SOFTWARE REQUIREMENTS SPECIFICATION

for

Online Tutor Portal

Version 1.0

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Contents

1 Introduction

1.1 Purpose

The purpose of this project is to build an online tutor portal as a website, accessible to anyone with the internet. It provides an all in one solution to education. Tutors can register and teach; parents can search for suitable tutors for each course and enrol their children. The students can then attend classes, watch theory videos and discuss doubts on the forum.

1.2 Intended Audience and Reading Suggestions

This SRS is written for developers, project managers, users(students, tutors, parents) and testers. Further, the document will provide all the internal, external, functional, and non-functional information about the tutor portal. The project has been implemented under the guidance of college professors and teaching assistants.

1.3 Project Scope

The purpose of the online tutor portal is to ease finding tutors and create a convenient and easy-to-use application for students, parents and tutors.
A tutor can register themselves, and after approval from the portal admins, start hosting courses and tutoring students. The parents can log into the portal and search for tutors for particular courses and subjects. The students can then study the course, attend tuition classes, and discuss doubts with their tutor on the website. Above all, we hope to provide a comfortable user experience along with the best education.

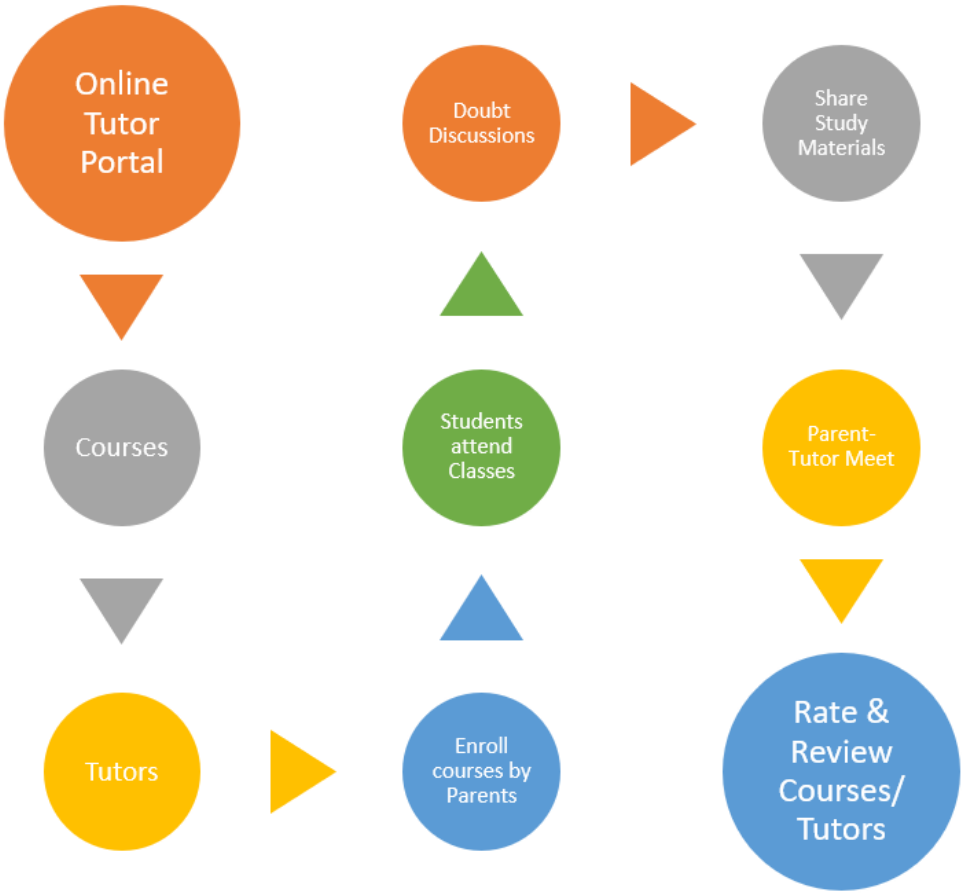

Figure 1.1: Workflow

1.4 References

- https://react-bootstrap.github.io/
- https://docs.mongodb.com/
- https://expressjs.com/en/5x/api.html
- https://v1.overleaf.com/latex/templates/software-requirements-specification/ryktphvctsxg.pdf

