TYBCA SEM 6 (2022-23)

Group Number	**03**
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Project Definition	**“Mentorius - ask any doubts!”**

SRS (Software Requirement Specification)

SRS is a detailed description of a software system. It may include the use case of how the user interacts with the software system. The Software Requirement Specification document consists of all requirements required for project development. To develop the software system, we should have a clear understanding of the software system. To achieve this, we need to continue communication with users and gather all requirements for the proposed system.

1. Introduction:

- **Purpose**: The sole purpose of this document is to help the reader gain a detailed perspective of the requirements and functions of Mentorius.
- **Scope**: Mentorius's scope is to provide a convenient environment for students to gain knowledge, ask the doubts they are encountering while studying, and help other students in their career journey.
- **Definitions and Acronyms**:
    - **Mentorius**: name of the application. It is derived from *Mentor(teacher) + ius(to make it sound unique)*.
    - **SRS**: Software Requirement Specification.
    - **User/Student**: A person who creates an account on the Mentorius application to use its features.
    - **Doubt**: "Doubt" is a post created by a user on the Mentorius application to seek help in their studies. It can be viewed, liked, commented on, and shared by other users.
    - **Likes**: A feature on the Mentorius application that allows users to show their appreciation for a doubt created by another user.
    - **Comment**: A feature on the Mentorius application that allows users to add their thoughts, suggestions, or feedback to a doubt created by another user.

- **Overview**: The following sections of this document provide a detailed description. The overview of this document; is categorized into three main sections:

    1. **Introduction**: This provides an introduction to the document.
    2. **Overall Description**: This describes the product perspective, product's functions, user characteristics, operating environment, design and implementation constraints, user documentation, and assumptions and dependencies.
    3. **Specific Requirements**: This section describes the external interface; functional and non-functional requirements of the Mentorius application.

Functional requirements: this refers to the specific features and capabilities that a software or system must have to meet the needs of its users and stakeholders. For example, it includes features like the ability to post and answer questions with a search for existing questions(doubts) functionality.

Specific requirements of Mentorius:

1. **External Interface Requirements:**

   1.1 User Interfaces:

   - Mentorius has a user-friendly web-based interface that allows users to perform all the necessary tasks, including creating an account, posting doubts, and interacting with other users.
   - The interface is designed using HTML and CSS to ensure consistency.
   - The interface is responsive and made with accessibility in mind.
   - The interface is made by applying the best UX and UI patterns for users to know how to use the application's features.

   1.2 Hardware Interfaces:

   - Mentorius requires a PC or mobile device to access the features.
   - Minimum 4 GB RAM.
   - Monitor, Peripheral devices, physical routers(if applicable).

   1.3 Software Interfaces:

   - Operating System - Linux, Windows, MAC.
   - PHP: as a server-side scripting language.
   - MySQL: backend Database Management System(DBMS).
   - HTML, CSS: for frontend design.
   - JavaScript: frontend scripting and user interactions.

2. **Functional Requirements:**

   2.1 User Registration and Authentication:

   - Mentorius's users can create an account by providing their email address and choosing a password.
   - The application will send a verification email to the user's email address to confirm their account creation.
   - Users can log in to their account using their email and password.
   - The application shall restrict access to certain features to authenticated users only(admin account).

2.2 Doubt Creation and Management:

- Mentorius's users can create doubt by adding a text description and an image.
- They can edit or delete doubts and search for doubts based on keywords.

2.3 Doubt Interaction:

- The Mentorius application shall allow users to like and comment on other users' doubts.

2.4 User Profile Management:

- Users can also edit their profile information, including their name, profile picture, education, and gender.
- Usernames and profile pictures of users are shown along with their doubts.

2.5 Account Recovery:

- When the user forgets his password, he can change his password after verifying the email.

3. Non-functional requirements:

Describes the system's performance, usability, reliability, security, and other non-functional requirements.

Some Non-functional requirements of Mentorius include:

- **Performance**: the platform is responsive and can handle large numbers of users and posts without significant delays or downtime.
- **Security**: the platform has measures to protect user data and prevent unauthorized access, such as encryption and secure login protocols.
- **Usability**: the platform is easy to use and navigate, with clear instructions and intuitive design.
- **Reliability**: the platform is dependable with minimal disruption or errors.
- **Scalability**: the platform can handle an increasing number of users and posts without affecting performance or functionality.
- **Compatibility**: the platform is compatible with a range of devices, browsers, and operating systems, to ensure accessibility for all users.
- **Maintainability**: the platform is easy to maintain and update, with clear documentation and efficient coding practices.

