Software Requirements Specification

for

<ClubZen>

Version <1.0>

Prepared by

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Version	Primary Author(s)	Description of Version	Date Completed
v1.0	Group 12 Tiny Coders	SRS 1.0	30/01/22

1 Introduction

1.1 Product Scope

Description-

ClubZen IITK is a platform to integrate all the three Councils,i.e. Games and Sports Council, Media and Cultural Council, Academics and Career Council (their clubs and societies), and the three major fests (Antaragni, Udghosh, Techkriti) in one place. It connects all the aspects of the institute's co-curricular activities including workshops, meetings, forums, and social interaction.

Objectives and Benefits-

- It will help in the smooth conduction of orientation.
- It will act as a platform for providing students with essential information and updates about the various events and activities.
- It will help the user in keeping a track of the upcoming events and plan accordingly.
- The users will be able to see everything about the three councils and fests in one single app without having to toggle between systems so that they deliver consistent and meaningful service to each user.
- It will be instrumental in identifying and resolving student issues.
- It will help in promoting discussion among the students with similar interests.
- The user will find it easier to interact with the PoR holders through this website.
- It will help the users in exploring their interests and improving their skills.

1.2 Intended Audience and Document Overview

Intended Audience -

This document can prove to be useful to different categories of people and cater to a wide range of audiences at the same time including **the entire developers, document writers, stakeholders, project managers, testers, users, approvers**.

The intent and purpose of the app for each stakeholder may vary significantly.

Document Overview -

This is a working document and, as such, is subject to change.

In its initial form, it is incomplete by definition and will require continuous refinement. Requirements may be modified and additional requirements may be added as development progresses and the product description becomes more refined. This information will serve as a framework for the current definition and future evolution of the product.

1.3 Definitions, Acronyms and Abbreviations

Term	Definition
Antaragni	Antaragni is the Annual Cultural Festival of Indian Institute of Technology Kanpur, usually held in October.
CC	Abbreviation used for Computer Center, IIT Kanpur
CSS	Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.
Database	Collection of all the information monitored by this system.
HTML	The HyperText Markup Language, or HTML is the standard markup language for documents designed to be displayed in a web browser.
Java	Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible.
JavaScript	JavaScript, often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS.
MySQL	MySQL is an open-source relational database management system.
PoR	Abbreviation for Position of Responsibility
React	React is a free and open-source front-end JavaScript library for building user interfaces based on UI components.
SSO	Abbreviation for Single Sign On
Stakeholder	Any person with an interest in the project who is not a developer.
Techkriti	Techkriti is an annual four-day inter-collegiate technical and entrepreneurship festival at IIT Kanpur
Udghosh	Udghosh is the annual sports meet of IIT Kanpur.
Unix	Unix is a family of multitasking, multi user computer operating systems
User	Reviewer or Author

1.4 Document Conventions

Formatting Conventions -

- **Arial** font size 11 is used throughout the document for text.
- The document maintains a 1'' margin and is single-spaced throughout..

- Section titles use font size 23 and subsection titles use font size 17

- Comments are italicized and important words are made bold.

