
Software Requirements Specification

for

Study Buddy Website

Version 1.0

Prepared by

Bani Hammad, Hessa

Fejzic, Nadja

Herzalla, Dania

Hodzic, Aisha

NYUAD

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

The Study Buddy Website 1.0 is a website that pairs up a university student with (an)other student(s) based on their studying preferences, for the purpose of studying together. This SRS describes the main functionalities of the Study Buddy Website system rather than the complete system.

1.2 Intended Audience and Reading Suggestions

This document is intended for the project developers of the Study Buddy website as it helps clear the requirements and help the team in laying the groundwork for product development. This document is also intended to be read by the Professor of this course, Mai Oudah as well as her teaching assistant, Dena Ahmed. Other members that this document is intended for are the project managers, marketing staff, users, testers and documentation writers. This document is to be read in sequential order. The rest of this document contains the overall description of the project together with its perspectives and functions, operating environment, design and user documentation. Additionally, Section 4 covers System Features, while Sections 3 and 5 cover external interface requirements as well as other non-functional requirements.

1.3 Product Scope

The Study Buddy 1.0 is a website that pairs up university students based on their indicated studying preferences. The purpose of the Study Buddy system includes satisfying the students' demand for a system that can connect them with another student who's studying style is compatible with theirs for the aim of studying together. One of our goals is to have an increased rate of studying among the students studying in pairs/groups by 30% among the client's, the student body, by the end of the first semester of system implementation. Beyond increasing student's satisfaction, benefits of our website's features include facilitating students' academic work management and stimulating exchanging knowledge on subjects, which result in increased studying efficiency. The benefits also include an increased sense of community by facilitating new interactions and collaborations between students, which is especially important considering the remote nature the student body is in during this time.

2. Overall Description

2.1 Product Perspective

The Study Buddy Website is a new product developed for use by the student body of a particular educational institution. The data, the processing logic and all code to render the web interface, are contained within the website system. In order for the website to function successfully, the client will provide their university email domain (e.g. nyu.edu) upon the subscription; the user's registration will be approved only if they registered with that specific email domain. Additional security measures that may be provided by the educational institution, such as a Multi-Factor Authentication (e.g. by using Duo app) will be used upon registration and login. While additional security measures are not required for the functionality of this software, they are highly recommended to clients. Softwares independent from our system will be required in some cases to fulfill the purpose of students studying together; the option of studying together remotely will require the utilization of larger communication systems. These systems are chosen by the paired-up students and include video communication platforms such as Zoom.us, Google Meet, FaceTime etc. Students who have the option to study together in-person and choose to are excluded from this option.

2.2 Product Functions

A high level summary of the major functions the product is listed below.

1. The students must be able to use the website exclusively online.
2. The students must be able to register and log in through Multi-Factor Authentication from Duo.
3. The students must be able to provide basic personal information as a mandatory part of registration (name, year, major, gender)
4. The students must be able to enter their preferences for a study partner (year, study group size, silent studying vs non silent studying, major, gender - all optional and include a no preference option)
5. The students must be able to choose their status of availability for system to detect as available to be paired up
6. The paired up students must be able to communicate the details about their study session through email

