
Software Requirements Specification

for
Campus Unlocked

Version <1.0>

Prepared by

Group 10:

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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1	Abhi Jain Hardik Agrawal Lakshvant Balachandran Anupam Chaudhary Shishir Gujarey Mansi Sodhani Aryan Maurya Rishabh Arjeet Ashutosh Kumar Harshal Ujjaliya Govindu Sathwik Reddy	First Draft	27/01/23

1 Introduction

1.1 Product Scope

Campus unlocked is a software designed to act as virtual guide for the campus along with many social features such as sharing photos, comments, likes, trending photos, videos etc. Users can find places in the order of proximity to their current location and also find out what events are happening/going to happen there. Users inside campus will be able to login using their IITK mail id and password which will access to social features like sharing, liking and commenting on photographs, videos. They will also be allowed to update about events and place of its happening. Users without login id can only view the places, photos, comments and events happening. They can't comment, share or like the photos. We will also have special admin access, these people can delete/modify any comment or photo shared, they can also block the user in case he misuses the software.

Main features of the software are: -

- It will ensure genuinity of the information with the administrators regularly monitoring the data.
- User friendly and attractive interface.
- Easy to maintain for administrators.

1.2 Intended Audience and Document Overview

This document is intended towards all the users of the software, any team which may want to work upon any sort of changes, up-gradation to a new version, debugging and much more.

The remaining sections of this document provide a general description, including the characteristics of the users of this project, the product's hardware, and the functional and data requirements of the product. Section 2 provides an overview of the software, including its functionality, constraints and assumptions. Section 3 gives specific requirements which the software is expected to deliver including functional requirements and the use case model of the system. Section 4 provides non-functional requirements regarding safety, security and performance of the software.

1.3 Definitions, Acronyms and Abbreviations

OTP - One Time Password

SRS - Software Requirement Specification

CC - Campus Community

AU - Authorized User

DDos - Distributed Denial of service

API - Application Programming interface

1.4 Document Conventions

In general this document follows the IEEE formatting requirements. Arial font size 11 is used throughout the document for text. All the headings are written in bold format with font size 14, with

the section names in Arial with font size 18. The hyperlinks are underlined and the text is written in dark cornflower blue 2 colour.

1.5 References and Acknowledgments

1. The following websites were referred to in the process of making this document:
 - o • [Use-Case Model - Javatpoint](#)
 - o • [Canva](#)
 - o • [Creately](#)

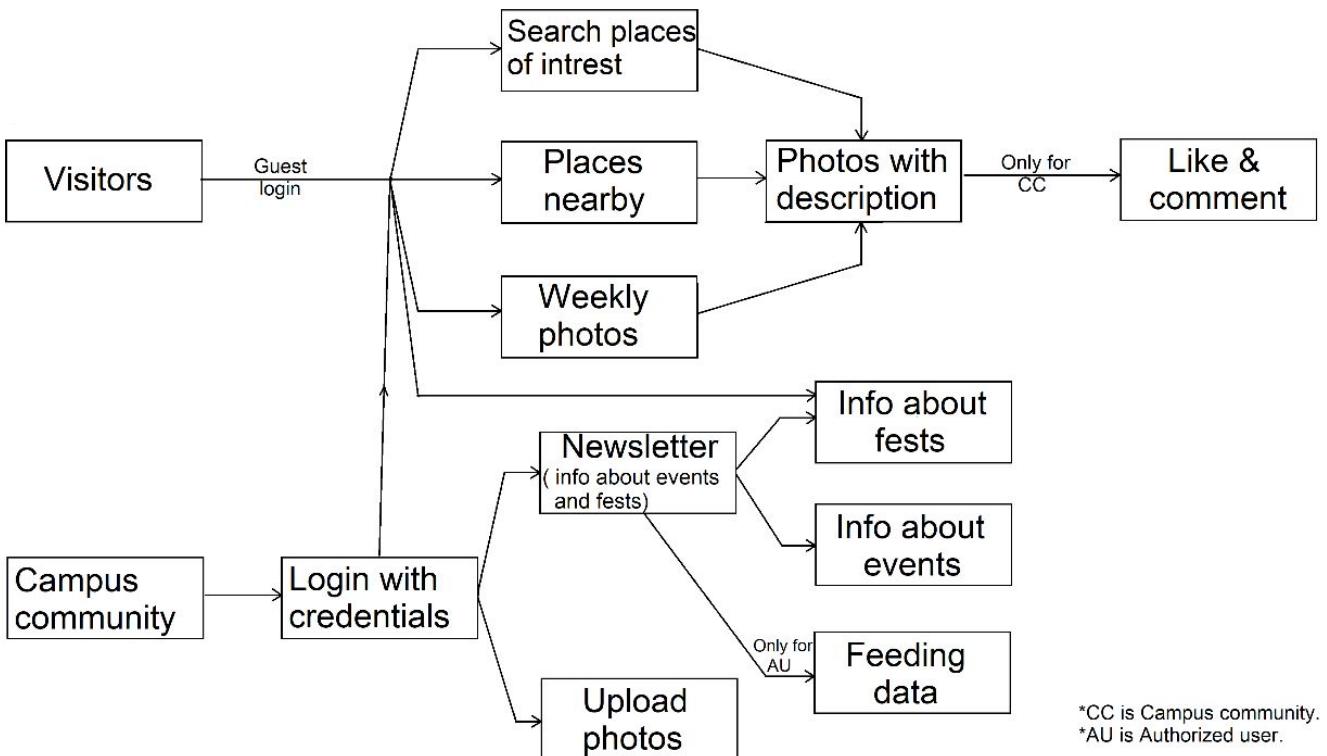
We'd also like to acknowledge the help of our TA, Mr. Anirudh, for their valuable input in the creation of this document. We also would like to thank Prof. Indranil Saha for providing the SRS template and teaching the concepts.