1.5 References and Acknowledgments

- *IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.* IEEE Computer Society, 1998.
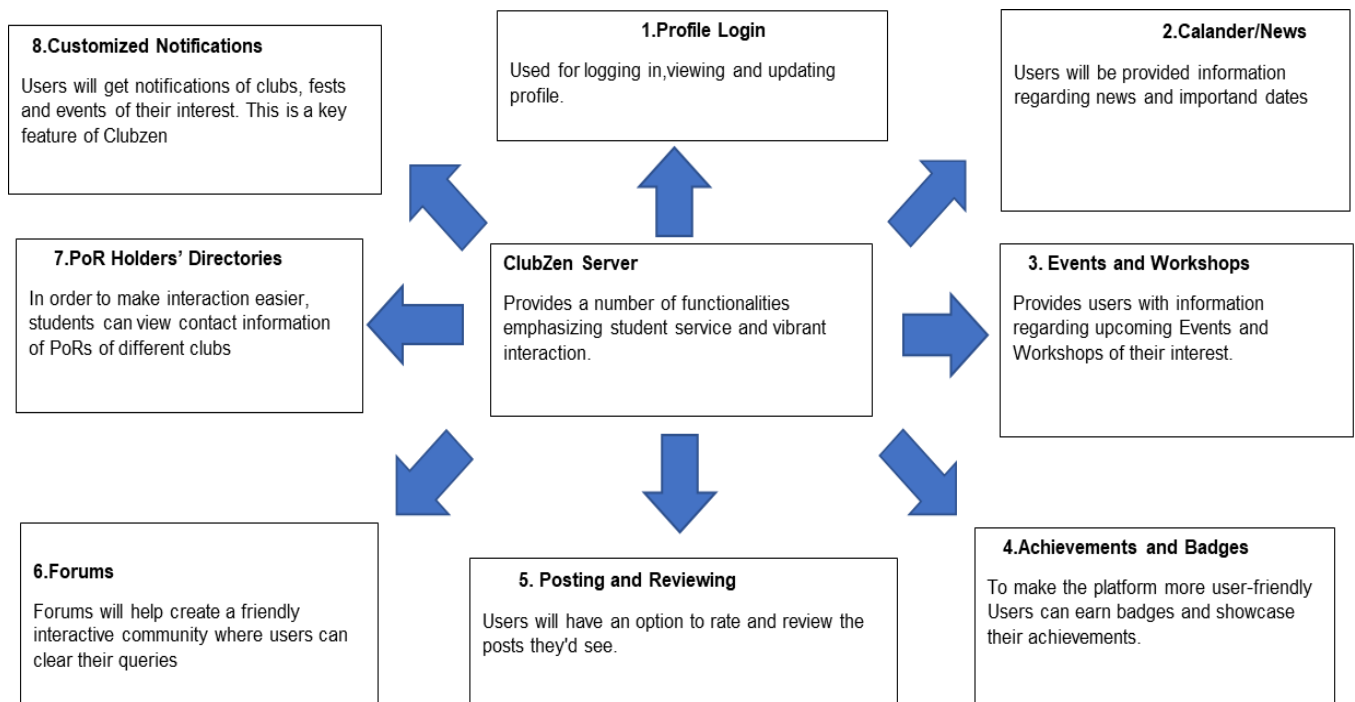- Explore the UML sequence diagram - IBM

2 Overall Description

2.1 Product Overview

ClubZen is a website-based project which will be useful for college students and clubs and societies coordinators. At present, there is no official platform for notifications of clubs and societies. There are WhatsApp groups for different clubs and events, emails are sent to the IITK community but overall it is a complete mess. The students need to check all Whatsapp groups and emails for each and every activity of the clubs making it very difficult to find the required event-related details.

To resolve this issue a website will be developed and this software will be for our college to get the events and workshops, achievements, badges related information. Students can also contact the club's secretaries and coordinators. They can post their works and get reviews from other students. We will also provide a forum for interaction among students.

In this project, the students and staff for different clubs are registered by the admin. The staff can create events for clubs and also post a timetable for the same. In this way, the students can see different events under sections for different clubs under the head of the website. This will be more helpful for the students as well as clubs also.

8.Customized Notifications

Users will get notifications of clubs, fests and events of their interest. This is a key feature of Clubzen

1.Profile Login

Used for logging in,viewing and updating profile.

2.Calander/News

Users will be provided information regarding news and important dates

7.PoR Holders' Directories

In order to make interaction easier, students can view contact information of PoRs of different clubs

ClubZen Server

Provides a number of functionalities emphasizing student service and vibrant interaction.

3. Events and Workshops

Provides users with information regarding upcoming Events and Workshops of their interest.

6.Forums

Forums will help create a friendly interactive community where users can clear their queries

5. Posting and Reviewing

Users will have an option to rate and review the posts they'd see.

4.Achievements and Badges

To make the platform more user-friendly Users can earn badges and showcase their achievements.

2.2 Product Functionality

- Profile (Log in)
- Calendar/News
- Events and workshops
- Achievements and Badges
- Posting and Reviewing
- Forums
- PoR Holders' Directories
- Customized Notifications

2.3 Design and Implementation Constraints

The design & implementation constraints for this software product may include the following -

- The information of all users, clubs, and fests must be stored in a database that is accessible by the website.
- Users must have their correct usernames and passwords to log in to their accounts and do necessary operations.
- Response time for loading the product should take no longer than 2 minutes.
- Users may access from any computer that has Internet browsing capabilities and an Internet connection. General knowledge of basic computer skills is required to use the product.

