
Software Requirements Specification

for

Question and Answer Web Application

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1 Introduction

Document Purpose

This document is a Software Requirements Specifications (SRS) for the “NITC Query System” web application. It will explain the purpose and features of the system, lay out the functional and non-functional requirements, tell about the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This SRS is organized into several sections to help in the development and designing of the system and helps to get a clear picture of the app during the development stage. This document is intended to propose this software to consumers for their validation and clarification of the system.

Product Scope

This NITC query system is a web application which is designed and built to give the students of NITC a platform where they can have discussions about anything related to the campus. The pandemic has forced us to follow an online system of education for the past two years. This meant that the students did not get a chance to interact with each other, have conversations about important issues on campus and build a strong and interactive student community, which is an integral part of one's college experience. In fact the B20s did not get a chance to meet each other even once. They do not have any information about the ins and arounds of the campus. Hence, We aim at building a platform where any of these queries can be answered and any type of discussion can take place with complete transparency.

Intended Audience and Document Overview

This SRS is intended for all NITC students, including system designers and developers.

- This SRS will help students who would be posting the Questions on website to know all the features.
- The developer would be benefited by knowing the requirements of the client.
- The designer can use this SRS to design the system to meet all requirements.
- The admin can get an idea of their role and special features they are provided.
- The database designer can use this for designing the database according to needs of the project.

Document Conventions

User	Someone who uses or interacts with the web application
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Admin	Who manages and organizes the Question answer website
Question-Answer	A web application consisting of Questions and their answers typically displayed in reverse chronological order.

2 Overall Description

Product Overview

The pandemic saw a drastic change in the paradigm of education, where things went online and intercommunication and peer discussions were drastically reduced. This web application is designed to bridge the gap created due to lack of communication. The main objective of this web application is to provide a platform for students of all academic backgrounds of NITC to post queries and questions regarding various aspects of NITC and get their doubts/queries resolved by the students who have relevant experience in the same. Also, this will also help students get the relevant updates related to college activities and events and will improve their understanding of the NITC culture in a better way.

Product Functionality

- To provide a platform for students to get their queries resolved.
- To provide a platform so that students may get relevant updates regarding college activities and events.
- To provide a platform to various clubs and associations to post about their educational workshops/events.
- To provide a platform to students who want to help to resolve the queries of other students through their own experience.

User Classes and their Characteristics:

- Student Class :
 - To post questions on the topic on which they want information.
 - To answer a question as a comment.
 - To post about an event.
- Admin Class
 - To view all the questions and answers present
 - To have the right to delete any question or answer.