2 Overall Description

2.1 Product Overview

Our web-based product aims to benefit the IITK campus community and visitors to IITK by providing information about points of interest, things worth seeing and provides information about events going around in campus. This product tells the places nearby in an arranged manner according to popularity if you provide your location. The idea has been inspired from the problems faced by freshers, visitors who have not explored the campus yet.

This web-based product acts as a virtual guide to people who visit the campus by providing a brief description with photos about the locations in campus. The people of the campus community can also upload photos, like and comment on them. People can also view the weekly trending photos uploaded by the campus community. This product also provides information about fests and events (exclusively for campus community).



2.2 Product Functionality

- There are two main types of users:
 1. Visitors to campus.
 2. IITK campus community.
- Visitors can directly login by guest login whereas IITK community requires a login by Roll no,mail Id for accessing more features.
- Visitors can access information about fests, places of campus, places nearby and weekly trending photos.
- The users of other types can perform all these actions with additional benefits of like, comment

and upload photos.

- The IITK community have also access to the information about club activities and can report the comments which disobey community guidelines.
- In addition, there is sub-division in IITK CC type of users who are authorised users who has additional benefits of updating information about places and event and maintain decency in comments.

2.3 Design and Implementation Constraints

- No Real Time Monitoring of the system is possible due to hardware as well as manpower limitations.
- Users of IITK Campus Community must sign up with their IITK credentials (mail ID and OTP) to access additional features such as photo uploading.
- Active monitoring of uploaded photos and comments is not possible due to lack of manpower.
- Our system may not be able to counter against DDos and other attacks due to hardware constraints.
- The information of all club activities and fests must be known to authorized users so that they can update the data in website.
- The size of uploaded photos should be less than a maximum value to meet memory requirements.

2.4 Assumptions and Dependencies

- We assume that users have access to sufficiently fast internet resources
- We assume that the hardware used by the user for accessing the web-page should be fairly recent and compatible with the latest versions of browsers.
- The database of campus community must be kept secure.
- We assume that there won't be any major cyber attacks on our web-page.
- The IITK mail account cannot be compromised, so we assume users take proper measures while logging in.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

The user interface of the software will be web-based and user-friendly. Allowing users to access the software via any modern web browser like Google Chrome, Mozilla Firefox, Microsoft Edge, etc... Users have to log in/create an account via their IITK mail Id and a password or can access this as guest but with restricted features. While creating an account the user will receive an OTP on his/her IITK email ID which would be used for verification.

After logging-in, they will be able to see the home page of the website. This page would basically contain links to all the pages that are a part of the website like Newsletter, Trending Photos, Uploads, Places Near me and Must Visit Places. On clicking the Newsletter option, a webpage containing all the on going and future Events of IITK would pop up. The must Visit places takes a webpage containing all the highly visited places on campus would be shown. For Each place, the viewer will be able to see a brief description of the place and the corresponding photos for the given place. The user would be able to like, Comment and Report for each photo. The homepage will also have a link to webpage showing near by places. The user will enter his/her own location and will get a list of places near them and details of the given location. For Each location, the user will be able to add photos and also be able to like, comment and report the photos. The Homepage will also have an option to upload photos which will take the user to a interactive webpage. Here, the user will add the location of the photo, and the photo. This will be added along with timestamp. There would also be an option on the homepage for Trending photos, which will take it to a webpage, containing the top most liked photos of the past week.