2.4 Assumptions and Dependencies

No specific assumptions or dependencies are considered at this time.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

The user interface shall be web-based, allowing users to remotely access the system via several applications. Users will be able to use the software through applications such as Microsoft Internet Explorer, Mozilla, et al.
Each part of the user interface intends to be as user-friendly as possible. The fonts and buttons used will be intended to be very fast and easy to load on web pages. The pages will be kept light in space so that it won't take a long time for the page to load (React JS is used to ensure easy loading of the web page and prevent page refresh on navigation)

- Front-end software - HTML, CSS, JAVASCRIPT, REACT.JS

- Back-end software - JAVA

3.1.2 Hardware Interfaces

- Hardware required to connect to the internet. For example, Modem, Network Card, Network Connection, etc.

- A device with an active internet connection. It can be a phone, a tablet, a desktop, anything with internet access, and a browser.

3.1.3 Software Interfaces

During our system development, we have to design both static and dynamic website interfaces, create website functions and a database system, edit photos and pictures, and others, so it has a set of software requirements.
The following are needed requirements -

- **Web browser (**with internet access**):** Used in the development phase for debugging and testing.

- **Linux (Unix):** Operating system for a development environment.

- **Java:** The language used to develop the backend for the progressive web application(**PWA**).

- **HTML, CSS, JS:** A basic building block for the responsive web component - frontend of the web application

- **React:** Helps the frontend interface become visually appealing for the users.

- **MySQL:** Used to communicate to the server database.

- **Visual Studio Code**: IDE to perform certain operations - writing code

3.2 Functional Requirements

3.2.1 LOGIN with SSO

The login screen will show two options - login with cc id or continue as a Guest.
Guests can only view the following - (News, Events with privacy set to "Public")
If the User is the manager/Coordinator for any "Entity" (say TF) he/she gets the option to "Continue as TF" or "Continue as User". A different interface is shown for entities. Entities can be Public/Private. Private entities need to approve every follower.
User Profiles through SSO -
Each user will have his/her profile with a profile picture and a few details like name and branch. It is possible to follow different clubs, societies to get updates about events they're going to.

3.2.2 CALENDAR / NEWS

The Calendar for the major bodies (Cult/Tech/any other body with a public calendar) will be available under this heading.
A personal calendar will also be available in which events that are subscribed/followed by the user will be displayed along with the option to add other non-app events.

Alongside with is a news section is displayed to inculcate any special news related to different clubs that will be available.

3.2.3 EVENTS and WORKSHOPS

Events and workshops can be of three types-
All - All CC authenticated users
Private - Only those who follow the Entity (this makes sense if the Entity itself is private)
Public - All CC authenticated users as well as Guests
It will also be possible to restrict events to certain students within the institute (freshies/Sophie's only or elec/mech only or UG/PG only) and add multiple filters (such as Third Year Ph.D. Mech PGs only).
Entity Managers/Coordinators can create an event/Workshop as an Entity.

3.2.4 Feedback

There are also features to get feedback regarding the event. Initially, just a rating (1-5) is visible with the option to give a detailed review in paragraph form anonymously or non-anonymously. To comment/give feedback, the user must have a tag/ID.

3.2.5 ACHIEVEMENTS AND BADGES

Achievements:-

In different sections of clubs, there is another sub-feature showing achievements and badges of the club/society/fest. Their different contributions towards various All India level events and their accomplishments. Members of the respective clubs/societies/fests can use these to customize their Official Page.

Badges:-

To make the platform more user-friendly there would also be a sub-feature that would award Users different badges depending on how interactive they are as well as which clubs, societies, and fests they interact with. User actions like rating, reviewing, liking and commenting would all contribute towards improving their positive score based on which they'll eventually be awarded their badges. Users can use these badges to decorate their Profiles.

3.2.6 POSTING AND REVIEWING

Here, there will be different sections for every club where different posts like their artworks, performances, etc can be posted after proper verification from different clubs entities.

A feedback review section will be there to like, comment, and review the posts.

3.2.7 FORUMS

A separate section where a user can ask or clear doubts regarding that particular club/society and members like POR holders of that club can clear the queries.

The aim is to break the ice between seniors and juniors and to celebrate healthy discussions.

3.2.8 PoR Holders' Directories

The name, profile pic, and contact details for every PoR holder within the institute are arranged and shown in a structured manner with a subsection for each council.

