Software Requirements Specification

for

ClubZen IITK

Version **1.0**

Prepared by

Group **12** Group Name: **Tiny Coders**

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Revisions

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# 

# **1** **Introduction**

## **1.1** **Product Scope**

*<Provide a short description of the software being specified and its purpose, including relevant benefits, objectives, and goals.>*

*<Make sure to describe the benefits associated with the product.>*

**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 app.
* It will help the users in exploring their interests and improving their skills.

**1.2** **Intended Audience and Document Overview**

*<Describe the different types of readers that the document is intended for, such as developers, project managers, marketing staff, users, testers, and documentation writers. Describe what the rest of this SRS contains and how it is organized. Suggest a sequence for reading the document, beginning with the overview sections and proceeding through the sections that are most pertinent to each reader type.>*

**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**

*<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.*

*TO DO: Please provide a list of all abbreviations and acronyms used in this document sorted in alphabetical order.>*

| **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**

*<In general this document follows the 7 requirements. Use Arial font size 11, or 12 throughout the document for text. Use italics for comments. Document text should be single spaced and maintain the 1” margins found in this template. For Section and Subsection titles please follow the template.*

*TO DO: Describe any standards or typographical conventions that were followed when writing this SRS, such as fonts or highlighting that have special significance. Sometimes, it is useful to divide this section to several sections, e.g., Formatting Conventions, Naming Conventions, etc.>*

**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**

*<List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. >*

1. *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**

*<Describe the context and origin of the product being specified in this SRS. For example, state whether this product is a follow-on member of a product family, a replacement for certain existing systems, or a new, self-contained product. If the SRS defines a component of a larger system, relate the requirements of the larger system to the functionality of this software and identify interfaces between the two. In this part, make sure to include a simple diagram that shows the major components of the overall system, subsystem interconnections, and external interface. In this section it is crucial that you will be creative and provide as much information as possible.*

*TO DO: Provide at least one paragraph describing product perspective. Provide a general diagram that will illustrate how your product interacts with the environment and in what context it is being used. This is not a formal diagram, but rather something that is used to illustrate the product at a high level.>*

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.

## **2.2** **Product Functionality**

*<Summarize the major functions the product must perform or must let the user perform. Details will be provided in Section 3, so only a high level summary is needed here. These can be at the level given in the project description.>*

*<TO DO: Provide a bulleted list of all the major functions of the system.>*

This product is intended to come with functionalities that emphasize student service and vibrant interactions. It includes the following features :

* Profile (Log in)
* Calendar/News
* Events and workshops
* Achievements and Badges
* Posting and Reviewing
* Forums
* PoR Holders’ Directories

## **2.3** **Design and Implementation Constraints**

*<Describe any items or issues that will limit the options available to the developers. These might include: hardware limitations (timing requirements, memory requirements); interfaces to other applications; specific technologies, tools, and databases to be used; parallel operations; language requirements; communications protocols; security considerations; design conventions or programming standards (for example, if the customer’s organization will be responsible for maintaining the delivered software). You can be creative here to some degree.>*

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 login 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. A general knowledge of basic computer skills is required to use the product.

## **2.4** **Assumptions and Dependencies**

*<List any assumed factors (as opposed to known facts) that could affect the requirements stated in the SRS. These could include third-party or commercial components that you plan to use, issues around the development or operating environment, or constraints. The project could be affected if these assumptions are incorrect, are not shared, or change. Also identify any dependencies the project has on external factors, such as software components that you intend to reuse from another project.*

*TO DO: Provide a short list of some major assumptions that might significantly affect your design.>*

No specific assumptions or dependencies are considered at this time.

# **3** **Specific Requirements**

## **3.1** **External Interface Requirements**

### **3.1.1** **User Interfaces**

*<Describe the logical characteristics of each interface between the software product and the users. For your project, you only need to be concerned with the main thermostat (not the mobile app) and can use the graphic from the project description as the basis for your user interface..*

*TO DO: Provide the graphic for the user interface and provide a basic description as to how users will interact (e.g. menus, etc.).>*

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 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**

*<Describe the logical and physical characteristics of each interface between the software product and the hardware components of the system. This may include the supported device types, the nature of the data and control interactions between the software and the hardware. You are not required to specify what protocols you will be using to communicate with the hardware, but it will be usually included in this part as well.*

*TO DO: Please provide a short description of the different hardware interfaces. This can simply be a list of the devices you must interact with at this point. >*

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**

*<Describe the connections between this product and other specific software components (in your case, just the mobile app that can send commands).>*

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 its 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 development environment.