The Guest user would receive only restricted access where by they will first be redirected to homepage containing Nearby Places, must visit places, Newsletter and Trending Photos. Each link would be similar to the previous links except there interaction would be none. They will be unable to like, comment and Report. They would also be unable to Upload photos.

3.1.2 Hardware Interfaces

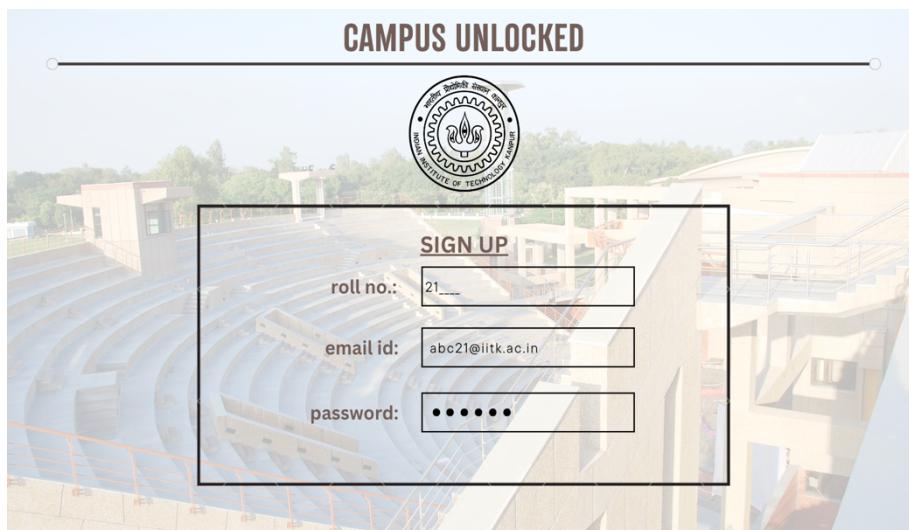
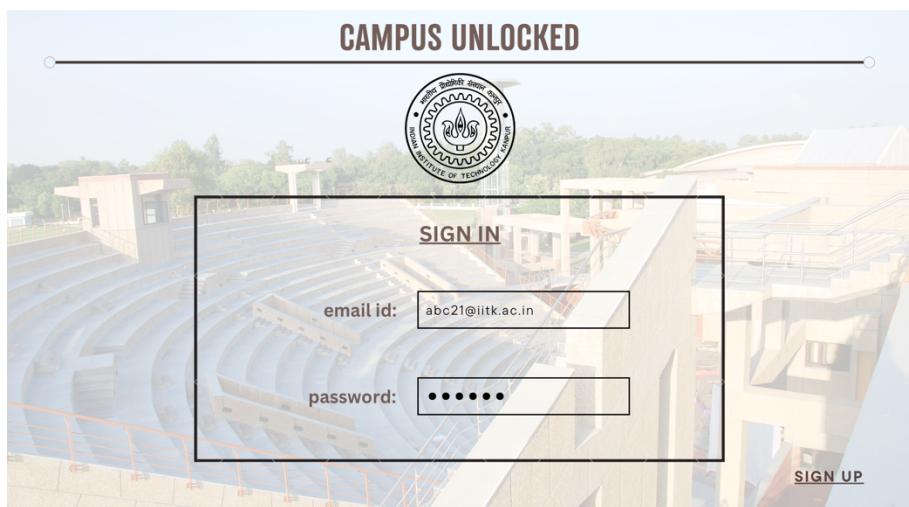
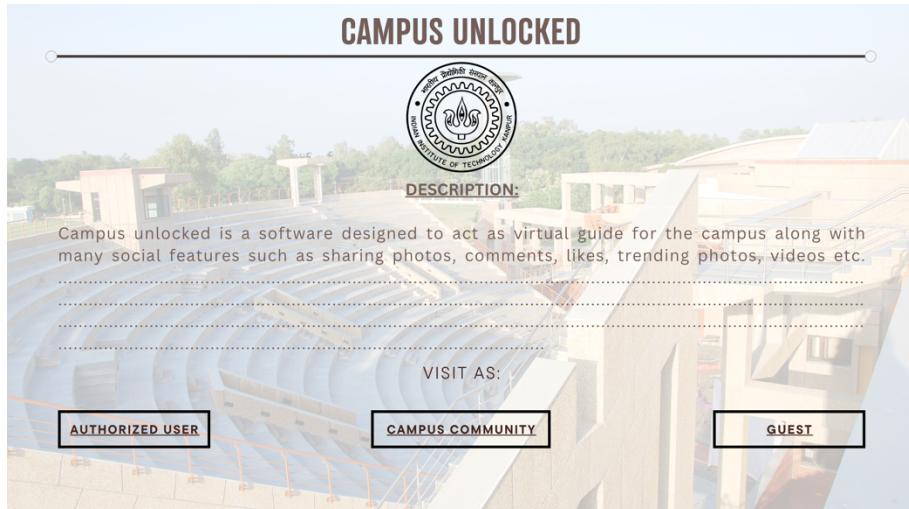
Since the application must run over the internet, all the hardware shall be required to connect to the internet, which will be the hardware interface for the system. As for e.g., Wi-Fi, Ethernet Cross-Cable, etc. Any smartphone or PC with proper internet connection will serve the purpose.