3.2.9 Customized notifications

Every user will get customized notifications based on his/her interest i.e he/she will be notified based on the clubs followed by them regarding the activities ,posts etc.

3.3 Use Case Model

3.3.1 Use Case #1 : Sign Up and Login

Author – Tiny Coders (team 12)

Purpose - This use case is for the login and signup of the user/admin/guest.

Requirements Traceability – Profile page

Diagram

:
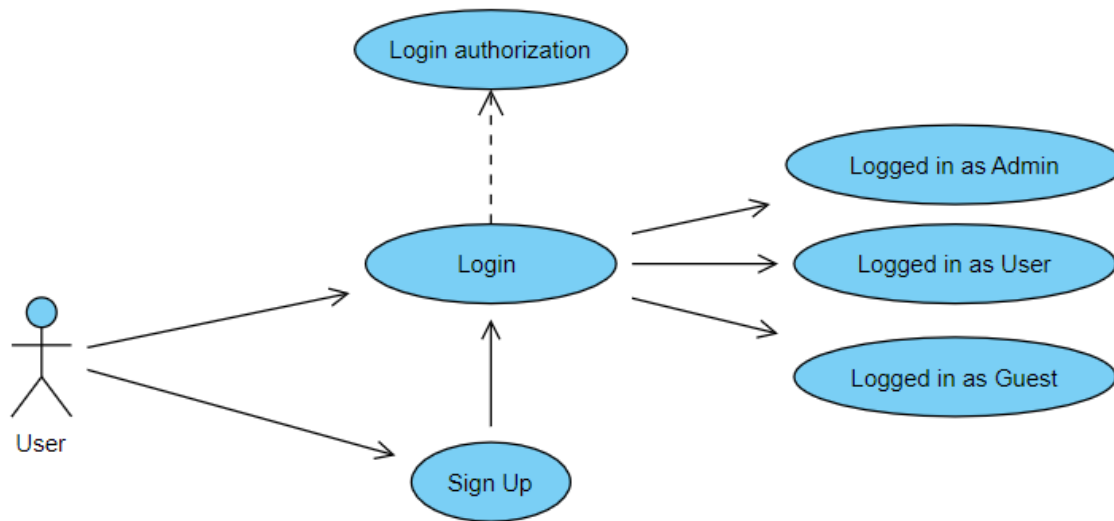
Priority - High

Preconditions -

Post conditions - User is logged in

Actors – User of the website including the Manager/Coordinator.

Exceptions - User may forgot the password and go for forgot password option

Includes (other use case IDs)

Notes - Here the user will have to enter some necessary details(name, email etc) during signup.
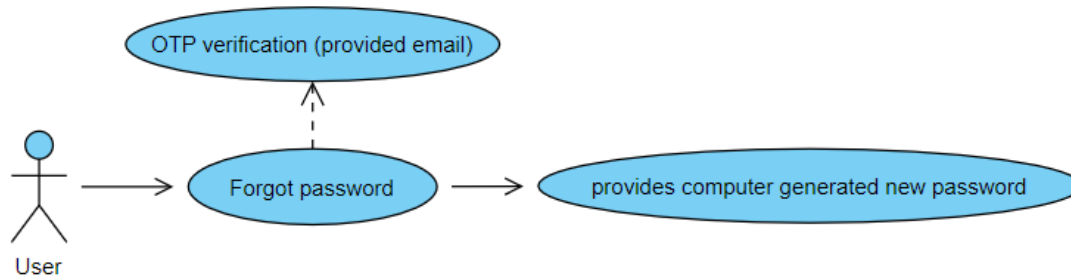

3.3.2 Use Case #2 : Forgot Password

Author – Tiny Coders (team 12)

Purpose - This use case is for the updating of the user profile(name, profile picture and other details).

Requirements Traceability – Profile page

Priority - Low

Diagram :

Preconditions - User must not be logged in

Post conditions - User gets a computer generated password
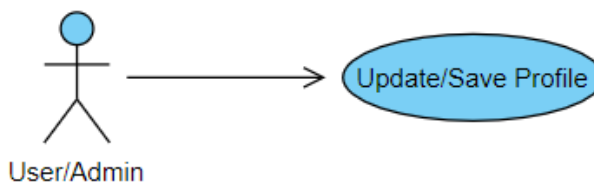
Actors – User of the website including the Manager/Coordinator.

