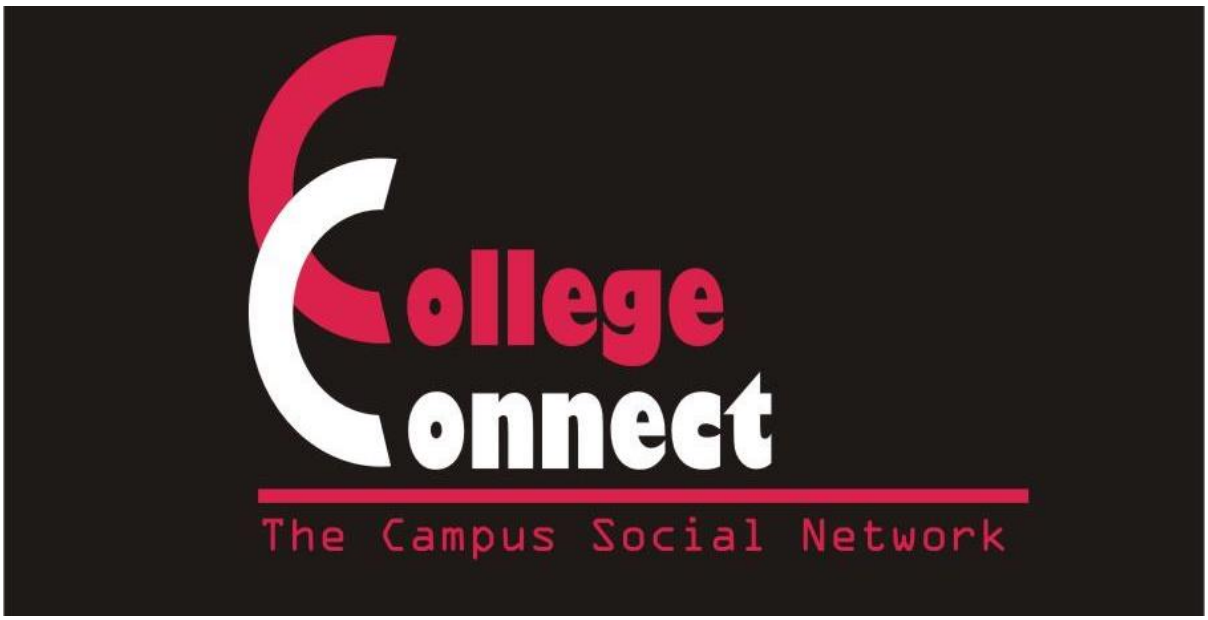
Software Requirements Specifications



Team 5

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1. Introduction

1.1 Purpose

The purpose of this document is to list out the specification requirements of our android application, College Connect. This document will provide a complete description of our product, its functionalities and various constraints like memory constraints, design constraints, storage constraints to name a few. It will also present functional and non-functional requirements of the application.

1.2 Scope

The College Connect is an internet based mobile application which will help the individuals to communicate with others without sharing personal information like mobile numbers, thereby maintaining individual privacy. To add to this, all individual communications will be maintained on the server side only temporarily.

The app's content will be managed by its users. It will feature a news feed where upcoming campus events will be displayed. In case the app is not currently open in a smartphone, it will send out a notification for an upcoming event. These events will be updated by users of the app.

The application is primarily focused on android based smartphones. Therefore, a .apk file is expected as an output of this project.

1.3 Definitions, Acronyms and Abbreviations

We are using the following keyword mappings throughout the document.

1. Stakeholders – Application users
2. DESC – Description

1.4 References

[1] IEEE Software Engineering Standard Committee, "IEEE Std 830-1993, IEEE Recommended Practice for Software Requirements Specifications", December 2, 1993.

[2] www.utdallas.edu/~chung/RE/Presentations06F/Team_1.doc

1.5 Overview

The remainder of the document is divided as follows:

Section 2: The overall perspective of the application. It gives information about various interfaces, their constraints, functionalities as well as some assumptions made during design.

Section 3: Describes requirement specification and different system interfaces. Each functional and non-functional requirements are stated clearly in respective subsections.