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

**HTML,** **CSS, JS:** 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**

*< Functional requirements capture the intended behavior of the system. This behavior may be expressed as services, tasks or functions the system is required to perform. This section is the direct continuation of section 2.2 where you have specified the general functional requirements. Here, you should list in detail the different product functions.*

### ***3.2.1******F1: The system shall …***

### ***3.2.2******<Functional Requirement or Feature #2***

### ***… >***

**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.

**3.3.3 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 Phd. Mech PGs only).

Entity Managers/Coordinators can create an event/Workshop as an Entity.

**3.3.4 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.

**3.3.5 ACHIEVEMENTS and BADGES**

In different sections of clubs, there is another sub-feature showing achievements and badges of the club/society/fest. Their different contribution towards various All India level events and their accomplishments.

**3.3.6 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.

**3.3.7 FORUMS**

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

Aim is to break the ice between seniors and juniors and to celebrate healthy discussion.

**3.3.8 PoR Holders’ Directories**

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

## **3.3** **Use Case Model**

*<TO DO: Provide a use case diagram that will encapsulate the entire system and all actors.>*

### ***<3.3.1******Use Case #1 (use case name and unique identifier – e.g. U1)***

*TO DO: Provide a specification for each use case diagram*

***Author –*** *Identify team member who wrote this use case*

***Purpose*** *- What is the basic objective of the use-case. What is it trying to achieve?*

***Requirements Traceability –*** *Identify all requirements traced to this use case*

***Priority*** *- What is the priority. Low, Medium, High. Importance of this use case being completed and functioning properly when system is deployed*

***Preconditions*** *- Any condition that must be satisfied before the use case begins*

***Post conditions*** *- The conditions that will be satisfied after the use case successfully completes*

***Actors*** *– Actors (human, system, devices, etc.) that trigger the use case to execute or provide input to the use case*

***Exceptions*** *- Exceptions that may happen during the execution of the use case*

***Includes*** *(other use case IDs)*

***Notes/Issues*** *- Any relevant notes or issues that need to be resolved*

### ***3.3.2******Use Case #2>***

# **4** **Other Non-functional Requirements**

## **4.1** **Performance Requirements**

*<If there are performance requirements for the product under various circumstances, state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specify the timing relationships for real time systems. Make such requirements as specific as possible. You may need to state performance requirements for individual functional requirements or features.*

*TODO: Provide performance requirements based on the information you collected from the client.>*

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**

*<Specify those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product. Define any safeguards or actions that must be taken, as well as actions that must be prevented. Refer to any external policies or regulations that state safety issues that affect the product’s design or use. Define any safety certifications that must be satisfied. Specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Define any user identity authentication requirements.*

*TODO: Provide safety/security requirements based on your interview with the client - again you may need to be somewhat creative here. At the least, you should have some security for login.>*

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

2. The user's IP address will be logged.

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

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

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## **4.3** **Software Quality Attributes**

*<Specify any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning.*

*TODO: Use subsections (e.g., 4.3.1 Reliability, 4.3.2 Adaptability, etc…) to provide requirements related to the different software quality attributes. Make sure that you do not just write “This software shall be maintainable…” Indicate how you plan to achieve it, &, etc…*

*Please note that you need to include* ***at least*** *2 quality attributes. You can Google for examples that may pertain to your system.>*

**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 system. The application will be designed in a modular format such that any future changes (additions or deletions) will be easily incorporated in 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 in different platforms.

**4.3.3 Maintainability**

The software application can be maintained easily and cost-effectively.

**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 updation of new entries and deletions is done by only privileged users.

**4.3.6 Reliability and Availability**

The system shall provide storage of all databases on redundant computers with automatic switchover.

The system shall provide a contractual agreement with an internet service provider for T3 access with 99.9999% availability. The system shall also provide a contractual agreement with an internet service provider who can provide 99.999% availability through their network facilities onto the internet.

# **5** **Other Requirements**

*<This section is* ***Optional.*** *Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.>*

Appendix A – Data Dictionary

*<Data dictionary is used to track all the different variables, states and functional requirements that you described in your document. Make sure to include the complete list of all constants, state variables (and their possible states), inputs and outputs in a table. In the table, include the description of these items as well as all related operations and requirements.>*

Appendix B - Group Log

*<Please include here all the minutes from your group meetings, your group activities, and any other relevant information that will assist in determining the effort put forth to produce this document>*