2 Overall Description

2.1 Product Perspective

"Online Tutor Portal" is a client-server web-application where Students can learn different Subjects and Courses created by tutors. The parents can find suitable tutors for their children and enrol them in corresponding courses. The students can then attend classes and clear doubts with the tutor.

2.2 User Classes and Characteristics

There are 3 User Classes in Online Tutor Portal. They are:

- Student
- Tutor
- Parent

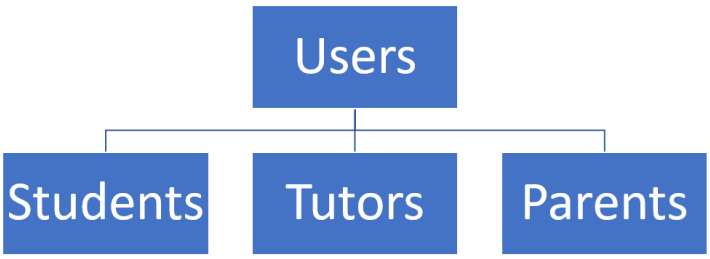

Figure 2.1: Classes of Users

Students should be able to do the following functions:

- Access a course in which the student is enrolled
- View Live Lecture Stream, Uploaded Videos, Lecture notes and other study material provided by the course
- Ask doubts in the doubt forum of that course

- Request a one-on-one Google meet with the tutor for doubt-clearing

Tutors should be able to the following functions:

- See all the courses created by the tutor
- Add new course/ Update an existing course
- Conduct Live Classes using Google Meet
- Get the details of the courses like number of students enrolled, etc.
- Answer the student's questions in doubt forum
- Conduct one-on-one doubt session with a student or progress meet with parents

Parents should be able to do the following functions:

- Enroll their children in one or more courses
- Meet with tutors to discuss progress of their children
- Parents can check reviews of the course and tutors

2.3 Product Features

All users have -name, user id, role(tutor/parent/student) and email. They can log in using a Google account. Students have some extra information like year of study, courses they are enrolled in, and their progress in that course. Parents can log in and enrol their children into various courses. The courses table contains all course information such as name, description, tutor, and ratings. According to their courses, the student is allotted a timetable and can attend classes. The tutor can also register by email and then upload their courses. The rating table contains the reviews of all the tutors and courses.

Database Details: Before using the main function of the software result process, users have to be registered. Once registered they can login using their google account. The following are the details of each table:

- The users table contains the list of all registered users i.e. tutors, students and parents. The users table then connects to the 3 separate users' table i.e. Tutors, Parents and Students. Main attributes of users table include email, name and role. Primary key is the google account email and also is the foreign key in many other tables.
- The courses table contains Course Name, Course ID, Course Description, Resource Link, Rating and Reviews
- The timetable provides a display of all the enrolled courses of each student, with its timings.