2. Overall Description

This section provides an overview of the complete application. It lists out in detail what functionalities are available to the stakeholders, and under what constraints.

2.1 Product Perspective

The system basically consists of a mobile application and a suitable framework at the back end. The mobile application lets a user view upcoming events, upload upcoming events and message fellow application users, as shown below.

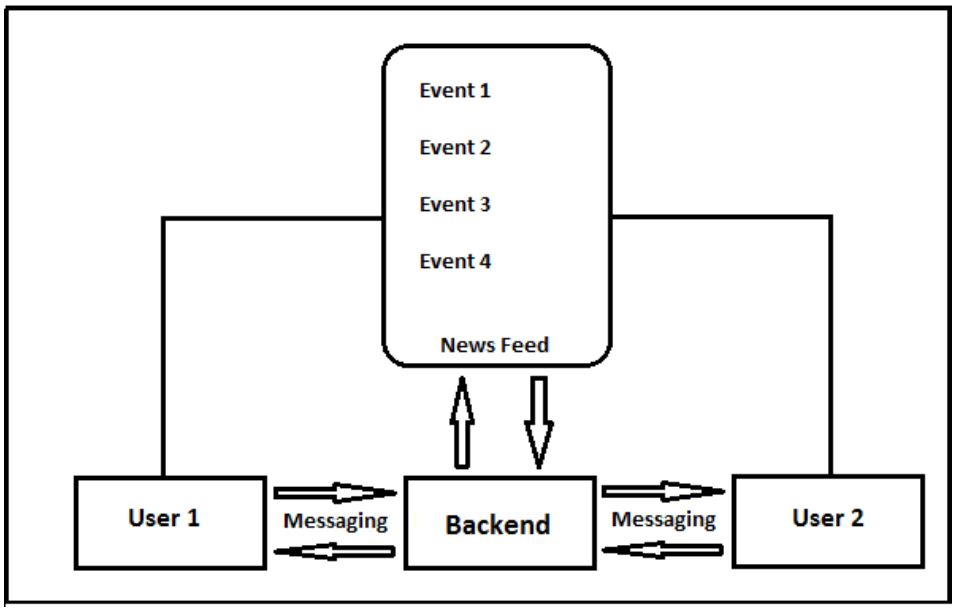

Figure 1: Basic underlying architecture of College Connect

2.1.1 System Interface

The College Connect app is a self-contained system, relying on very little in the way of external software interfaces. However, the system will require interfaces with the installed smartphone's hardware. The system is to be a web-enabled system, meaning that all user interaction requires internet connectivity. The most important system interface required on the system is the Network interface to a network with an internet connection.

2.1.2 User Interface

All user interface other than initial installation occurs through the mobile application.

2.1.3 Hardware Interface

There are no external hardware interfaces required.

2.1.4 Software Interface

The application will use default android file manager to let the user select images to be uploaded.

2.1.5 Communication Interfaces

All the communication of client will go over Internet to the web server. The HTTP/HTTPS protocol will be used to facilitate communication of client with the web server.

2.1.6 Memory Constraints

The College Connect .apk file will be less than 5 MB. Also, since we are storing messages on phone, the amount of disk usage will vary from one individual to another. Further disk usage may be due to content downloading, which is variable too. Apart from this, we will be running background services to fetch messages and news for news feed, which will consume some of the primary memory.