Exceptions -

Includes (other use case IDs) :

3.3.3 Use Case #3 : Update Profile

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is for the updating of the user profile(name, profile picture and other details).

Requirements Traceability – Profile page

Priority - Low

Preconditions - User must be logged in the website

Post conditions - User profile changes will be saved and reflected on the profile page
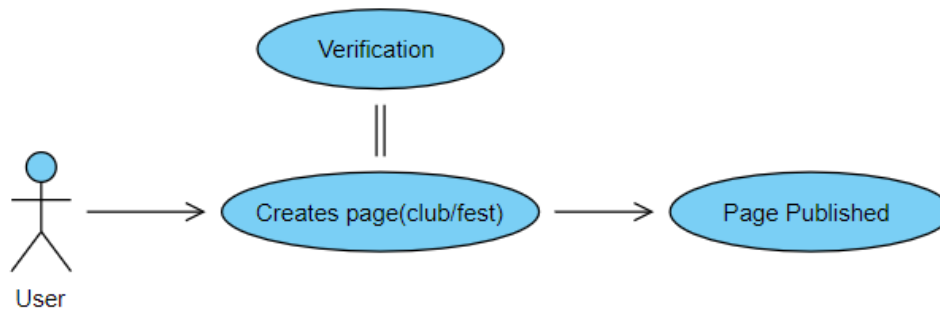
Actors – User of the website including the Manager/Coordinator.

Exceptions -

Includes (other use case IDs) :

3.3.4 Use Case #4 : Creation of Club/Fest page

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is for creating club/events pages.

Requirements Traceability – Landing page

Priority - High

Preconditions - User must be logged in the website and User must be the Coordinator/Manager of the club/fest.

Post conditions - The page for the respective club/fest is created and available for all the users.

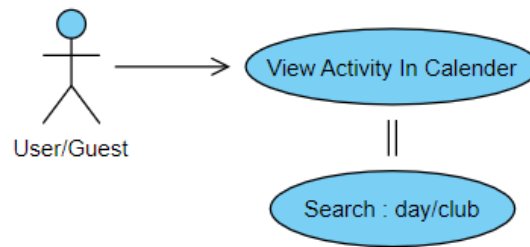**Actors** – User

Exceptions - The page will not be created if the verification process fails

Includes (other use case IDs) :

Notes - Any user can create a page for a particular club which then will be sent for verification from the respective body of ClubzenIITK.

3.3.5 Use Case #5 : Viewing Activities in Calendar

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is used for viewing the schedule of different activities(events and workshops) in the calendar.

Requirements Traceability – Calendar page

Priority - High

Preconditions - User must be logged in the website

Post conditions -User will get full data all the present and upcoming activities and events

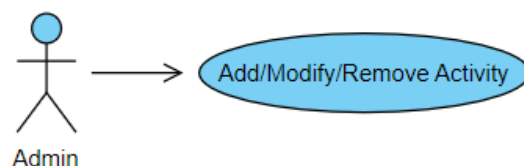**Actors** – User of the website including the Manager/Coordinator.

Exceptions -

Includes (other use case IDs) :

Notes - We will provide a search bar next to the calendar so that the user can search for activities related to a particular club/fest or activities scheduled for a particular day.

3.3.6 Use Case #6 : Updating Activities in Calendar

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is for the updating Activity Calendar.

Requirements Traceability – Calendar page

Priority - High

Preconditions - User must be logged in the website as an admin.