3.1.3 Software Interfaces

Any modern updated browser.

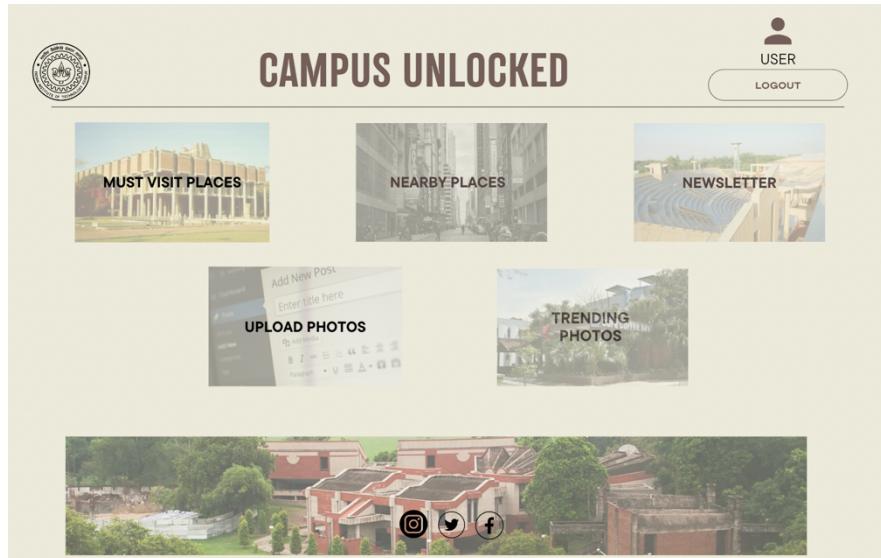
3.2 Functional Requirements

3.2.1 F1: LOGIN AND SIGNUP

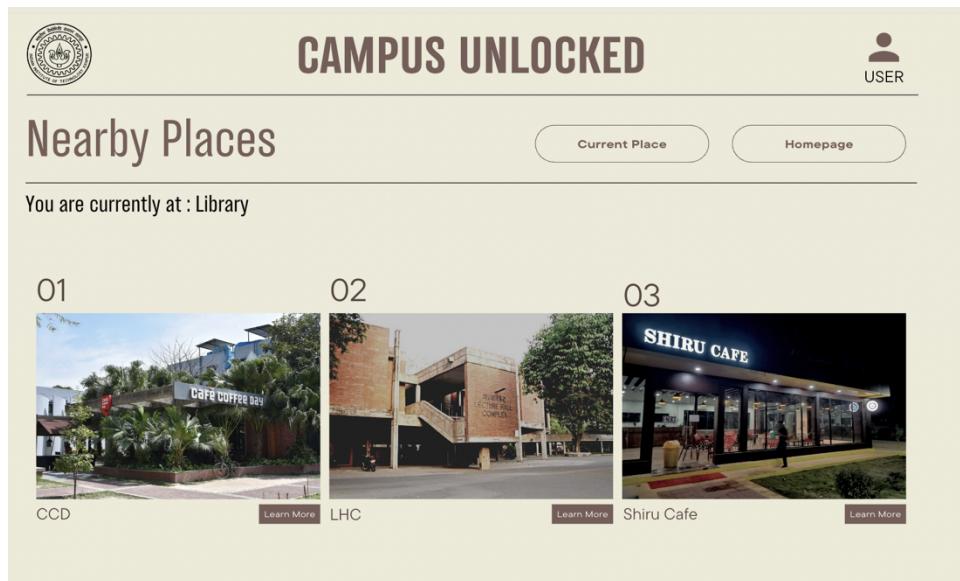


There are three types of logins: Guest Login, Campus Community Login, Authorised Login. Guest Login is open for all. A user can signup for Campus Community Login only through iitk.ac.in email id.