2.2 Product Functions

2.2.1 Context Diagram

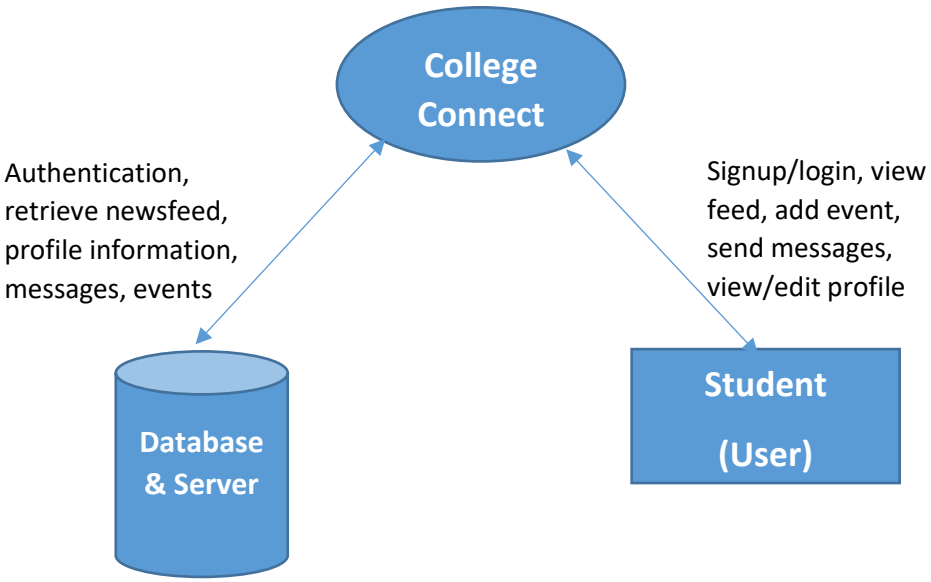

Figure 2: Context Diagram

2.2.2 Use case Diagram

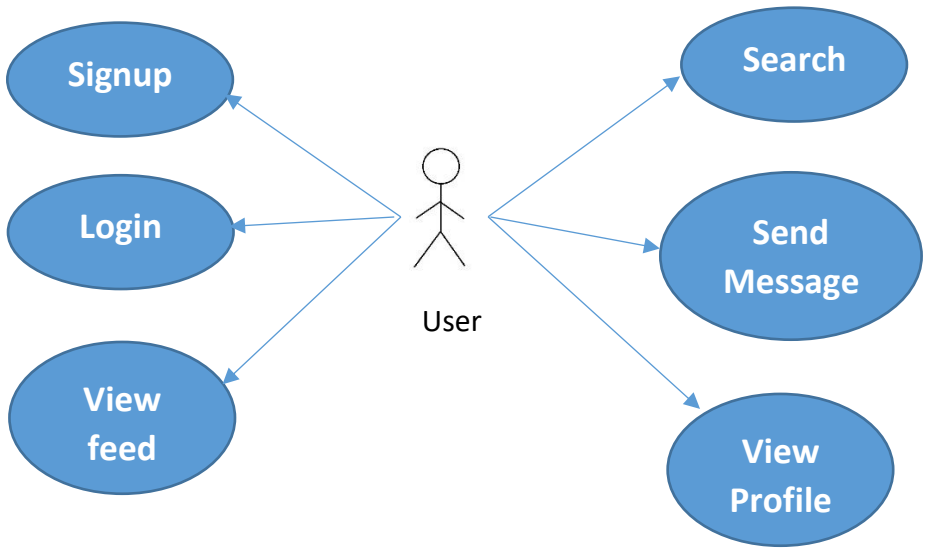

Figure 3: Use Case Diagram

2.2.3 Profile

Every user will have a profile which includes basic public information. It will feature some compulsory fields like name, entry number, department, etc. Optional fields include profile photo, contact number, etc. A sample profile is shown below.

2.2.4 Profile Search

This search operation searches for profiles based on an input string.

2.2.5 Messaging

The College Connect application will allow registered individuals to send messages to other registered individuals. It also supports a blocking feature. Messages from blocked contacts are not displayed to the receiver.

2.2.6 Newsfeed

Newsfeed will host upcoming events' data which will be fetched from backend every time the application is opened. The screen will look something like the following screen.

2.2.7 Upload Event

This feature provides users with an API to create new events so that other students could be notified of the same.

2.3 User Characteristics

There is only one type of user. Each user has equal privileges in terms of content access and addition.

2.4 Constraints

The internet connection is a constraint for the application. Since the application fetches information about events and messages, Internet is crucial for the application to function properly.