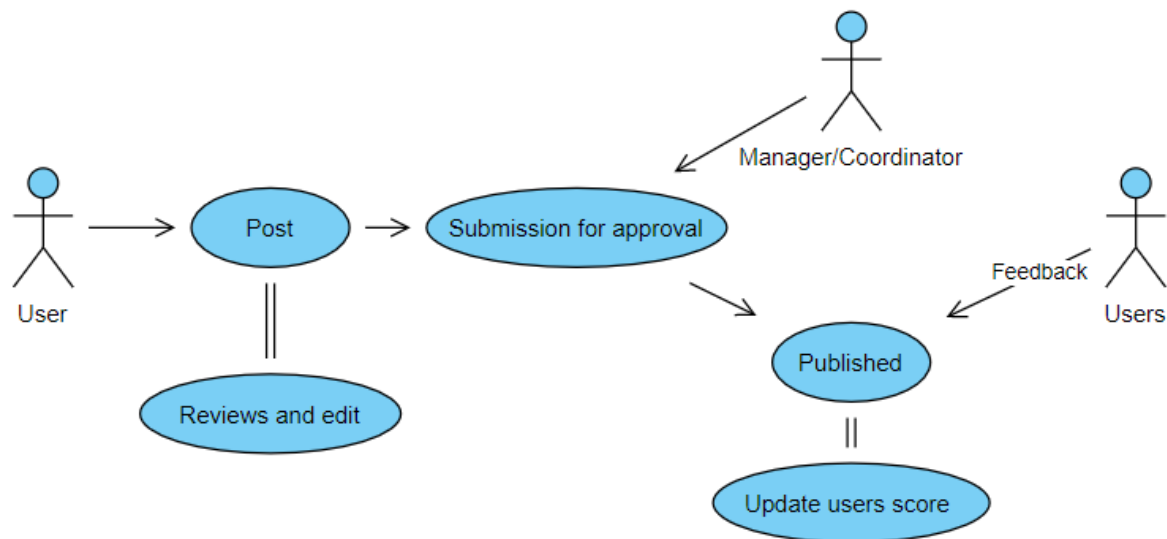**Post conditions** - The respective activities will be added/modified/removed from the calendar

Actors – Admin

Exceptions -

Includes (other use case IDs) :

3.3.7 Use Case #7 : Posting and Reviewing

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is triggered when the users want to post something to the club page to showcase their skills and get reviews from admins and other users.

Requirements Traceability – Landing page, Create post page

Priority - High

Preconditions - User must be logged in the website

Post conditions -User's post will be published and all the users will be able to give feedback.

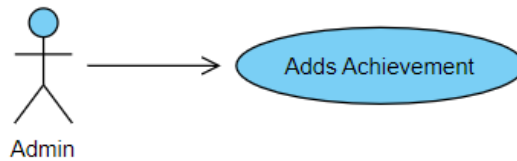**Actors** – User of the website including the Manager/Coordinator.

Exceptions -

Includes (other use case IDs) :

Notes - Based on the users' comments and posts we will update that particular user score for badges.

3.3.8 Use Case #8 : Add Achievement

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is for updating the Achievement and Badges section of the club/fest.

Requirements Traceability – Achievement/Badge section

Priority - Medium

Preconditions - Users must be logged in the website as an admin.

Post conditions - Achievement will be added

Actors – Admin .

Exceptions -

Includes (other use case IDs) :

3.3.9 Use Case #9 : Update Achievement

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is for updating the Achievement and Badges section of the club/fest.

Requirements Traceability – Achievement/Badge section

Priority - Medium

Preconditions -User must be logged in the website as an admin.
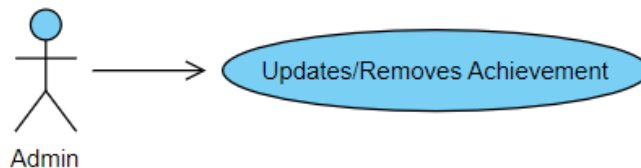
Post conditions -Achievement will be updated

Actors – User of the website including the Manager/Coordinator.

Exceptions -

Includes (other use case IDs) :

3.3.10 Use Case #10 : Forums

Author – Tiny Coders (team 12)

Purpose - This use case is triggered when the user wants to create a forum to interact with other users and admins.
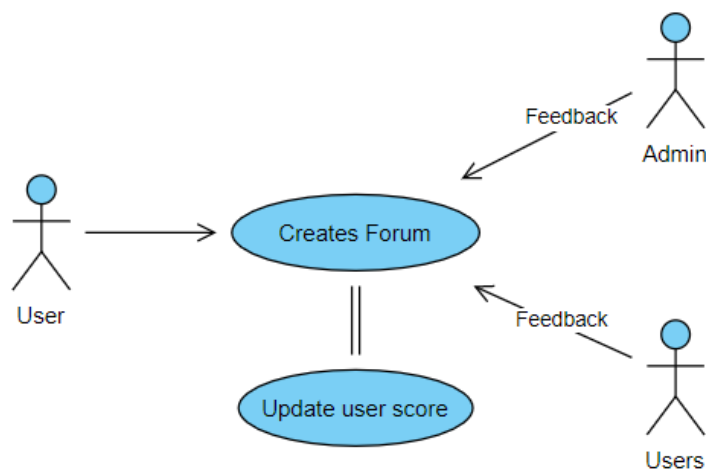
Requirements Traceability – Forum section