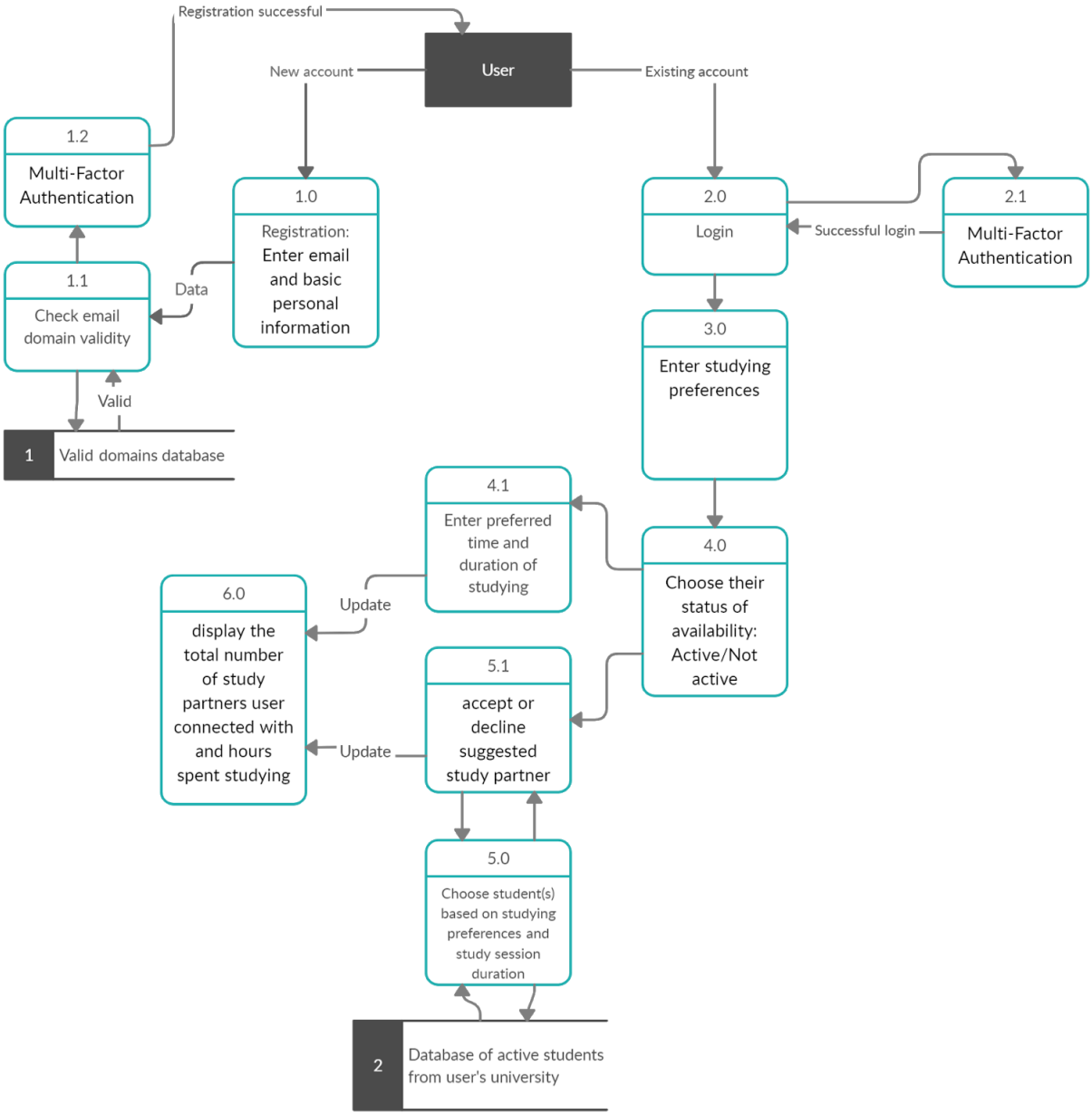

Diagram 1. Top level data flow diagram of main functionalities of Study Buddy Website. Data Flow Diagram GS (Gane and Sarson) used in creately.com.

2.3 User Classes and Characteristics

This website is intended to be used by students. Therefore, the user classes include the primary users (students) in this case.

2.4 Operating Environment

Due to the global pandemic, our project aims to take advantage of the increased online-dependent environment. The software we are developing is a cross browser compatible website that functions on all operating systems. The website will support Multi-Factor Authentication if necessary by an educational institution. Our system will be developed to be suitable for all browsers like Chrome, explorer and Safari.

2.5 Design and Implementation Constraints

Our website is to be developed by the project deadline in December - within the next two months. This imposes a time requirement that needs to be met. The team members might have a restricted time in developing this website due to other responsibilities and commitments. Additionally, the team members have limited skills in software development. Also, the system might face some security considerations as we intend to be able to apply Multi-Factor Authentication when creating an account to login. This ensures the student's affiliation to NYUAD and ensures the system security overall. Furthermore, the data collected from the students on personal data necessary to the function of matching up students as well as studying preferences presentes a data security issue which requires us to set up a terms and conditions agreement with the user before their use of our system to obtain their consent on our collection and use of their data that is solely for the purpose of our system.

2.6 User Documentation

Along with our website, we plan on easing user accessibility and making our website as smooth and easy to navigate as possible. To do that, we will be creating a small introductory manual to demonstrate how the user would use the and navigate through the website. This can be in the form of a screen recorded video of the team members demonstrating how to use the website. If this isn't possible, we plan on creating a document option as well outlining how to use the website and navigate through it.