2.5 Assumptions and Dependencies

One of the assumption about the application is that it will be used on phones having enough primary memory, since there will be services running in the background. It also depends on phone file manager to pick up the required image for profile.

2.6 Apportioning of Requirements

In case of delay, the event (news feed) can be integrated in next version.

3. Specific Requirements

This section provides all of the functional and quality requirements of the system. It contains detailed description of the system and all of its features.

3.1 External Interface

This section provides detailed description of all the interfaces as seen by users at different stages.

3.1.1 User Interface

The application will consist of the following screens:

1. **Register Screen:** This screen will be displayed on the first usage of the application. The user will have to enter his institute email id on which an OTP for verification will be send. Once the verification is completed the user will have to enter his basic information consisting of name, department, year, hostel, a short bio, etc. This will a profile for the user in the backend. After this user will be redirected to home screen.

2. **Home Screen:** The home screen will display the news feed. A news feed element will contain a short text and an optional image about an event.

3. **Message Screen:** This screen will display the list of previous conversations. If the user clicks on any conservation, it will open up to display the chat interface where messages can be sent and receive. The

chat interface will have a drop down menu providing features like block, mute and view profile.

Figure 4: Sample Newsfeed

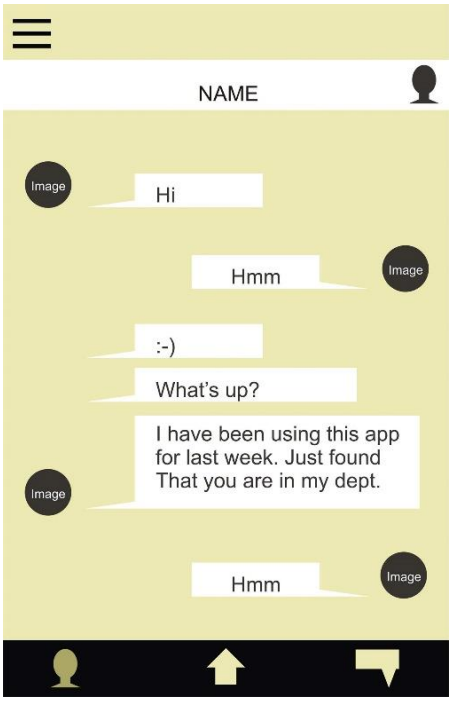

Figure 5: Sample chat screen

4. **Profile Screen:** This screen by default will show user his own profile. It will contain an edit button allowing user to edit their profile. There will be a search bar which will provide the search by name feature. There will be

an advanced search button which will let the user search on the basis of department, hostel and year, redirecting them to their profile of the desired individual. The profile page will also have a message button to that user.

Figure 6: Sample Profile Screen

5. In addition each screen will have the 3 buttons to switch among home, message and profile screen.

3.1.2 Software Interface

The application will use default android file manager to let the user select images to be uploaded.

3.2 Functional Requirements

This section contains requirements that specify all the primary features of the College Connect application.

3.2.1 Functional Requirement 1

ID	**F1**

TITLE	Downloading the mobile application
PRE-CONDITION	Have an android phone
POST-CONDITION	The 'College Connect' application gets installed in the phone
DESC	User should be able to download the mobile application through either an application store or similar service. The application should be free to download.
REASON	To enable user getting access of the application

3.2.2 Functional Requirement 2

ID	**F2**
TITLE	Registering User in mobile application
PRE-CONDITION	The application is installed in the user's android mobile
POST-CONSITION	The user gets registered for the application and an account is created in the backend database at the server
DESC	User should be able to register through the application itself. User should provide institute email address at the time of registration.
REASON	In order to enable user to message and access their newsfeed.