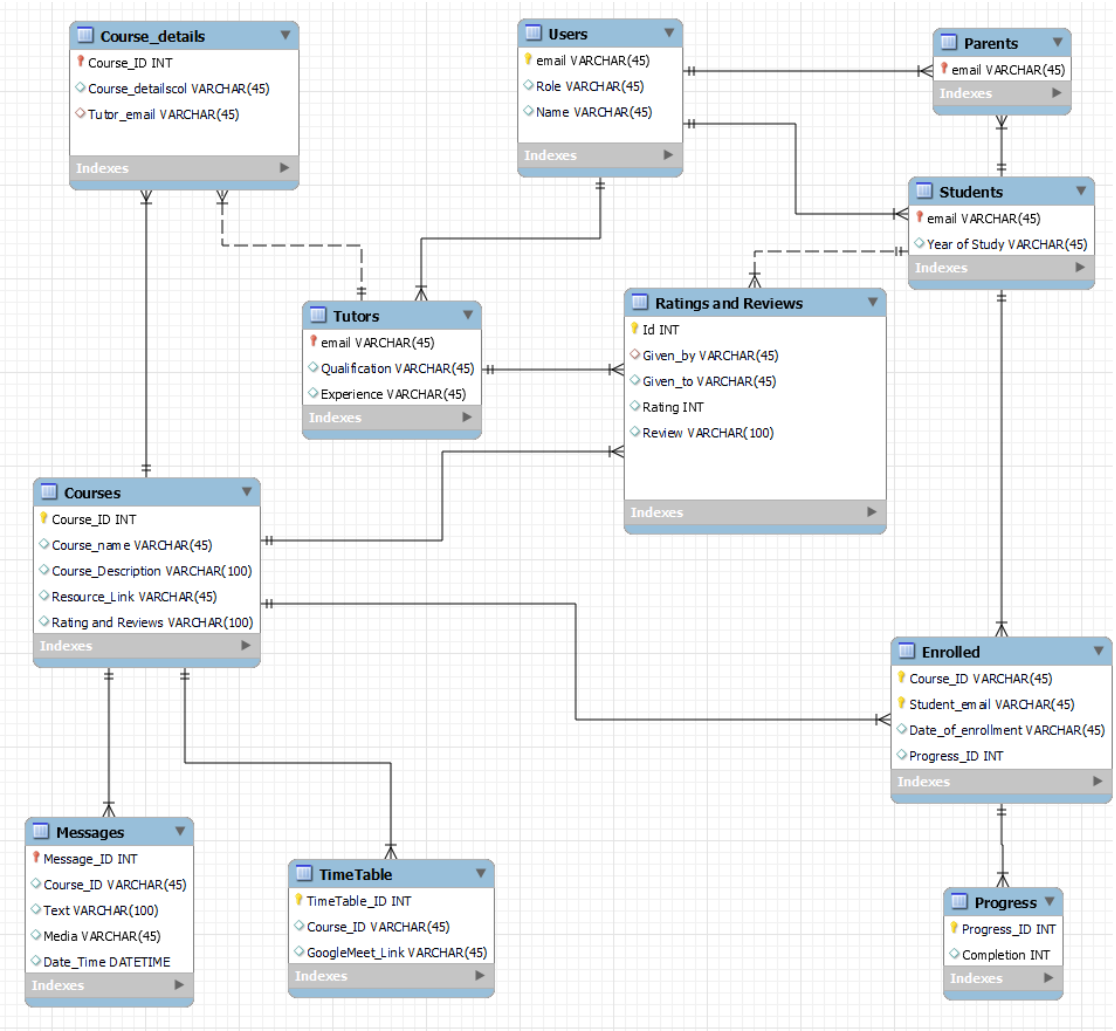

Figure 2.2: Data Flow Diagram

- The messages table contains the chat history of doubt forums, direct messages, etc.
- The progress table stores the progress of each student through each course.
- The students table contains some additional information about the student like email and the year of enrollment
- The Rating and Review table will store will store the rating of the courses given by the student/parent. it will also store the feedback given by the students/parents to the course which will make the tutor aware of the areas of improvement.
- The enrolled table will store which student is enrolled in which course and also the

date of enrollment.

- The Time-Table will store the information of each of the classes timings and their respective google meet links which is accessible to the students and tutors. The attributes include TimeTable-ID, Course-ID, GoogleMeet-Link.

2.4 Operating Environment

The Operating environment for the Online Tutor Portal is as listed below.