Priority - High

Preconditions - User must be logged in the website

Post conditions -

Diagram :

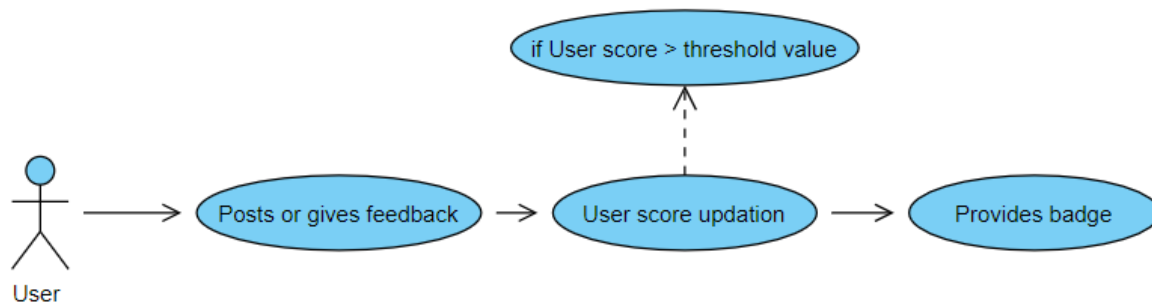**Actors** – User of the website including the Manager/Coordinator.

Exceptions -

Includes (other use case IDs) :

Notes - Based on the users' replies on the forum we will update that particular user score for badges.

3.3.11 Use Case #11 : Distribution of badges

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is triggered when the user posts or comments something on someone's post or reply to forums.

Requirements Traceability –

Priority - medium

Preconditions -

Post conditions -
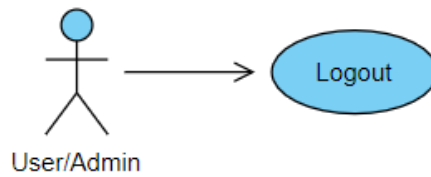
Actors – User of the website.

Exceptions -

Includes (other use case IDs) :

Notes - When this use case is triggered it updates the user score and then checks if the user score is greater than the threshold value needed for a particular badge.

3.3.12 Use Case #12 : Logout

Diagram :

Author – Tiny Coders (team 12)

Purpose - This use case is triggered when the user wants to logout.

Requirements Traceability – Logout link

Priority - High

Preconditions - User must be logged in the website

Post conditions -

Actors – User of the website including the Manager/Coordinator.

Exceptions -

Includes (other use case IDs) :

4   Other Non-functional Requirements

4.1 Performance Requirements

The Product should provide maximum quick response to the requests of users while simultaneously handling multiple requests. Fast up-gradation of data should be available and the changes must be listened to and updated in real-time on the client's side. The system should be stable and maintainable, i.e. without any bugs and performance liabilities to function continuously.

The underlying hardware and software should be able to handle more clients than the intended average number as the product platform can have a very wide range of users.

The product should be accessible from almost all platforms and should dynamically adapt itself according to the client's specific hardware and software availability. Moreover, it should be responsive enough even on low spec hardware.

This product should be dynamic. Changes and updates should be completed without a big shutdown of the system. Also, its scale should be dynamic too to cater to the ever-growing client community it will be catering to.

4.2 Safety and Security Requirements

- Passwords will be saved encrypted in the database to ensure the user's privacy.

- The user's IP address will be logged.

- The system will be protected against vulnerabilities such as SQL injection attacks.

- Log in for IIT Kanpur students will be based on CC user ID and certain features will be restricted to general users.

4.3 Software Quality Attributes

4.3.1 Flexibility

The application is to be designed so that it is flexible. Also, it should allow incorporating new requirements in any module of the system. The application will be designed in a modular format such that any future changes (additions or deletions) will be easily incorporated into the system.

4.3.2 Portability
The application will be easily portable on any window-based system. The website frontend is designed using React JS, making it a responsive and progressive web app, which ensures that the application can run on different platforms.

4.3.3 Maintainability

The architecture, design, implementation, and documentation of the product should minimize the maintenance costs of the software system. The maximum person-time required to fix a security defect (including regression testing and documentation update) must not exceed two persons per day. Otherwise, the software system must be taken offline or the offending feature disabled which should only be done in case of emergencies. The average person-time required to make a minor enhancement (including testing and documentation update) must not exceed one person per week.