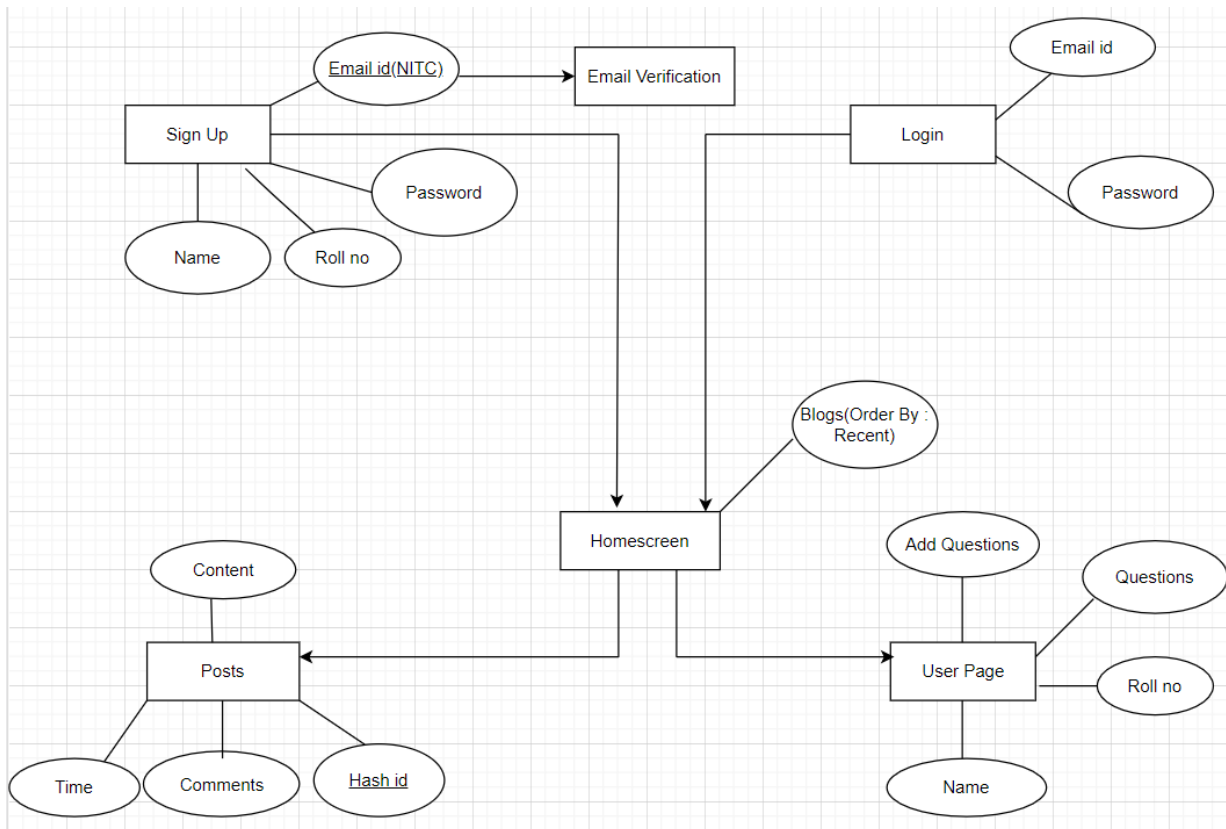
Design and Implementation Constraints

- The users are provided with a sign-up where they enter their NITC mail id and set up a password.
- The mail id is verified through email verification.
- After their sign-up/login-up they will be redirected to a home page where recent Questions and Answers would have listed.
- The users will also have a user page where they will be able to see the details of their profile.
- The users will have the option to post a question and answer to others questions.
- Implementation of the database will be through a centralized database system.
- The major challenge after the design is to scale it according to the number of users in order to provide a decent response time for read and write requests.

Assumptions and Dependencies

- The users must be from NITC.
- All the communications should be performed in English.
- The Admins will have the right to delete any question or answer.

System Design Diagram



3 Specific Requirements

External Interface Requirements

User Interfaces

- The user can view relevant Questions and their answers on the home page.
- It is easy to interact with a website where the user does not have much access to manipulate the content but every user has the right to delete his/her questions and answers.

Hardware Interfaces

- Since the application runs over the internet, the system must always be connected to the internet at the time the user is running the application.
- Device (computer, mobile, tablet) to access the site are required.
- Backup storage for retrieval of data in case of unexpected failures.

Software Interfaces

- The application supports all major web browsers that will make it convenient for the user to access our system.
- Development tool for Front end: HTML, CSS, Bootstrap, JavaScript.
- Development tool for Back end: Node.js.
- Database: MySQL.