HOME PAGE



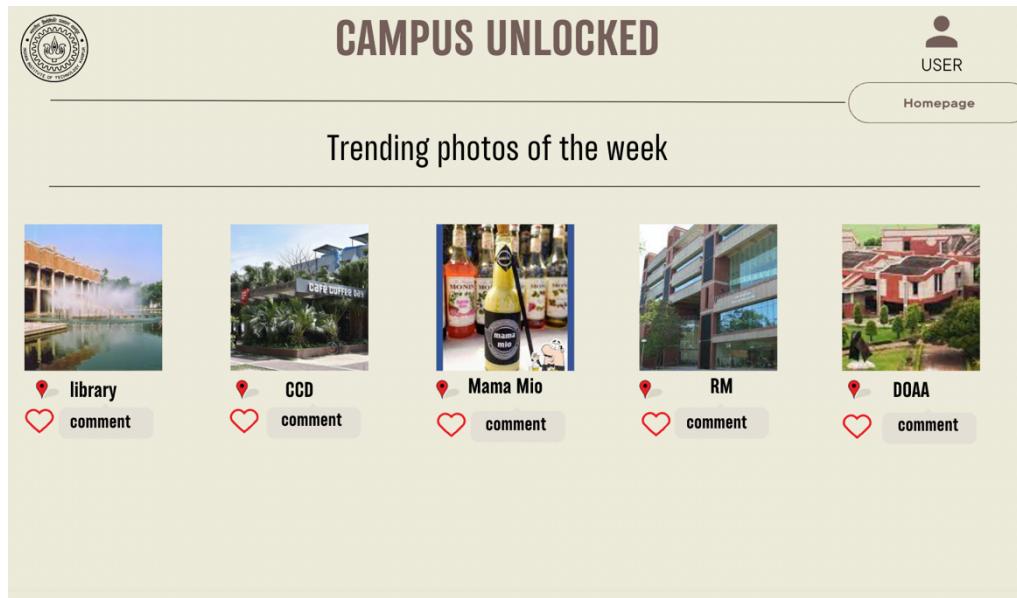
3.2.2 F2: DISPLAY OF VISITING PLACES



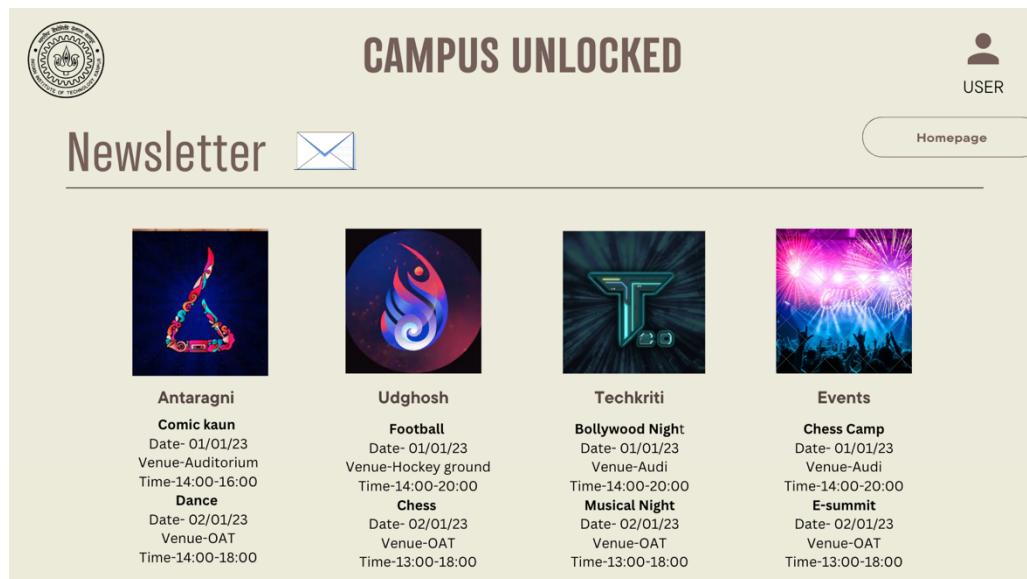
Every user shall be able to see places to visit nearby their current location. Also, they will be able to view images and description of the places and see trending places amongst all of the places.

3.2.3 F3: ADDING IMAGES, COMMENTS AND LIKES

Only Campus Community and Authorised users shall be able to upload images, add comments and likes to images. Guest users will not be able to do so.



3.2.4 F4: DISPLAY OF NEWSLETTER



Every user shall be able to view newsletter of fests (Antaragini, Udghosh and Techkriti). However, only Campus Community and Authorised users will be able to view newsletters of non-fest related events.

3.2.5 F5: REPORT A USER

Campus Community users shall be able to report about other users who might be posting inappropriate photos or comments to the authority.

