Software Requirements Specification

for

StudyBuddy

Version 1.0 approved

Prepared by Dan D'Andrea, Robert Delgado, Ryan Hessen, Jacob Rabb, Monique Shotande, Max Ussin, Michael Van Wie, Renier Viega

DungeonTech

9/9/2013

Table of Contents

Revision History

Name	Date	Reason For Changes	Version

1. Introduction

Purpose

The primary purpose of our project is to provide a web application for UF students who are looking for study partners. The application, StudyBuddy, will also allow students to coordinate based on their busy schedules. Secondary purposes are related to convenience, accessibility, and the usability of StudyBuddy.

Document Conventions

This document uses a convention to define verifiable system requirements. Each requirement is preceded by the feature name and the requirement number (for example, Manage Schedule REQ-2) and contains the term “shall ” to indicate that the statement is a verifiable requirement. Text that does not contain these characteristics is non-verifiable and is to be used to set context for requirements.

Intended Audience and Reading Suggestions

The target audience of our project will be university students. For now, this project will focus on University of Florida students seeking study groups. Depending on time, the project may be expanded to include a multitude of other schools and allow for students outside of the University of Florida to make use of this application.

Project Scope

The most important deliverable in our project will be allowing students to find other students who are in their classes and who wish to find a study partner (“StudyBuddy”). Many University of Florida students could benefit from this type of application, especially those who are new to this institution. This concludes the scope of our project. When and if our group has finished implementing this functionality, we can begin expanding the scope to include secondary goals.

Secondary goals include matching algorithms (schedule based), which would allow users to use StudyBuddy more efficiently. Messaging systems and other forum-style features are also on the table, to facilitate communication between potential partners. One possible further goal for our project would be to extend it to other universities. This would present unique challenges, but it would allow the application to benefit many, many more people.

References

N/A.

2. Overall Description

Product Perspective

This product is designed to be a stand-alone tool. Although our group had discussed creating an application for Facebook, this will be a seperate web application. We are planning on using HTML5, so that we can have an easier transition to the mobile platform if we choose to take that route.

Product Features

The user will be able to create an account, which saves their name, contact information, etc. Then, the user will be able to add their classes to their schedule, along with work and other activities. Next, the user can search for other users of the application who are in classes which they would like a StudyBuddy for. Once they have found such users, they can contact them (either through display of their contact information, or potentially some kind of message feature).

User Classes and Characteristics

All or most of our users will be University of Florida students, unless we decide to expand to other schools. Inside of that overall label, there are several subclasses who may use our product. The most obvious user class is students who are not very talkative, and do not reach out to their classmates very well on their own. This user class would use our product in order to make contacts, and possibly make friends who they can study with for years to come.

However, our product is designed for everyone, not just those who have trouble speaking up. Even social students may want a way of reaching out to fellow classmates before classes begin. Some classes at UF do not have rosters on Sakai, and even for those that do, having a unified way of finding study partners early would be a desirable feature.

The most important user class will be users who are new to UF (freshmen, or transfers). Many students already have a study group, but people who are new will not. Our product will cater to new users while remaining accessible for other users.

Operating Environment

StudyBuddy will be a web application written primarily in HTML5, Javascript, CSS3, and with the use of a server/backend language (PHP) to dynamically generate the content from a database. The database will store data such as user profiles, user connections, and StudySpace messages. StudyBuddy will be compatible with the latest versions of Internet Explorer, Google Chrome, Safari, and Firefox.

Design and Implementation Constraints

Our group does not have a server in mind to run this application on. It is likely that we will deliver this product in a form where it is not actually deployed to the public web. In essence, it will probably be inaccessible from the Internet, and will instead be demonstrated locally. With this in mind, our product will not be thoroughly tested for a high volume of users.

Our project will be primarily constrained by time. No matter what, we will have to submit it when the class ends. So, regardless of whether or not there are features which we would like to implement so that the project feels more useful and complete, we will have to end development.

Another constraint is the Scrum model. Because this is a Software Engineering project, we have to program in sprints. With this in mind, we aren't doing all of the planning up front. After each sprint, we will re-evaluate our goals, and possibly change priorities.

Last but not least, we have the constraint of maintaining high user security. Our application will not store extremely sensitive information, but it is a concern nonetheless. Our group is interested in security as a learning tool, and it is important that we keep our data secure on this project so that we will know how to do so in the future.