2.7 Assumptions and Dependencies

Since our project will rely on external factors to fully function and serve its purpose there could be some issues with the third party components that we plan to use. Since we will be adopting additional security measures that may be provided by the education institution, such as

Multi-Factor Authentication (e.g. by using Duo app), we might face certain constraints if there are issues related to the MFA system. Also, not all university domains have Multi-FActor Authentication, which can be an issue when using our website. Additionally, we plan to rely on other external software independent of our system to allow students to study together. The option of studying together remotely will require the utilization of larger communication systems. These systems are chosen by the paired-up students and include video communication platforms such as Zoom.us, Google Meet, FaceTime etc. These external platforms, if not functioning as expected, could introduce issues of dependencies. They might introduce technical constraints for example. Another factor affecting the requirements stated in this SRS includes the use of databases to collect people's information and having a comparison system to match people. This is affected by the limited skills of the team members.

3. External Interface Requirements

3.1 User Interfaces

The professional, clean and minimalist design style will be integrated into the front-end development of the app, in order to appeal to the trends of targeted audience, which is the current student body and their administration. The standard buttons and functions in the navigation bar including account settings, studying progress overview and help will be included. Upon the input of invalid time or date for studying, an error message will be displayed. Upon study buddy match, the user will receive notifications in the message box to notify the user. The programming skills that will be used for UI development include HTML, CSS, JavaScript, JSON, and jQuery.

3.2 Hardware Interfaces

No hardware will be necessary for this project.

3.3 Software Interfaces

The data items coming into the system include the database of information pertaining to each user and their preferences. The services needed for our website to be fully functioning include third party applications that allow for remote communication like (Zoom, Facetime, Google Meets..etc).

3.4 Communications Interfaces

The students using our website will provide their university email domain (e.g. nyu.edu) upon subscription. The registration is successful only if the student registers with a specific email

domain. Therefore, e-mail is a requirement associated with our website. Communication security and encryption which are part of third party software are part of the external applications we intend to integrate into our system (Zoom, Facetime, Google Meets..etc).

4. System Features

4.1 Creating/Registering an Account

4.1.1 Description and Priority

To be able to use our website, a student must register and create an account using his/her university domain. This feature is of high priority as it shapes the basis of using the Study Buddy website.

4.1.2 Stimulus/Response Sequences

Upon accessing the webpage, the user is prompted to register for an account to use the website. Until the user registers, they cannot use the website. The users are required to use their university emails. After the user registers, they might be redirected to MFA. In either case, after the account is created the user can then access the main web page.

4.1.3 Functional Requirements

For the user to create and register an account, software capabilities like registering the user and saving his/her email account in our database.

4.2 Multi-Factor Authentication (MFA)

4.2.1 Description and Priority

Upon registration using a specific university domain (for e.g nyu.edu), the user is to be verified using MFA (Multi-factor Authentication) only if the university domain supports it. Since this system feature is not required and is optional it is of medium priority.

4.2.2 Stimulus/Response Sequences

The user is prompted to register using his/her university domain email address. If the University supports Multi-Factor Authentication, the system will redirect the user to the MFA page of the university. The MFA page of the university is an independent system that is outside of our software system. After authenticating the user through MFA, the user is redirected to our system to successfully login.

4.2.3 Functional Requirements

The software capabilities that must be present for this system feature to be successfully implemented include:

- redirecting the user to the university's MFA page, if available,
- then redirecting the user back to the Study Buddy website.

4.3 Specifying Preferences

4.3.1 Description and Priority

After successfully creating an account and registering, the user is then prompted to specify his/her preferences of what to study and other preferences required to be matched up with another student. The user can list their preferences for the Studying partner (gender, major, year). This is a system feature of high priority because it's necessary for the matching to work.

4.3.2 Stimulus/Response Sequences

The user is prompted to fill in their preferences and the preferences before the system can find a study buddy for them. The preferences are reset every time. The sequence of actions include the user filling in the preference, the preferences are then automatically saved in the system's database for the matching algorithm to work, the system is then prompted to search for a match.

4.3.3 Functional Requirements

The software capabilities that must be present in order for this system feature to successfully be deployed include saving the preferences of the user in a database for later use to match the user to another student with similar preferences.

4.4 Matching students

4.4.1 Description and Priority

After the user is prompted for his/her preferences which are saved in a database, the matching algorithm will take place. As different users enter their preferences, a matching algorithm will compare these preferences and match students with similar preferences. This system feature is of high priority because it shaped the basis of the Study Buddy website. Without this system feature, students will not be matched and cannot join others to study with.

4.4.2 Stimulus/Response Sequences

This system feature is to be performed by the system itself using system feature 4.3 (Specifying Preferences). It will be performed by a matching algorithm responsible for matching students according to the preferences recorded in the database.

