Software Requirements Specification

for

StudyBuddy

Version 1.0 approved

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Revision History

Name	Date	Reason for Changes	Version

1. Introduction

1.1 Purpose
The purpose of this product is to help students find spontaneous study buddies. StudyBuddy helps students find other like-minded students that happen to be free at the same time to form study groups. By finding a StudyBuddy, students can also become a great resource for other students who are picking up a new subject and are not very comfortable with it.

1.2 Document Conventions
This document has been created on the basis of IEEE template for System Requirement Specifications. It uses following naming conventions:

Term	Definition
Student / User	The main user of the project
Administrator	The people maintaining the project
NYUAD	New York University, Abu Dhabi - the university for whose students the system is being designed

1.3 Intended Audience and Reading Suggestions
This document is intended for the developers, designers, and testers of this project. While it is expected that everyone reads the document in its entirety to understand the system better, the most relevant section(s) for quick overview for developers would be sections 3 and 4, for designers would be section 3, and for testers would be section 4.

1.4 Product Scope
StudyBuddy is supposed to be a productive, social platform for students.

It aims to help them find spontaneous study buddies. College schedules are usually packed for many students. At any given time, a student may be in class, outside with friends, working in a lab, et cetera. This makes it difficult for students to make spontaneous study groups, with them having to be planned out hours if not days in advance. StudyBuddy will group students together who wish to study at the same time.

Since StudyBuddy helps students connect with other students outside their current social circle, it will create a more wholesome, inclusive school community, and increase the overall

community engagement. It is a low-pressure method of finding other students to work with, as many students feel that it is difficult to exit their social comfort zones.

1.5 References

Initiative (WAI), W. W. A. (n.d.). What's New in WCAG 2.1. Web Accessibility Initiative (WAI). Retrieved 3 March 2022, from https://www.w3.org/WAI/standards-guidelines/wcag/new-in-21/

2. Overall Description

2.1 Product Perspective

StudyBuddy is a new product that is being designed for the students at NYUAD. It aims to connect students wishing to study a similar subject at the same time into a chat room. Additionally, it will also provide the users with a Zoom/Google Meet link to connect synchronously over a video-conferencing platform. Although there are many similar products available in the market, StudyBuddy will adopt some of their basic functionalities but in order to make itself stand out amongst the competitors, it also build up on them through the use of elements such as Pomodoro timer and To-do list to enhance productivity amongst the users and achieve the business needs in the process.

2.2 Product Functions

- Users should only be able to login via their NYU accounts (using 'Sign in with Google' OAuth and checking for an NYU email address)
- Users should be able to submit their preferences to enter a chat room.
- Users should be able to use a chat box to interact with users in the session.
- Users should be able to use a Pomodoro timer and create a to-do list in the session.
- Users should be able to re-enter the chat room if the page is refreshed or the internet connection is lost for a few minutes.
- Users should be able to re-submit their preference for a new chat room up to three times in the span of an hour after the first submission.

2.3 User Classes and Characteristics

The main user class for this product would be the students.
- Student class refers to students who will be using the app and connecting to the study buddies. Primarily they are undergraduate students currently enrolled in NYUAD with a general level of technical expertise.

2.4 Operating Environment

The product will be designed as a web application. It should work on any operating system as well as on common web browsers which include Safari, Google Chrome, and Mozilla Firefox. As long as the user has a camera and a microphone on their hardware device with stable internet connectivity, there isn't much dependence on hardware platforms.

2.5 Design and Implementation Constraints

1. The system should be automated and not require manual admin intervention in setting up any of the processes.
2. The system should be available to students 24 hours a day, 7 days a week. Maintenance should be done in up to an hour whenever required.

3. The system is built by a small team of students without prior development experience.
4. The system should be built within 2 months.
5. Confidentiality should be maintained by developers who have access to certain data.

2.6 User Documentation

Some user documentation components such as help guide, video tutorials, feedback form, and FAQs section will be added in a "Help" section.

2.7 Assumptions and Dependencies

The product will be dependent on OAuth 2.0 for signing-in users, on Zoom/Google Meet for generating the meeting links, and pomodoro timer API for helping the students make the most out of their time on StudyBuddy.