User Documentation

There will be a consulting e-mail that users can message with questions. Furthermore, we will provide a FAQ page where users can access information regarding commonly experienced issues within the application. If needed, help text or tool-tips will be provided for the less obvious features.

Assumptions and Dependencies

We assume the users are running the latest versions of their browser. We also assume the user will have knowledge of how to operate their web browser, access to the web, and be capable of learning how to navigate through the web pages.

3. System Features

Create/Manage Profile:

3.1.1 Description and Priority

Create/ Manage Profile is a feature that takes High priority. This feature consists of allowing the user to save or modify his/her name, email, phone number, password, and school affiliation (if applicable). The Create/Manage profile allows the user to display personal information and photo to other members when authorized by the user. This feature is expandable and can hold other data fields if necessary in the future.

3.1.2 Stimulus/Response Sequences

The user will enter his/her information into the different fields. Once the user is done entering his/her information he/she will click on the save button. If all the information entered by the user is correct then this data will be entered into our database, otherwise an error message will inform the user which fields do not contain the required information. In this case, the user can fix the data and try saving it again.

3.1.3 Functional Requirements

PRO-1: Page form - A form shall be created in order for the user to enter the relevant information required for profile creation. This form shall initially include fields such as name, password, e-mail, phone number, and school. This form shall be expandable since more fields may be added at a later date.
PRO-2: Database connection - A database connection shall be created in order to store and retrieve a user's form data.
PRO-3: Password encryption - Passwords shall be encrypted in order to protect the user's sensitive data. One way encryption such as MD5 shall be used in order to store password data in our database. The exact details on the best way to store this information is yet to be devised.
PRO-4: This page shall allow the user to update his/her information.
PRO-5: This page shall contain a button to allow the user to upload his/her photo.

Homepage:

3.2.1 Description and Priority

The user's home page is a high priority feature. This feature allows a direct path to desired actions such as adding peers to a study group, editing your profile, viewing class information, and viewing your class schedule. It will also show pending study requests and allow the user to accept or reject them. This feature also needs to be expandable in order to accommodate future expansion.

3.2.2 Stimulus/Response Sequences

This feature is the main hub to the other features on the this project. This feature must allow the user a direct or indirect connection to all features. This feature may be expanded to include displaying user data such as combined schedule, study group information, and any possible future features.

3.2.3 Functional Requirements

HOM-1: The homepage shall contain a direct or indirect link to every page and feature on the web application.
HOM-2: The homepage shall be expandable.
HOM-3: The homepage shall only be accessible to users already logged in.
HOM-4: The homepage shall show pending study requests and allow the user to accept or reject them.
HOM-5: The homepage shall show the latest activity for each StudySpace that the user is a member of.

Start Page:

3.3.1 Description and Priority

The start page is a high priority feature. This page will give the user a brief description of StudyBuddy. This page gives the user the ability to log in, or to create a profile. Protecting the log-in information has the highest priority on this page, and shall be protected via SSL.

3.3.2 Stimulus/Response Sequences

If the user gives correct log-in information the system will bring that user to his/her home page. If the user fails to provide the correct password after too many attempts, the account will lock. There will also be a link on this page to account creation, in case someone without an account visits this page.

3.3.3 Functional Requirements

STA-1: The start page shall contain a direct or indirect link to the user home page and profile creation page.
STA-2: The start page shall have log-in protection via SSL.
STA-3: The start page shall contain the application logo.
STA-4: The start page shall contain the application's description.
STA-5: The start page shall be search engine friendly and contain keywords on its description in order to increase its page rank on Google.
STA-6: Passwords shall be encrypted in order to protect the user's sensitive data. One way encryption such as MD5 shall be used in order to store password data to our database.

Manage Schedule:

3.4.1 Description and Priority

The manage schedule feature is of high priority. Users will indicate which classes they are in, along with which classes they are currently seeking a study buddies for. This feature allows a user to indicate when they are occupied with classes, work, etc so that study groups can easily find overlapping blocks of time which they can use for studying together.

3.4.2 Stimulus/Response Sequences

This feature is linked to from the home page of a logged in user. There will be a tab or other similar item at the top of the home page that allows the user to navigate to the manage schedule page. Once on the manage schedule page, the user will be presented with a weekly calendar view containing time blocks. Users can add a new time block or delete or modify an existing time block.

3.4.3 Functional Requirements

SCH-1: Users shall be able to view their existing schedule.