2. System Architecture:

This section describes the system's overall architecture, including all hardware and software components.

Main layers of System Architecture in Mentorius:

- **Presentation Layer**: includes User Interface components, such as HTML/CSS for the front end and JavaScript for client-side functionality. The presentation layer interacts with the application layer to display data and respond to user actions.
- **Application Layer**: includes the Application logic, which processes requests from the user interface and communicates with the database, implemented using server-side technologies such as PHP or Node.js.
- **Data Layer**: includes the database and related components, such as data access objects or object-relational mapping tools. The data layer is responsible for storing and retrieving data from the database.
- **Infrastructure Layer**: This layer includes the infrastructure and services needed to support the application, such as servers, load balancers, and caching systems.

3. Data requirements:

Contains the outline of the data stored in the system, including types, formats, and any constraints on the data.

The database's name is mentorius which contains two main tables(more added according to new features) students and doubts. "students" table contains information about our intended users(students), and the "doubts" table contains information about doubts.

- **mentorius**(database)
  - tables
    - **students**
      - id
      - username
      - password
      - first_name
      - last_name
      - gender
      - email
      - education

    - profile_pic
    - created_at
    - updated_at
    - ac_status
- **doubts**
    - id
    - user_id
    - doubt_img
    - doubt_text
    - created_at

4. Use cases:

This section should describe the different use cases for the Mentorius system, including scenarios where users might need to ask questions, search for information, or interact with other users.

1) As a **student**:

- I want to create a new account on Mentorius and post my doubts and connect with other students.
- I want to log in to my Mentorius account to view and manage my doubts and like and comment on other students' doubts.
- I want to upload an image with my doubt about Mentorius so that other students can better understand my problem and provide more accurate solutions.
- I want to search for specific doubts on Mentorius to find solutions to similar problems that other students have faced.
- I want to receive notifications on Mentorius when other students like or comment on my doubts so that I can stay updated on the progress of my queries.
- I want to update or delete my doubts on Mentorius to manage my posts and ensure they are accurate and relevant to my current problem.

2) As a **mentor**:

- I want to browse through the doubts posted by students on Mentorius to offer solutions and help other students struggling with similar problems.

5. Assumptions and constraints:

Describe all assumptions or constraints the system must operate under, such as limitations on the number of users or the amount of data stored.

Assumptions:

- Students who use Mentorius have basic knowledge of computers and the internet.
- Students who use Mentorius have a valid email address for registration and verification.
- Students will only use Mentorius for academic purposes and will not post inappropriate or irrelevant content.
- Mentorius is accessible via a web browser on a computer or mobile device.
- The server hosting Mentorius will be available and responsive at all times.
- The database used by Mentorius is secured and regularly backed up to prevent data loss.

Constraints:

- Mentorius is limited to the features and functionality defined in the requirements.
- Mentorius will only be available in languages supported by the platform (PHP, HTML, CSS, and MySQL).
- The design and layout of Mentorius will be limited to the capabilities of front-end technologies used.
- The size of uploaded images and text for doubts will be limited to prevent performance and storage issues.
- Users of Mentorius will be responsible for maintaining the confidentiality and security of their login credentials.
- Mentorius will not be responsible for any damages or data loss due to unforeseeable circumstances such as server downtime or hacking attempts.

6. Dependencies:

Describes any dependencies; that the system has on other systems or software components.

1) **System Dependencies:** Mentorius depends on various technologies and systems, such as:

- PHP - server-side scripting.
- MySQL for database management.
- HTML, CSS, and Bootstrap for front-end design and layout.
- Web server software like Apache, Nginx, or phpMyAdmin to host the web application.
- Operating system (OS) to run the web server software.

2) **External Dependencies:** Mentorius will also depend on external services, such as:

- Email service providers(Google SMTP and PHP Mailer) to send verification codes and notifications.
- Cloud storage providers for storing images and other media files.

Mentorius also depends on the availability and reliability of internet connectivity and the security of user devices and networks. Any disruption in these dependencies can affect the performance and usability of Mentorius.

SYSTEM REQUIREMENTS

Operating System	Windows 7, 8, 10, Linux, Mac OS
Frontend	PHP version > 8
Backend	MySQL version > 8
Web Server	Apache
IDE	VSCode
Browser	Chromium
Framework	PHP
Documentation	Google Docs
Designing Tools	HTML, CSS, JavaScript, jQuery
Designing Framework	Bootstrap/Custom CSS
Template	Custom
Database Connectivity	PHP built-in functions