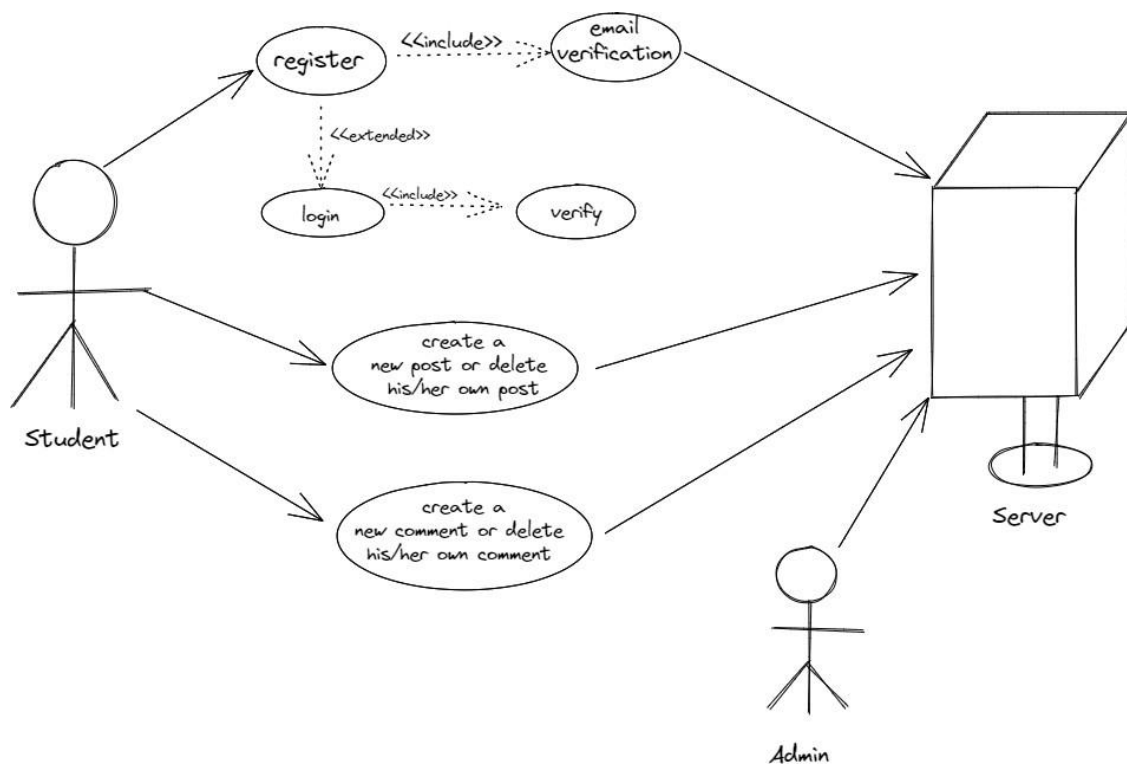
Development Tools Description

HTML	HTML is a standard markup language for documentation of content to be displayed on a website.
CSS, Bootstrap	Both are used for styling our blog website and thus create a better interface so that users can easily interact with the website.
JavaScript	It is used to create dynamic and interactive website.
Node.js	Node.js is used here to provide the back-end of our website. It also acts as a link between our database and the front-end of the website.
MySQL	It is an open-source relational database management system. It helps in storing all information and data on our site.

Functional Requirements

- System shall ask for email id verification at the time of signup.
- System shall add the details of the user to the database after signup.
- System shall verify the user details at the time of login.
- System shall add the details of Questions to the database when any user creates a new Question and make it visible to all the users.
- System shall add the details of Answers to the database when any users new Answer on some Question and make it visible to all the users.
- System shall show the name before the answer or question on the home screen.
- System shall allow users to delete the questions and answers created by themselves.

Use Case Model



Use Case #1 (Register a Student-U1)

Author – Group-11

Purpose - To register a student through a sign-up portal and proceed to a homepage.

Requirements Traceability – F1

Priority - High

Preconditions - User must have a valid NITC email address(Eg: first-name_roll-number@nitc.ac.in) and name, roll-number, mobile no.

Post conditions –

- The user successfully completes the registration and arrives at the homepage.
- The user is able to access the various features of the application via the homepage.
- The user's details obtained through the registration are stored in a database.

Actors –

1. **Device** –
 - Device runs the application
2. **Student** –
 - Run the application

Flow of Events

1.Basic Flow

Actor's Action	System's Response
The user enters his/her valid NITC email address	Users get the mail to his/her NITC email to verify mail.
Verified the email	
The user presses the 'Submit' button	system routed the user to the homepage and displayed the successful login in green.

2.Alternative flow

Actor's Action	System's Response
The user enters his/her valid NITC email address	Users get the mail to his/her NITC email to verify mail.
The user presses the 'Submit' button	If the NITC email was not verified, the system will display email not verified in red.

3.Exceptions

Actor's Action	System's Response
The user enters his/her valid NITC email address	Users get the mail to his/her NITC email to verify mail.
Verified the email.	
The user presses the 'Submit' button	If the confirmed password does not match with the password system will display the please type new password in red.