3. External Interface Requirements

3.1 User Interfaces

3.1.1 Home Page and Authentication

On entering the URL of the system on the search bar or clicking the link to the system, the user will be directed to the home page of the application. On clicking the "Login with Google" button on the top right corner, the user will be directed to gmail.com and will be prompted to input their username and password. They would only be able to log in if they have valid credentials.

3.1.2 Matching

Once the user has successfully logged in to the platform, they will be able to set their preferences in terms of what they wish to study. This would allow us to group them with other students who have chosen similar options.

3.1.3 Active Chat Room
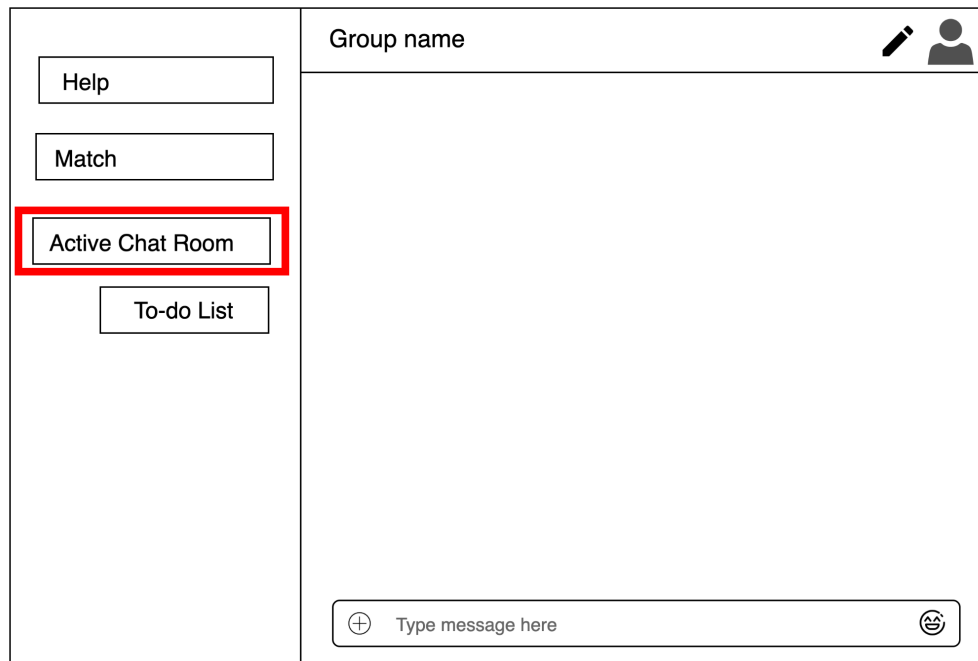
Once the user is matched with a group, an active chat room will be created with the group members. The chat room will allow the group members to interact with each other by sending messages and emoticons. Members will also be able to edit group information such as the group name and members using the pencil icon above.

3.2 Hardware Interfaces

The system will be viewed best on a desktop computer, or a laptop. The project will not be too heavily-hardware dependent, and it will be able to support any device that has access to the Internet and is strong enough to support video-conferencing capabilities.

3.3 Software Interfaces

The following software components/tools will be used to build the system:
1. Diagrams.net: Diagram software that will be used to create mockups.
2. Figma: Web-based design tool that will be used to convert the mockups into actual designs by the designers.
3. HTML, CSS, JavaScript: Languages that will be used to build the front-end.
4. Javascript, NodeJS, MongoDB: Languages/Databases that will be used to develop the back-end because of their high efficiency.

3.4 Communications Interfaces

So far, it has been identified that the system will require google authentication API to allow students to login and Zoom/Google Meet API to generate video-conferencing links.

4. System Features

4.1 Authentication

4.1.1 Description and Priority
Since the product is being designed for the NYUAD community, all users will be required to login with google through their NYU accounts.
This feature will be given a high priority (10/10) as this is the first step towards accessing the platform.

4.1.2 Stimulus/Response Sequences

The user clicks on the "Login with Google" button. The system directs the user to gmail.com.
The user is prompted to enter their username and password.
On clicking the "Login" button, if the credentials are correct and they have used their NYU email, they will see a small dialog box that will describe the kind and extent of information that is shared with us.
If the user clicks on "Continue", they are redirected to the platform.
If the user clicks on "Cancel", they are redirected to the home page.