4.3.4 Usability

The frontend of the software application is designed to be user-friendly such that the user can utilize the system effectively. It will be based on the well-known principle of usability - Keep it Simple and Stupid.

4.3.5 Security

The application is password protected and also any upgradation of new entries and deletions is done by only privileged users. All the users will be able to log on to their accounts using their CC username and custom password (created by them). This password will be saved in an encrypted format in the database to ensure security.
In case the user forgets their password, security questions may be asked (set during creation of account), following which an email will be sent to his/her IITK email ID or other registered email address.

4.3.6 Reliability and Availability

The system shall provide a backup facility for databases on a regular basis to maintain data of users (frequenters / new) which may include passwords, recently uploaded posts, achievements, and activities of users.
The system shall also provide that it will be running and will be ready to carry out its task whenever the user needs it.

5 Other Requirements

No other specific requirements are there.

Appendix A – Data Dictionary

A.1 User Class

Element Name	Description	Operations	Requirement
Email Address	It takes an Email address as an argument and associates it with an unique userId	Connect user ID to user	IIT Kanpur mail address
Password	It takes the password as arguments then checks the condition of login and returns a unique ID	Secure user login	string
User ID	System defines a unique ID for each user	Identifies unique user	unique string
User Profile Data	Maintain the data of each user	Store user info	string, int
Forum messages	User making forum to ask their doubts	Hold User Forum Message	string
Posts	Takes texts or image and post after approval by admin	User's posts	abstract

A.1 User Interface Class

Element Name	Description	Operations	Requirements
Registration	It takes the name, surname, username, password, email as arguments then checks the condition of registration and returns the status of registration.	First time registration and data input	string, int
Login/Logout	It takes username and password as arguments then checks the condition of login and returns the status of login.	Enables login/logout functionality for user	userId, username, password

Make comments	It takes comments and quotes as arguments and returns the status of making comments.	Enables comments functionality on posts	string
Like	It takes a quote as an argument and returns the status of liking the quote.	Enables user to like others posts	userId, user input
Follow	It takes the userId as an argument and returns the status of following the user.	Enables user subscription functionality	userId
Post	It takes the userId and post as argument and returns the status of post	Enables user to post	userId
Review	It takes the userId and post as an argument and allows the user to review it.	Enables user to review other posts	userId, post data
Write Forum	It takes the userId and the doubt of the user as an argument and returns the status of the forum.	Enables forum interaction	userId, page details

A.1 User Admin Interface Class

Element Name	Description	Operations	Requirements
Profile information	It takes the userId and it's data as arguments and returns profile information for public users.	Provides Admin contact info	userId, user data
Publish	It takes userId and Publish data as arguments and returns ready-made publish material.	Enables publish functionality (restricted)	userId, publish data
Add Calendar Item	It takes the userId of admin and event data and returns the calendar item.	Enables modification of calendar	userId, calendar data, new data to push
Manage Page	It takes userId as argument and enables edit, modify and delete functionality for the whole page	Enables admin to control pages and administer them	page data, new page data

Appendix B - Group Log

S. no.	Date	Timings	Venue	Description
1	11/01/2022	10 pm - 11:30 pm	Zoom	Brain-stormed various possible prospective ideas for the project.
2	15/01/2022	10 pm - 11:30 pm	Zoom	Finalized the idea for the project and discussed various aspects of it.
3	23/01/2022	5:30 pm - 6:30 pm	Zoom	Studied the SRS template given and distributed the work amongst the team members.
4	24/01/2022	12:15 pm - 12:40 pm	Meet	First meet with the Teaching Assistant Ms. Aishwarya Gupta. Discussed some doubts regarding the SRS documentation.
5	24/01/2022	12:40 pm - 1:20 pm	Meet	Redistributed the pending work after having clarified the doubts with the TA.
6	24/01/2022	9 pm - 12 am	RM building	Explored some more functionalities for the product and progressed with the SRS document.
7	25/01/2022	5 pm - 8 pm	RM building	Explored various implementation tools and software for the project.
8	27/01/2022	5 pm - 8 pm	RM building	Progressed with SRS documentation work.
9	28/01/2022	5 pm - 8 pm	RM building	Progressed with SRS documentation work.
10	30/01/2022	5: 15 pm - 6 pm	Meet	Second Meet with the TA to discuss the drafted SRS document.