3.2.3 Functional Requirement 3

ID	**F3**
TITLE	Filling in profile details
PRE-CONDITION	The user is registered in the College Connect application in his android mobile
POST-CONDITION	The information about the user is entered in the backend database in the user account
DESC	User should enter their name, entry number and other public information at this screen.
REASON	Setup a searchable user profile

3.2.4 Functional Requirement 4

ID	**F4**
TITLE	Home screen - Newsfeed
PRE-CONDITION	The application is open and news feed is not already fetched
POST-CONDITION	Newsfeed is displayed in the application
DESC	Event data is fetch from the backend and displayed in the newsfeed.
REASON	Communicate to users information about upcoming campus events

3.2.5 Functional Requirement 5

ID	**F5**
TITLE	Notification – Newsfeed
PRE-CONDITION	The application is running in the background
POST-CONDITION	The notification is displayed in the user android mobile
DESC	Event data is fetch from the backend and displayed in the notification panel of smartphone.
REASON	Notify users about campus events when application is inactive

3.2.6 Functional Requirement 6

ID	**F6**
TITLE	Event Search
PRE-CONDITION	Home screen should be active
POST-CONDITION	Search results are displayed
DESC	To search for a particular event from events available in newsfeed
REASON	Easy accessibility of a particular event

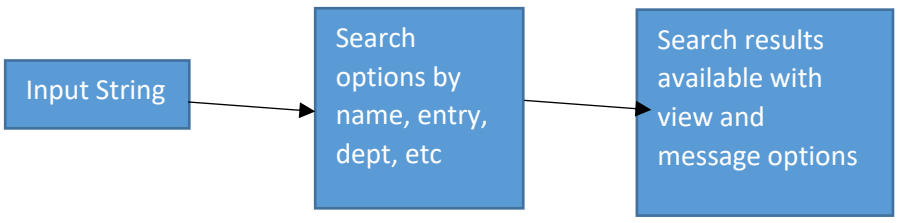

Figure 7: Search

3.2.7 Functional Requirement 7

ID	**F7**
TITLE	Add Event
PRE-CONDITION	Home screen should be active
POST-CONDITION	Event is added if all information filled is correct, and other users are notified of the added event, else failure message is declared
DESC	Allows user to add a new event which will subsequently be displayed in newsfeed of all registered users.
REASON	New upcoming events need to be added by users

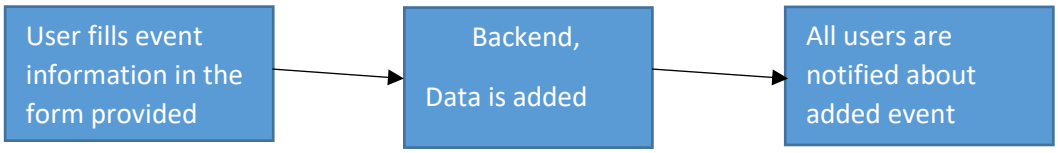

Figure 8: New event upload

3.2.8 Functional Requirement 8

ID	**F8**
TITLE	Message – Homepage
PRE-CONDITION	Any screen should be active
POST-CONDITION	Message homepage screen is displayed
DESC	Display conversations till now with other users sorted in most recent fashion
REASON	To let users see their previous conversations

3.2.9 Functional Requirement 9

ID	**F9**
TITLE	Message – Search
PRE-CONDITION	Message screen should be active
POST-CONDITION	Search results are displayed

DESC	Search for individuals previously contacted or particular messages by providing keywords in a search bar
REASON	Easy accessibility of messages from message history

3.2.10 Functional Requirement 10

ID	**F10**
TITLE	Message – Chat
PRE-CONDITION	Message screen should be active
POST-CONDITION	Chats with particular recipient will be displayed
DESC	Allow users to type new messages to be sent to the selected user
REASON	Users need to exchange information

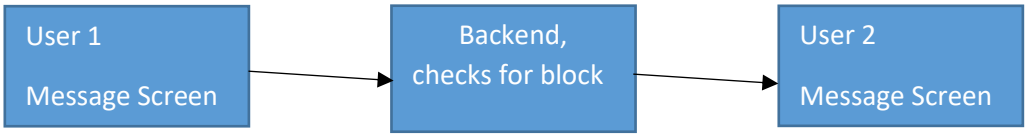

Figure 9: Sending and receiving messages

3.2.11 Functional Requirement 11

ID	**F11**
TITLE	Message – User Settings
PRE-CONDITION	Chat with a particular recipient should be displayed
POST-CONDITION	The recipient will be blocked if block was selected, further conversation will not be notified if mute was selected, profile of recipient will be displayed if view profile option was selected
DESC	This is a drop down menu for a selected user in chat screen. It will have three options: 1. Block – Messages to/from the selected user will not be sent/received. 2. Mute Conversation – Incoming messages from the selected user will not be notified upon 3. View Profile – Leads to the profile page of the selected user