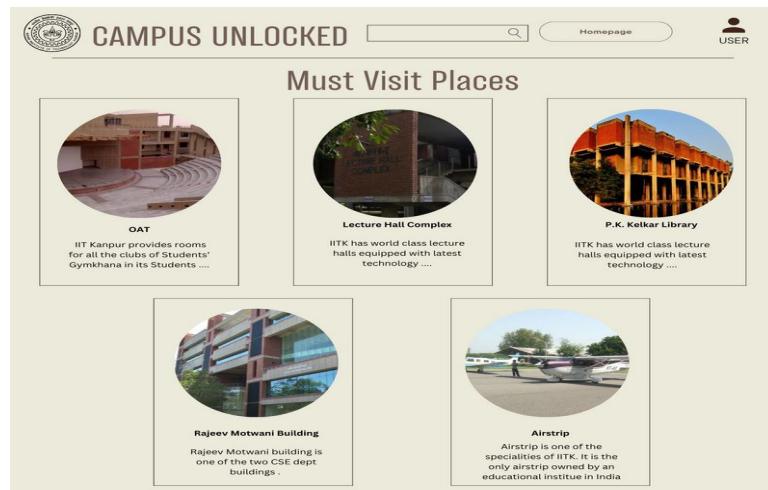
3.2.6 F6: BLOCKING USERS

Authorised users can respond to a report and will be able to block the reported accounts.

3.2.7 F7: ADDING/REMOVING NEWSLETTER

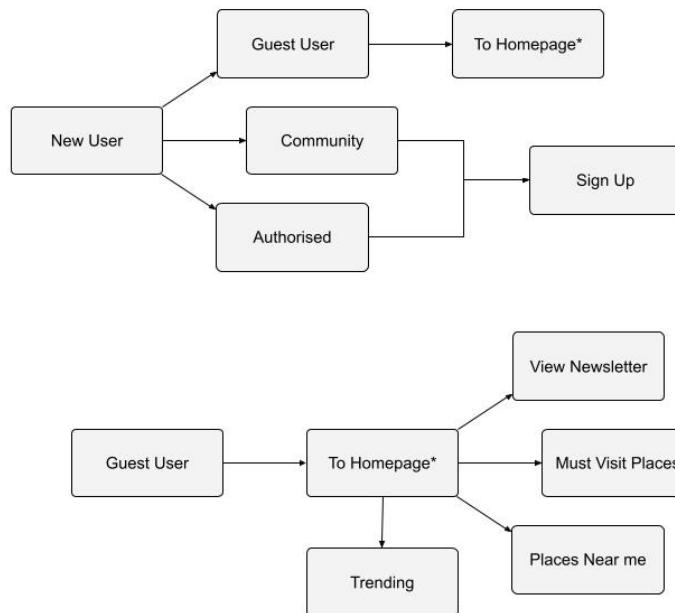
Authorised users will be able to add newsletters and can also remove the newsletter added by them.

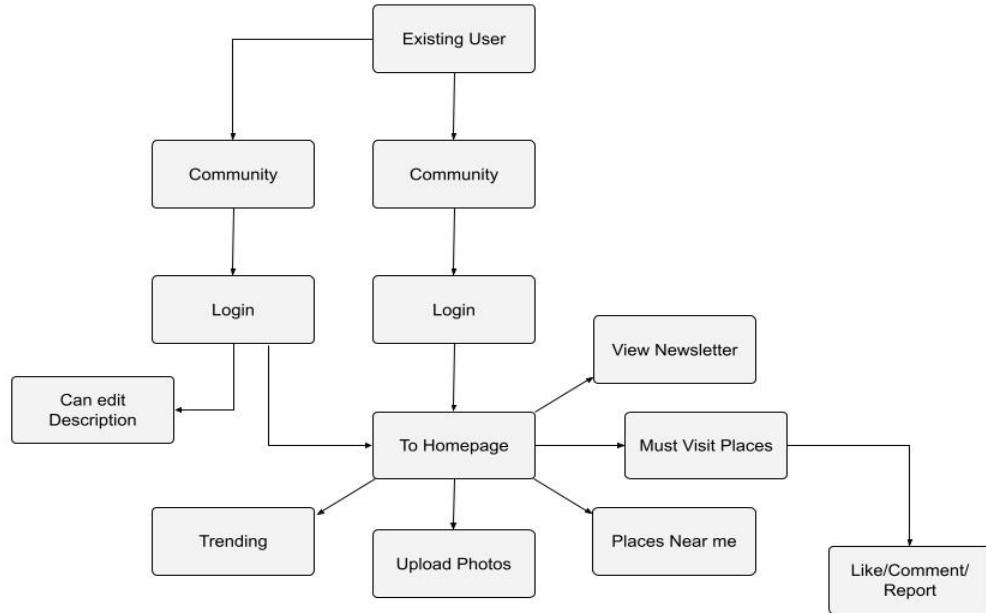
3.2.8 F8: DISPLAY OF MUST VISIT PLACES



Every user shall be able to see places to visit nearby their current location. Also, they will be able to view images.