Extends – U2

Includes - None

Use Case #2 (login a student-U2)

Author – Group-11

Purpose - To login a student through a sign-in portal and proceed to a homepage.

Requirements Traceability – F2

Priority – High

Preconditions - User must have a valid NITC email address(Eg: first-name_roll-number@.nitc.ac.in) and password.

Post conditions -

- The user is able to login and arrives at the homepage.
- The user is able to access the various features of the application via the homepage.

Actors –

1. **Device:-**
 - Device runs the application
2. **Student:-**
 - Run the Application

Flow of Events :

1.Basic Flow:

Actor's Action	System's Response
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Users enter email and password and press submit.	System routed the user to the homepage and displayed the successful login in green.
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2. Alternative flow

Actor's Action	System's Response
Users enter email and password and press submit.	If the password is incorrect, system will display the password is incorrect in red.

3.Exceptions

Actor's Action	System's Response
Users enter email and password and press submit.	If the email is not in the database then system will display not registered in red. And redirect the user to the signup page.

Extends-U3

includes-U1

Use Case #3 (create a Question-U2)

Author – Group-11

Purpose - To create a new Question.

Requirements Traceability – F3

Priority – Middle

Preconditions -U must have the query to ask.

Post conditions -

- The Question asked will be visible to all the students.

Actors –

1.Device:-

- Device runs the application

2.Student:-

- Run the application

Flow of Events

1.Basic Flow:

Actor's Action	System's Response
Users create the Question.	System will display new Question created in green and then update the post list for all the students.

Extends-U4

includes-None

Use Case #4 (create an Answer-U4)

Author – Group-11

Purpose - To create a answer.

Requirements Traceability – F4,F5

Priority – Middle

Preconditions -User wants to share his/her views with the Question's user.

Post conditions -

- Answer will get on the timeline of all the students.

Actors –

1.**Device:-**

- Device runs the application.

2.**Student:-**

- Run the application.

Flow of Events -

1. Basic Flow:

Actor's Action	System's Response
Users create the Question.	System will display new Answer created in green and save the details in the database then update the timeline for all the students.

Extends-U5

includes-None

Use Case #5 (delete a Question-U5)

Author – Group-11

Purpose - To delete his/her Question.

Requirements Traceability – F6,F5

Priority – Middle

Preconditions –Question that user want to delete must be created by him.

Post conditions -

- The Question will be removed from the timeline of all the students.

Actors –

1.Device:-

- Device runs the application

2.Student:-

- Run the application

Flow of Events

1.Basic Flow:

Actor's Action	System's Response
Users delete the question.	System will display question deleted in red and delete the details of that question along with all the associated answers in database then update the timeline for all the students

Extends-U6

includes-None

Use Case #6 (delete an Answer-U6)

Author – Group-11

Purpose - To delete his/her answer.

Requirements Traceability – F6,F5

Priority – low

Preconditions –answer that user want to delete must be created by him.

Post conditions -

- The answer will be removed from the timeline of all the students.

Actors –

1.**Device:-**

- Device runs the application

2.**Student:-**

- Run the application

Flow of Events –

1.**Basic Flow:**

Actor's Action	System's Response
Users delete the answer.	System will display answer deleted in red and delete the details of answer in database then update the timeline for all the students

Extends-U7

includes-None

Use Case #7 (Logout-U7)

Author – Group-11

Purpose - logout from the website.

Requirements Traceability –

Priority – High

Preconditions -user must be logged in

Post conditions -

- User will get back to the signUp page

Actors –

1.**Device:-**

- Device runs the application

2.**Student:-**

- Run the application

Flow of Events –

1.Basic Flow:

Actor's Action	System's Response
User clicks the logout button on his/her profile page.	System will redirect the user to the signup page.

Extends-None

includes-None

4 Other Non-functional Requirements

Performance Requirements

- A server is required to run this web application.
- The database is required to store the user details and their questions and answers on this web application.
- The request response time will depend on network speed and latency of the server.
- So, a server capable of handling approx. 1000 concurrent requests is required.
- The site load time depends on speed of internet connection and proximity from the server.
- The load time may even depend on type of hardware on which site is running.
- For decreasing the time in email verification, the email will be sent instantly. To avoid the load on the server the mails be sent using the parallel jobs.
- In every request created by the user whether it is posting questions, deleting questions or answers, the information is always a string. The data type dealt in question answers is a string.