- **Operating system:** Any operating System like Windows, Mac, Linux.
- **Platform:** Any Web browser (Eg: Google Chrome)

2.5 Design

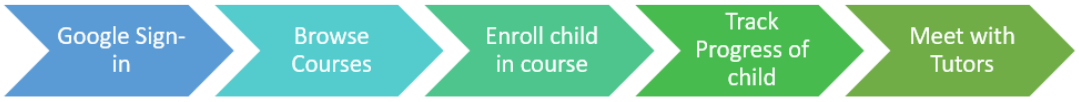

Figure 2.3: Design Flow for Parents

Courses can be browsed by all. The registered parents have the liberty to enroll their children into any course(by assumption it is free of cost). However, there is a limit(3) on how many courses a child can be enrolled in simultaneously.

Parents can view their child's progress in each course and can also learn about their interaction in class via the Parent-Tutor Meet. As a Student:
Students on login will see their courses registered, timetable as well as the discussion forum where they are free to ask doubts pertaining to the course.

The students will be able to access all study material such as Lecture videos, Class notes, important Text Books in the course's folder. As a Tutor:
The tutors are responsible for conducting live classes, clearing doubts in the Doubt-Forum as well as attending/organizing Parent-Tutor Meets.

The tutors can also apply to teach other courses(if they are qualified) or can request for a new course to be conducted under them.

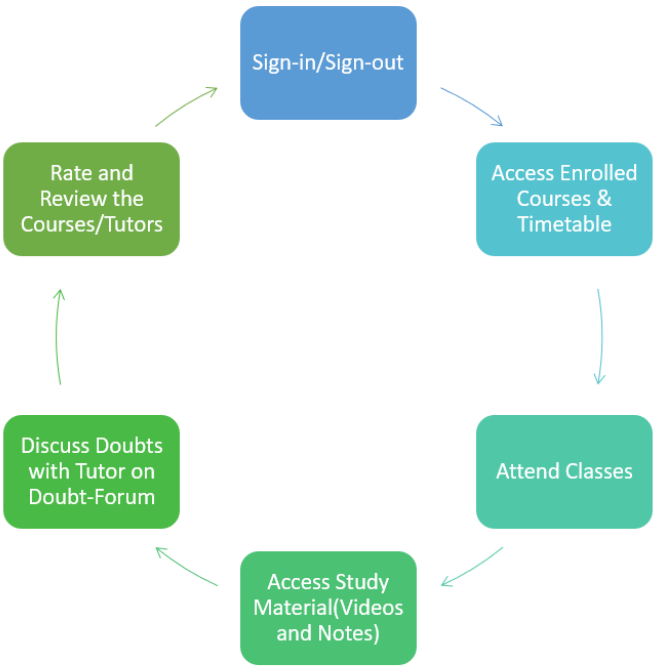

Figure 2.4: Design Flow for Students

Figure 2.5: Design Flow for Tutors

2.6 Assumptions

In general, any online tutor portal would require transaction of money in order to avail the benefits of the website. However, as a simple model we shall, for now, keep the enrollment into courses free. If we have the time and need to change to the paid mode, then we would try and implement it.

3 System Features

3.1 Description and Priority

The online tutor portal is basically a platform for students to learn from tutors online while not missing out on a real-time teaching environment. The platform also offers parents to track their children's progress.

Since the time the pandemic has started the need for online teaching has greatly increased. Especially during the peak time of the pandemic waves, no other option was available other than online teaching. However, considering schools are now opening slowly, this software would come in Medium to High priority.

3.2 Responses/Stimulus Sequences

1. Login/Sign In for users.
2. Attend live classes..
3. Live chatting with a tutor in Doubt-Forum for clearing doubts.
4. Enroll the child into different subjects as a parent.
5. Tutors can apply for creating new subjects to teach.
6. Review/Rate tutors from past experience.

3.3 Functional Requirements

The following functional requirements are required for our project:

1. **Three unique users:** The portal will allow users to make an account as a student, a parent, or faculty(tutor). Based on the user type, relevant information and resources will be accessible.
2. **Google Sign-in and Authentication:** A secure way to log in for any user using Google Account.