4.4.3 Functional Requirements

The software capabilities required for this system feature to be successfully deployed include creating the matching algorithm which uses the database to match students according to their preferences.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

There are certain performance requirements for our website to completely function. First of all the user must be able to register using his/her university domain email. Then, the user must be able to enter their preferences for the matching to work. Therefore, the performance requirement in this case includes students/users to enter their preferences. Other performance requirements include the chat feature which can help users communicate with each other to set up a studying time/interface (zoom/facetime/etc..). The call feature is another performance requirement that must be met for the website to meet its objective.

5.2 Safety Requirements

Since our website enables remote/in-person interactions amongst students there is an expected behavior and conduct that is inline with the purpose of our system (to be used only for the purpose of studying with someone) that should be followed. There are certain expectations for interactions between students. If a student attempts to violate any of the expectations or uses the website for purposes other than studying, certain actions will be taken. We plan on developing the option of being able to report a user for any misbehavior or actions that are not in line with the purpose of the system. If a particular user is not comfortable with the behavior or actions of a matched user, they can report the student and provide a reason for that. If a user receives 5 reports then the user will be banned temporarily for a week, otherwise if a user is banned 15 times, then the user will be banned from using the system for 2 months. The team is in the process of deciding what would be done for a greater number of reports about a person and for more extreme cases of noncompliance.

5.3 Security Requirements

Since our website requires a student to provide information related to their study preferences which will be saved in a database, it is important to protect the privacy of its users. The information disclosed to the website for matching preferences will remain confidential to overcome privacy issues. Upon registration, the user will agree to share their information with the system administrators. This information will be protected and not disclosed or distributed to third parties whatsoever. As for the security requirements, we have outlined earlier that we

intend to use Multi-factor authentication (e.g. Duo Mobile) to increase the security of the system and to be able to authenticate one's identity.

5.4 Software Quality Attributes

The Study Buddy Website is a system that is adaptable to changing circumstances due to the current situation of online learning and virtual connections around the world. It is adaptable in the sense that it provides two means of communication: through a virtual call or in person. Having these two options makes our website adaptable to changing circumstances due to the circumstances of social distancing and avoiding gatherings. Being able to meet with someone virtually to study is a viable option in this case. Also, if the situation gets better, our website can still be used for in person study sessions and this is what makes our system adaptable to changing circumstances and environments.

Our system is also available to any student no matter where the student is located and what time zone the student is in (if having a virtual meeting). Therefore, its availability is one of its important attributes that ensures the wide use of the system.

The correctness of our system is to be ensured by adhering to the specifications that determine how the users will interact with the software and how the software is behaving when used correctly. To guarantee the correctness of the system, we aim to define the problem completely, develop the algorithm and then the program logic, prove the correctness of algorithms during the design phase and pay attention to the clarity and simplicity of our website. Additionally, we plan on verifying each part of the program as soon as it is developed.

Testability is another important software quality attribute that is important for our system. Since we have a testing phase where we intend to launch a trial version to a group of students in December, testability is relevant to us. Testing is a critical stage of the software development lifecycle as we aim to release a bug free system. Testing will cover a wide range of activities, all the way from unit tests for specific functionality within the system to user-acceptance testing for the finished product.

5.5 Business Rules

After a trial period by the student population of New York University Abu Dhabi for the Spring 2021 semester, the system is to be available for subscription to universities other than NYUAD, as it will remain free for NYUAD for two years. The subscription will be adjusted according to the size of the educational institutions' student body, and the duration of the subscription will be a recommended package of a 4 year subscription, in accordance with the average duration of university studies. For each of the clients, the system is to be customized according to the client's specifications.

The customization requirements, subscription and costs will be negotiated with the team employed during the process of negotiations. This team will conduct the customization of particular website features if required. Examples of customization include additional studying preferences or suggested studying locations that apply to the particular client's student body. A package of a 4-year subscription for educational institutions with <5000 students is $4000, $5500 for educational institutions with 5000 to 15000 students, and $7000 for educational institutions with more than 15000 students. The costs are adjusted according to the standard college size thresholds[1]. However, additional features requested by the customer that extend beyond the scope of the system will be reflected in additional costs.

6. Other Requirements

All the requirements have been specified in the previous sections. No other requirements are being considered for this project.

[1] College Sizes: Small, Medium, or Large. Collegedata.com https://www.collegedata.com/en/explore-colleges/the-facts-on-fit/features-that-set-colleges-apart/college-size-small-medium-or-large/#:~:text=Colleges%20Considered%20Small%2C%20Medium%2C%20or%20Large&text=Many%20colleges%20fall%20into%20the,means%20more%20than%2015%2C000%20students.