REASON	Provide more control over conversations

3.2.12 Functional Requirement 12

ID	**F12**
TITLE	Profile Screen – Homepage
PRE-CONDITION	Any screen should be active
POST-CONDITION	Profile of application user will be displayed
DESC	Displays user's own profile information. It will also have options to modify existing data or add new data.
REASON	Allow profile customization.

3.2.13 Functional Requirement 13

ID	**F13**
TITLE	Profile Screen – Search Bar
PRE-CONDITION	Profile screen should be active
POST-CONDITION	Search results are displayed
DESC	Search for other registered users based on their names. An advanced search option will be provided to search users based on entry number, department and hostel. The user then needs to select a user they wish to view or connect to from the search results available.
REASON	To search for new users and communicate with them.

3.2.14 Functional Requirement 14

ID	**F14**
TITLE	Profile Screen – Other user's profile
PRE-CONDITION	Chat screen or Search results were active
POST-CONDITION	Profile of selected user is displayed
DESC	Displays profile information shared by selected user. It will also feature a message button which will allow user to start a conversation.
REASON	View someone's profile and/or connect to them

3.2.15 Functional Requirement 16

ID	**F16**
TITLE	Navigation Button
PRE-CONDITION	Any screen should be active
POST-CONDITION	Navigation panel is displayed on screen
DESC	Available on each screen at top left corner. When clicked, a panel will slide in to the screen from left, with following options available. 1. Newsfeed – Navigates to newsfeed screen 2. Messages – Navigates to messaging screen 3. Settings – Contains some configurable options 4. Logout – Logs out the user session 5. About – Contains application and developer information
REASON	Ease of navigation.

3.2.17 Functional Requirement 17

ID	**F17**
TITLE	Settings Screen
PRE-CONDITION	Navigation panel should be active
POST-CONDITION	Settings screen is diplayed
DESC	Allow configuration of following options so as to enhance user experience: 1. Chat Sounds – Can be turned on/off 2. Block list – Lists all users blocked by the user
REASON	Allow profile customization.

3.3 Performance Requirements

3.3.1 Performance Requirement 1

ID	**P1**
TITLE	Search Feature
DESC	The search based on the keyword should be real time in the way that every letter entered should update the search results without significant delay.
REASON	Quick access to information.

3.3.2 Performance Requirement 2

ID	**P2**
TITLE	Instant notification
DESC	There shouldn't be any significant delay in receiving the notification regarding event or message, provided the application is active in the background.
REASON	Real time updates to user.

3.3.3 Performance Requirement 3

ID	**P3**
TITLE	Screen transition
DESC	The transition between any two screens should be instantaneous.
REASON	Smooth usage experience

3.3.4 Performance Requirement 4

ID	**P4**
TITLE	Backend Communication
DESC	Changes that need to be synced with backend (web server) such as profile changes should be visible to other users almost immediately.
REASON	Access to updated information

3.3.5 Performance Requirement 5

ID	**P5**
TITLE	System Dependability
DESC	If the system loses the internet connection or the device does not have enough space, the user should also be informed.
REASON	To avoid information miscommunication.

3.4 Logical database Requirements

Profile information of all users and all events related data will be stored in a database. Database will allow concurrent access and will be kept consistent at all times.

3.5 Software System Attributes

3.5.1 Maintainability

ID	**SA1**
TITLE	Application Extensibility
DESC	The application should have modular design so that addition or modification of features is very easy.
REASON	Ease of modification.

3.5.2 Support

ID	**SA2**
TITLE	Application Support
DESC	The application should run on Android version 4.1 and above.
REASON	Increasing accessibility.

----------End of Requirements----------