3. **Search and Enroll for the desired subject:** Parents can enroll their children in a course/subject. They can search for a new course based on topics, Tutors, etc. As of now, all subjects are free since the payment feature might be investigated later.

4. **Track as a Parent:** The parent can see their child's progress. They can see how much of the course is completed by their child.

5. **Status of student progress:** Teachers can view the progress of assignments and quizzes of all students, while a parent can only view their respective child's progress. Each student can view how they are trending over time. Teachers will be able to update the marks of all students.

6. **Google meet:** For the purpose of teaching online, google meet can be used as a video-communication platform.

7. **Timetable:** An algorithm will prepare a timetable based on the available information provided by both faculty and students. The schedule will be integrated with google calendar for ease of reminders.

8. **Resource sharing**: Each course will have a storage folder to keep their teaching notes/ reading material. The registered students only will be able to access them.

9. **Doubt Discussion Forum for each course/subject**: There is a forum page for doubts and discussion for each course, where students can ask their doubts/queries, and teachers can answer them. The chat will also have an option for uploading and displaying images, videos, and pdfs.

10. **Add or Edit/Update Courses**: The tutor will see all his courses. They can update them or add new courses anytime. They can see how many students have enrolled in those courses and other details.

11. **Optional**: A student can also request a one-on-one doubt clearing session with the tutor. If the tutor is online, they will be connected and can chat and share images and videos to solve doubts.

4 External Interface Requirements

4.1 User Interface

The graphical user interface will rely on HTML,React and CSS Bootstrap. The system shall have content that will only be viewable to the user if they are logged in correctly.

4.2 Hardware Interface

An internet connection to allow the browser software interfaces to connect to the internet to access of the website, a camera and mic to access classes on google meet. The device must have camera and microphone access(internal /external) to attend/conduct meetings.

4.3 Software Interface

Any standard web browser will allow access to the website.

- Mozilla Firefox
- Apple Safari
- Google Chrome

4.4 Communication Interface

Internet Protocol (IP) shall be used by the software interfaces to connect to the internet. The standard HTTP communication protocol will be used to send and receive data from the client and server.

5 Other Nonfunctional Requirements

5.1 Performance Requirements

The portal will be interactive with very low delays. Most requests will be processed in less than 2 seconds. The MongoDB database will be fast and reliable for accessing data. Google Meet is expected to perform with very low latency for conducting classes. Connecting to the website might take a bit longer in case the website is inactive.

5.2 Security Requirements

We will implement google OAuth to secure our website, so only verified emails can log in. The database is also remote, hosted by MongoDB atlas, which is also a secure cloud cluster.

5.3 Software Quality Attributes

1. **Performance**– Node and express used for backend are fast and efficient. The technologies and software are high-speed, but hardware constraints might lead to delays on extensive access..
2. **Scalability**- As a NoSQL database, MongoDB is scalable as its data is not coupled relationally. And the software will be able to respond to multiple requests, limited by the hardware available only.
3. **Capacity**-Any number of people can access the portal, but the hardware constraints limit the capacity to some extent.
4. **Availability**- The website will be hosted online using a free hosting service like Heroku/AWS and will be available to anyone with the internet and a web browser.
5. **Reliability**-The MongoDB database and hosting sites like AWS/Heroku are very reliable with backup servers, so crashes are extremely rare.
6. **Serviceability**-Any bugs and inefficiencies can be changed easily. Proper hosting management can reduce website crashes(if any) due to server overload.
7. **Security**- The portal will be secured using Google-OAuth API and hence will be very secure. Data in the MongoDB databases will be stored securely on cloud services.
8. **Usability**- The portal will be simple and easy to use. UI will be made interactive and appealing using React.
9. **Interoperability**- The website is compatible with most browsers, and anyone with the internet can access the portal.