3.3 Use Case Model.





3.3.1 Use Case

Use Case S.No.	Use Case #1
Author	Abhi Jain
Purpose	Select user type.
Requirements Traceability	User if Authorized or campus community must have ID in database
Priority	High
Preconditions	User must be signed up.
Post Conditions	User can access the respective features
Actors	All users
Includes	None.

Use Case S.No.	Use Case #2
Author	Abhi Jain
Purpose	Must visit places
Requirements Traceability	Top places ID, Its photos, Top places description
Priority	Low
Preconditions	Must have selected which type user and must be logged in.
Post Conditions	User can take a campus tour accordingly.
Actors	All users
Includes	Use Case#1

Use Case S.No.	Use Case #3
Author	Abhi Jain
Purpose	Trending photos
Requirements Traceability	Trending photos ID, trending photos likes and comments database.
Priority	Low
Preconditions	Must have selected which type user and must be logged in.
Post Conditions	User can view trending photos and campus user can like and comment on them.
Actors	All users(conditional)
Includes	Use Case#1

Use Case S.No.	Use Case #4
Author	Abhi Jain
Purpose	Places to visit near a user
Requirements Traceability	Current location ID, Location Near current Location.
Priority	Low
Preconditions	User must enter his/her current location and it should be in database.
Post Conditions	User can view all places near him/her.
Actors	All User
Includes	Use Case #1
Notes/Issues	Current location may not be in database

Use Case S.No.	Use Case #5
Author	Aryan Maurya
Purpose	View fest newsletter
Requirements Traceability	Fest newsletter data.
Priority	Low
Preconditions	User must be defined.
Post Conditions	User can view the newsletter page of fest.
Actors	All users
Includes	Use Case#1

Use Case S.No.	Use Case #6
Author	Aryan Maurya
Purpose	Upload photos.
Requirements Traceability	Access to camera or gallery.
Priority	Medium
Preconditions	User must be either authorized or campus community.
Post Conditions	User can upload the images.
Actors	Restricted user
Includes	Use Case#1
Notes/Issues	Name of uploader will be displayed.

Use Case S.No.	Use Case #7
Author	Aryan Maurya
Purpose	Registered Users including Authorized users can give reviews.
Requirements Traceability	ID,Photos and description of a place
Priority	Medium
Preconditions	Users must be registered and have an ID.
Post Conditions	Reviews by users on their images as well as other user's images.
Actors	Authorized User Registered User
Includes	Use case #1

Notes/Issues	Inappropriate reviews can be reported and removed.
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Use Case S.No.	Use Case #8
Author	Aryan Maurya
Purpose	Registered users can report an image/review.
Requirements Traceability	ID, photos and description of places
Priority	Medium
Preconditions	User must be registered and have an ID Image to be uploaded
Post Conditions	Image is added/removed.
Actors	Registered User
Includes	Use case #1
Notes/Issues	Registered users can report the image/review. Authorized users can remove the image/review.
Use Case S.No.	Use Case #9
Author	Mansi Sodhani
Purpose	Authorized User Takes Down A Reported Image if found inappropriate.
Requirements Traceability	ID, photos and description of places
Priority	High
Preconditions	Authorized user must be registered and have an ID.
Post Conditions	Image is removed.
Actors	Authorized User
Includes	Use case #1

Notes/Issues	Reported image or inappropriate image can be removed from the server by the Authorized User.
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Use Case S.No.	Use Case #10
Author	Mansi Sodhani
Purpose	Authorized User Takes Down Reported Reviews if found inappropriate.
Requirements Traceability	ID, photos and description of places
Priority	High
Preconditions	Authorized user must be registered and have an ID.
Post Conditions	Review is removed.
Actors	Authorized User
Includes	Use case #1
Notes/Issues	Reported for inappropriate review can be removed by the Authorized User.

Use Case S.No.	Use Case #11
Author	Mansi Sodhani
Purpose	Authorized Users can view as well as update the newsletter.
Requirements Traceability	Current Events and Campus News
Priority	Medium
Preconditions	Authorized user must be registered and have an ID.
Post Conditions	New events are added or older ones are removed from the newsletter.
Actors	Authorized User

Includes	Use case #1
Notes/Issues	Only A Limited number of events can be there on the newsletter page.

