poll
3.	Verify if teacher has screen sharing permissions
4.	Verify if teacher has remove participant permission
5.	Verify if teacher has permission to end the meeting
6.	Verify if teacher can view poll results
7.	Verify if teacher has permission to edit the whiteboard
8.	Verify if student can answer to the poll
9.	Verify if student can view the dashboard
10.	Verify if student/teacher can enable and disable webcam and mic

S.no.	Tests	Passed or failed	Time Taken
1.	Verify if student and teacher are able to join the meet	PASSED	1 min
2.	Verify if teacher can publish a poll	PASSED	3 mins
3.	Verify if teacher has screen sharing permissions	PASSED	3 mins
4.	Verify if teacher has remove participant permission	PASSED	1 min
5.	Verify if teacher has permission to end the meeting	PASSED	1 min
6.	Verify if teacher can view poll results	PASSED	2 mins
7.	Verify if teacher has permission to edit the whiteboard	PASSED	3 mins
8.	Verify if student can answer to the poll	PASSED	2 mins
9.	Verify if student can view the dashboard	PASSED	3 mins
10.	Verify if student/teacher can enable and disable webcam and mic	PASSED	1 min

Summary:

5. No of test cases planned vs executed: 10 V 10
6. No of test cases passed vs failed: 5 V 0

Test cases planned	Test cases executed	Test cases passed	Test cases failed
10	10	10	0

UNIT TESTING

For video conferencing

S.no.	Test Case	Expected Result	Actual Result	Pass/Fail
1.	Publish a poll	Poll should be available	Poll is available	PASS
2.	Share whiteboard	Whiteboard should be visible	Whiteboard is visible	PASS
3.	Remove a participant from the meet	Participant should be removed	Participant removed	PASS
4.	View poll results	Result should be displayed in %	Result is displayed in %	PASS

NGO Module:

S.no.	Test Case	Expected Result	Actual Result	Pass/Fail
1.	View assigned mentor	Mentor details should be visible	Mentor details should be visible	PASS

2.	Register students individually/ through csv file	Student details must be updated in database	Student details are updated in database	PASS
3.	View student details	All student details must be visible	All student details are visible	PASS

Quiz Module

S.no.	Test Case	Expected Result	Actual Result	Pass/ Fail
1.	Login to Quiz Portal	Login should be available	Login is available	PASS
2.	Creation of Quiz by Tutor	Quiz creation feature should be visible	Quiz creation feature is visible	PASS
3.	Editing already existing quiz by tutor	Tutor should be able to modify quiz	Tutor modified the quiz	PASS
4.	Deletion of Quiz by Tutor	Should be able to delete quiz	Quiz deleted successfully	PASS
5.	Students are able to view the quiz list	Quiz list should be available	Quiz list is available	PASS
6.	Display of Quiz questions and options to the student	Should able to see all questions and options	Student can see all questions and options	PASS
7.	Submission of quiz and view quiz score by student	Should be able to submit the quiz within the time limit and get score	Student submitted the quiz within the time limit and get score	PASS
8.	Student viewing quiz results	Should be able to view the score after quiz	Student is able to view the score after quiz	PASS
9.	Tutor monitoring student quiz progress	Should be able to view student's progress	Tutor can view student's progress	PASS

10.	Tutor views students' quiz summary	Should be able to view generated class report	Tutor can view generated class report	PASS

Conclusion and Future scope:

This project can be further developed upon by bringing in personalized and adaptive learning. Existing assessment techniques can be developed by real-time data analytics. For example, using ML algorithms to provide immediate feedback and generate personalized recommendations.

It can also include personalized learning pathways, which will allow both students and teachers to help set goals and track progress. Personalized learning maps can also provide learners with recommendations for next steps based on their performance, interests, and learning style.

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tutorspot

Introduction

Our platform is designed to empower students to become tutors and share their knowledge and expertise with their peers, while also providing access to quality education for children from underprivileged backgrounds through our partnership with NGOs. Our platform offers a unique opportunity for students to not only deepen their own understanding of a subject but also to develop valuable teaching and leadership skills by becoming tutors themselves. By sharing their knowledge with others, students can not only help their peers but also gain a sense of accomplishment and personal fulfillment. In addition to providing students with the opportunity to become tutors, our platform also works with NGOs to provide access to quality education for children who may not have had the opportunity otherwise. By partnering with NGOs, we are able to connect underprivileged children with qualified tutors who can provide them with personalized support and help them achieve their academic goals. Our platform offers a wide range of subjects, from STEM to humanities, and is designed to accommodate students of all ages and skill levels. Whether you're a high school student looking to deepen your understanding of a particular subject or a college student looking to gain valuable teaching experience, our platform has something to offer. We're committed to providing a safe and inclusive learning environment for all our students and tutors. Our platform includes robust security and privacy features to ensure that all users are protected from online threats, and our support team is always available to answer any questions or concerns.

Motivation

PROJECT OUTCOME: Product
We have proposed a web application in the form of a product which will be beneficial for students, especially those who cannot afford access to good quality education and resources.

With the help of this learning portal, we will be able to encourage community interaction. Online education is more handy, convenient and well-organized. Our portal will support the mix of academic and commercial capabilities needed to enable a learning paradigm. We believe that education is a fundamental human right, and our platform is dedicated to making it accessible to all. Whether you're a student looking to become a tutor or a child in need of quality education, we welcome you to our platform and look forward to helping you achieve your academic goals.

Module Description

1. Register/ Login:
   - For a non registered user, we will first take all the details regarding the user and store in the database.
   - We will distinguish between the registered and the non registered user using certain flag values in the database.
   - After acquiring all the details , we will proceed with either student login or tutor login
2. Tutor module and Quiz platform:
   - If the user has logged in as a tutor, then he/she can upload his course content which can also include video lectures. Option for configuring a quiz will also be provided.
   - The quiz platform consists of a form which will be made available to the students/learners. The tutor can set the question paper as an mcq or text based.
   - The student can access the quiz link when he or she inputs the secret code that the tutor provides. This ensures the security of the quiz platform.
3. Student module:
   - Once the student has logged into the portal, the student can register for the courses, access the material uploaded by the tutor for that particular course as well as attend graded quizzes.
   - They can also view their personal details and modify them if needed.
   - For any help or support they can utilise the chatbot feature and also get guidance of the tutor directly as well
4. NGO Portal:
The NGO's will be able to login and register.
All the details about the NGOs currently being serviced will be displayed.
The option to register tutors for the students will be provided. A student progress monitor will be available for every individual student.
5. Video conferencing and chatbot platform for doubt solving:
If the user has logged in as a student, he can join the scheduled meet organised by the tutor for doubt solving purposes.
Along with this, he/she can also use the chatbot to solve doubts.

Results

Login Page

Tutor Home Page

Student Home Page

Video Conferencing

Quiz Platform

NGO Dashboard

Conclusion and Future Scope

This project can be further developed upon by bringing in personalized and adaptive learning. Existing assessment techniques can be developed by real-time data analytics. For example, using ML algorithms to provide immediate feedback and generate personalized recommendations.

It can also include personalized learning pathways, which will allow both students and teachers to help set goals and track progress. Personalized learning maps can also provide learners with recommendations for next steps based on their performance, interests, and learning style.

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