Safety and Security Requirements

- To have full functional use of the website user need to sign up or sign in (if signed up), otherwise the website remains to be in read-only mode.
- At the time of the sign-up user is asked the name and roll number. This is to ensure the correct identity of the user.
- Unique Login Id (only NITC mail id people allowed so as to avoid outsiders) and password (may or may not be unique) for every user.
- Every new user signing up is checked in the backend for the nitc mail-id, other ids are not allowed.
- To have real users on websites, email verification is done at the time of sign-up.
- The signed-In user gets signed out after the specified time as signed-in credentials are stored in the cookies for a specified time.

- Only Signed In users can post a new question, answer to asked the questions from the home page, and upvote answers.
- Signed Out users can only see the question and answers to them. The website remains to be in read-only mode.
- Signed-In users have access to their Profile Page which shows all the questions asked by them also shows the answers associated with corresponding questions.
- Signed-In users can only delete those questions and answers which they wrote.
- Data backup to be done periodically.
- Only Signed In user can post a new question or answer to asked the questions from the home page.
- Signed Out user can only see the question and answers to the them.
- Signed In user have access to their Profile Page which shows all the questions asked by the user also gives user feature of deleting the questions along with all the associated answers to it or deleting the unwanted answer to the questions.
- User's id and password are secured and no visible to even admins.
- Users have option to save their login credentials.
- All Users have unique id and passwords.
- Password will be hidden while typing.
- Sign out and change password features are given to users.

Software Quality Attributes

Reliability

- New Questions and corresponding answers to them in database are reflected without any delay.
- Any registration by the user is reflected in database almost instantly.
- All the actions to post and delete happen by signed users.
- Questions are shown in reverse chronological order, hence newest Question will be shown first.
- Application is made to protect inside information from users, only few selected people have access to handle all features of blog website.

Usability

- In case of invalid signup (out of NITC) user is taken back to the home screen without registering him or her.
- To have the accessibility to feature to the website, the user should sign-in
- This application works in every browser.
- This application is responsive, so works great with every size of screen.

Correctness

- To provide only reliable content in the Question only few people are allowed to handle admin panel.
- To provide genuine answers to questions to questions, users have can refer to upvotes to the answers.
- Admin have full control to manipulate Questions and Answers. So in case someone post inappropriate question or writes the inappropriate answer then Admin can delete them instantly without the user choice.
- Admin panel which is accessible to a few specific people, check the database regularly.

Maintainability

- Backup of database will be kept.
- SQL server would be having a database maintenance routine scheduled monthly.
- Periodic testing and debugging will be done based on users' feedbacks. Also, the application is designed such that it can incorporate the new features without hassle.
- New features will be added with time to have an easy user-friendly experience
- In case of any error, re-initialization of program will be done.

5. System Features

This section provides the functional overview of the application. The application will use HTML, CSS and bootstrap for front-end, MySQL as database management system and Node.js as back-end language. Functional modules implemented by the application will be as follows

Sign Up

- A user who is not registered can register into the application by entering his/her name, roll no, NITC email id and password.
- The entered email id will then be verified with the user by sending a mail to the respective email id.
- The user will be registered once email id is verified otherwise user won't be registered.

Login

- The registered user can log into the application by entering the registered email id and password.
- The user will be directed into the home screen and will get access to the Profile Page, posting questions and answers rights if login is successful. If the password entered is incorrect then user will be taken back to the sign-up page and website remain in read-only mode.
- A user that is not registered won't be signed in also need to go to signup page to get registered to use website features.
- Login credential for the admin is given to specific people so that only they have privilege to delete the inappropriate, unwanted or false Questions and answers.

Question-Answer

- The user can create a Question or Answer on a Question which will be visible to all the other users.
- The users have the ability to delete their own question or answers.
- Question-Answers are shown on the Home Screen.
- Questions-Answers created by user are shown on the user page.