Use Case S.No.	Use Case #12
Author	Mansi Sodhani
Purpose	Authorized Users can Change/Update the Description of Location.
Requirements Traceability	Accessibility to locations and details of that place
Priority	Medium
Preconditions	Authorized user must be registered and have an ID.
Post Conditions	Description of the location is updated/changed or addition of more sections.
Actors	Authorized User
Includes	Use case #1

4 Other Non-functional Requirements

4.1 Performance Requirements

- The system must be interactive, and the delays involved should be less. The website and the server should be online and available 24*7 since hosting on Heroku.
- The application is expected to have a traffic of over 5K users. The APIs should be scalable enough to support this traffic. The IITK community is about 15K. If we include guest users, the total approximate number of users should not be more than 20K. We expect 25% of this to be our target audience.
- The status of the applications should be updated in real-time. Also, ensure that there are no immediate delays in the response of the system to an action.
- There should be a very low probability of the site crashing (<1%) and the recovery time should be within 10 seconds.

4.2 Safety and Security Requirements

- Every party using the application will have a well-defined scope and any party will not be able to access any part of the application out of his/her scope. Login to the scope will be secured by a login portal which requires access credentials (except for guest users).
- Only people with a valid IITK Roll No. can create an account at the website.
- While creating an account, an OTP will be sent to the valid IITK email id provided by the user while signing up for the website. This will ensure authenticity of the user.
- The ability to upload photos will only be given to Registered Users to avoid unwanted uploads.
- Administrative controls will only be given to authorised users.
- To avoid unwanted uploads/spams, registered users will have the option to report a particular post which can later be reviewed and if required, removed by the authorised users.

4.3 Software Quality Attributes

4.3.1 Interoperability

Interoperability will be achieved by conducting compatibility tests, engineering our software with a common standard and using the same coding language or syntax across multiple systems when appropriate.

4.3.2 Availability

The software will be available to any user 24/7 with appropriate features being given to different types of users.

4.3.3 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.

4.3.4 Usability

The frontend of the designed system will be user-friendly. Accessibility to features would be made simple so that a user can easily use the software.

Appendix A – Data Dictionary

A.1 Guest User Class

Element Name	Description	Operations	Requirement
Newsletter	Display upcoming events in the college	Display events	abstract
Photos	Display photos of a particular location	Display photos	abstract
Top Photos	Display most liked photos of the week	Display photos	abstract

A.2 Campus Community User Class

Element Name	Description	Operations	Requirement
Email Address	It takes an Email address as an argument	Add email to database	IIT Kanpur mail address
Password	It takes the password as arguments then checks the condition of login	Secure user login	string
Roll No.	It takes Roll No. as an argument and associates it with the given Email Address	Connect email to Roll No.	string
Posts	Takes image and posts it at a particular location. Users can also like and comment other posts.	User's posts	abstract

A.3 Authorised User Class

Element Name	Description	Operations	Requirement
Update newsletter	Add and remove upcoming and past events respectively	Add/Remove event	string
Default Photos	Select/Upload a set of default photos displayed in a particular location	Connect pictures to location	Image
Add location	Add new locations to the map	Add	string
Edit location description	Change the description and add new info to each location	Update description	string
Remove post	Remove inappropriate posts	Delete post	abstract

A.4 Location Class

Element Name	Description	Operations	Requirement
Location info	Displays information about a specific location	Display info	abstract
Default Photos	Displays the default photos uploaded by the authorised user for the specific location	Display photos	abstract
User Photos	Display user uploaded photos for the given location	Display photos	abstract
Like and Comment	Like and Comment on other user's photos	Like, comment	abstract
Nearby Locations	Display the nearby locations to the given location	Display locations	abstract
Google Maps Link	Redirect to the location of the place on Google Maps	Redirect to Google Maps	abstract

A.5 Newsletter Class

Element Name	Description	Operations	Requirement
Upcoming Events	Display upcoming events in the college	Display events	abstract

Appendix B - Group Log

Meeting 1 (19/1/23): 7:00pm to 7:30pm:

Meeting with TA

Updated TA about progress and discussed about issues which we were facing. Planned our further steps.

Meeting 2 (20/1/23): 2:30pm to 3:30pm:

All the team members discussed various aspects of the Requirement Document. Also, main features of the software were finalised and the corresponding functional requirements were discussed.

Section-wise Work was distributed between all team members and tried to identify various use cases for our software. Discussed problems that could arise while using software and possible ways to tackle them.

As per distribution, all the team members worked on specific sections of SRS and regularly discussed the progress of the document.

Meeting 3 (25/1/23): 6:00pm to 7:30pm:

All the team members discussed and prepared the user interface and made the srs changes as suggested by TA.

Meeting 4 (27/1/23): 3:00pm to 5:30pm:

Everything was assembled and organised into a single document with cross-checking of all sections by other team members. Possible changes and suggestions were incorporated to generate the final Requirement Document.