4.1.3 Functional Requirements
REQ-1: The Login OAuth request should be restricted to nyu.edu domain
REQ-2: In case of incorrect credentials or authentication failure, the system should throw an error message asking the users to try again.

4.2 Matching

4.2.1 Description and Priority
Once the users have successfully logged in to the platform, they will see a "Matching" tab on the left. By clicking on it, they will be able to submit their preferences in terms of what they wish to study which would allow us to group them with other students with similar answers.
This feature will also have a high priority as it is one of the essential functionalities of the system.

4.2.2 Stimulus/Response Sequences
The user clicks on "Matching". The system displays a "Set Preferences" pop up.
The user selects one or more preferences from the dropdown and clicks on the "Submit" button. The system responds by using a matching algorithm on their preferences and sending them to a chat room with other online students possessing similar interests.

4.2.3 Functional Requirements

REQ-1: Once the user submits their preferences and the matching algorithm has grouped them with other students, a new tab called "Active Chat Room" should appear below the "Matching" tab (see details here).

REQ-2: A user can submit their preferences up to three times in the span of an hour after submitting them for the first time.

4.3 Active Chat Room

4.3.1 Description and Priority
Once the users have been successfully matched, they will see an "Active chat room" tab on the left. By clicking on it, they will be able to send messages and interact with the group members they have been matched with. This feature will also have a high priority as it is the main means of communication between the group members.

4.3.2 Stimulus/Response Sequences
The user clicks on "Active chat room". The user is then placed in a chat room with other members of the group.
The user is then able to type in a message in the chat box. The user is also able to send emoticons using the emoji feature in the chat box. The user is also able to add files into the chat using the add feature in the chat box. The system responds by sharing the content in the group chat.
The user is also able to add/edit group information using the edit feature. The system responds by reflecting the changes across all group members' chat rooms.

4.3.3 Functional Requirements
REQ-1: The "Active chat room" tab should only appear once the user is matched to a group.
REQ-2: If the user requests for another group or changes preferences, the user will be removed from the "Active chat room" and will be placed in the chat room of their new group.
REQ-3: As soon as a user is placed in a chat room, a pomodoro timer should be opened in the form of a pop-up.
REQ-4: As soon as a user enters a chat room, they should be able to see a Zoom/Google Meet link for that particular chat room.
REQ-5: A new sub-tab called "To-do list" should be created under the "Active Chat Room" tab which should work like a normal text editor.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Considering the fact that there are many similar systems already available in the market, the system must be at-par with them, if not beyond them, in terms of efficiency. It should be able to handle at least 500 users at the same time without offering any delays in loading different functionalities. The system should load on the browser at a high speed and all functionalities should take minimal processing time if the internet connection is reliable.

5.2 Safety Requirements

The system should make sure that the user data is protected and stored in the server without any loss, and only non-sensitive data will be stored on our servers. As we are using OAuth to authenticate, we will not need to store the passwords of the users in our server, which will reduce our liability. The user data that will be stored is non-sensitive data such as their major, year and matching preferences.

5.3 Security Requirements

The system should authenticate the users properly and only allow the users with NYU accounts to access it. Login OAuth will be used for this purpose. Moreover, to keep the system secure against suspicious IP addresses, developers can implement an IP blocker.

5.4 Software Quality Attributes

1. Usability - The system should have an easy to use interface as we are targeting users with general technical understanding
2. Accessibility - The system should be accessible by the users with a valid NYU account and be easy to use for users with disabilities.
3. Availability - The system should be available 24*7.
4. Adaptability and Maintainability - Since we plan to take into account the user feedback and actively enhance our functionalities, the system should be built in such a way that it is able to cater to them in terms of code, design, etc.

5.5 Business Rules

The user with a valid NYU id should only be able to access the system.

6. Other Requirements

6.1 Accessibility and Inclusion

The system must be optimized to cater to different target audiences, which include the people with disabilities. In line with the [Web Content Accessibility Guidelines 2.1](#), the system must at the very least have the following:

- "Alt" text with images.
- Compatibility with screen readers.
- Accessible colors and contrasts.

Appendix A: Glossary

Term	Definition
Student / User	The main user of the project
Administrator	The people maintaining the project
NYUAD	New York University, Abu Dhabi - the university for whose students the system is being designed