SCH-2: Users shall be able to add a new time block.
SCH-3: Users shall be able to delete an existing time block.
SCH-4: Users shall be able to update an existing time block.
SCH-5: Users shall be able to tag a class time block as a class which they are seeking a StudyBuddy in.
SCH-6: Users shall be able to navigate via a sidebar to other pages.
SCH-7: There shall be a sign out button on the top of the page so that the user can log out easily.

Find StudyBuddies:

3.5.1 Description and Priority

The find study buddies feature is high priority. This feature allows a user to find other StudyBuddy users to study with. This feature also allows the user to search for study buddies from our database and also be able to send invitations by email.

3.5.2 Stimulus/Response Sequences

This feature is reached from the home page (when a user is logged in). There will be a tab or other similar item at the top of the home page that allows the user to navigate to the find study buddies page. Once on the find study buddies page, the user will be presented with a list of the classes that they are enrolled in (retrieved from the database, after the user enters them) and the users that are seeking a StudyBuddy in each of those classes. The user can then click on any of these other names to indicate that they would like to study with them. The user also has the option to invite others by sending email invitations.

3.5.3 Functional Requirements

SEA-1: Users shall be able to retrieve a list of other users who are in their classes and seeking a StudyBuddy.
SEA-2: Users shall be able to indicate a user that they would like to study with, and communicate with that user.
SEA-3: Users shall be able to send email invitations.
SEA-4: Users shall be able to navigate via a sidebar to other pages.
SEA-5: There shall be a sign out button on the top of the page so that the user can log out easily.

StudySpace:

3.6.1 Description and Priority

The StudySpace feature is medium priority. This feature allows users, who have already connected through StudyBuddy, to interact socially.

3.6.2 Stimulus/Response Sequences

This feature is accessed from the home page via a navigation tab after the user logs in. The user will then be presented with a new page featuring a message window. The message window allows users, who are linked as study buddies, to leave messages on the page for each other to read.

3.6.3 Functional Requirements

SSP-1: Users shall be able to enter a message into the text box on the page.
SSP-2: Users shall be able to read messages posted on the StudySpace.
SSP-3: Users shall be able to navigate via a sidebar to other pages.

SSP-4: There shall be a sign out button on the top of the page so that the user can log out easily.

4. External Interface Requirements

User Interfaces

Every part of the project will also have a corresponding user interface. This is because our group is creating a web based app, which will interact with the user from every page in the site. The user can log in, and can create or manage their personal profile. StudyBuddy requires the user to provide schedule information, so that later it can search for other users with the same classes and similar availability. The user will be able to have social interactions with other users from created study groups, which is also part of the user interface.

Start/Log in: This page will be shown when a user is not signed in. It Is a generic page that anyone who visits this site will see; containing basic information. The user will be able to sign up, which creates a new profile, or log in and manage their existing profile. The “sign in” button, when selected, will have pop up window that will ask the user to enter their email and password. Once the information is is filled the user can then select the log-in button or manage profile button. Please see figures 4-1 and 4-2 in the figures document for details.

Home: This page will be shown when a user is signed in. It will display links to study group information, schedule, a search bar, and various other member features. The home page also displays requests from potential study buddies, which the user can choose to accept or deny. The bottom boxes are the calendar and StudySpace The StudySpace is a window which organizes the study groups the user is in and displays the latest messages within those groups. Please see figure 4-3 for additional details.

Profile create/manage: This is the page that the user will see when creating a new profile, or editing details of an existing profile. This page will allow the user to enter name, contact information, etc. Please see figure 4-4 for additional details.

Manage Schedule: This page allows a user to manage their schedule. The user will be able to manage: class information, sections, days, class lists, work schedule, and other activities. This page will also have a sign out button, and links to other pages of the web app. Please see figure 4-5 for additional details.

StudySpace: On this page, the user will see all information related to a specific study group. This includes a message board, and possibly more features. There will also be a sign out button, as well as links to other pages within StudyBuddy. Please see figure 4-6 for additional details.

Search Page: On this page the user will see custom results of a search on our database. Potential StudyBuddies will be listed, and the user will be allowed to make a request to partner with them. The user will also have links to the other pages and a search filter for the search engine. Please see figure 4-7 for additional details.

Hardware Interfaces

StudyBuddy will interpret basic keystrokes and mouse clicks. This may be expanded later on to handle touch for smart phones and tablet devices. If we launch StudyBuddy beyond the testing phase, we will also need some kind of dedicated server.

Software Interfaces

To display and generate content for our pages, our group will use HTML, Javascript, jQuery, and PHP. For the database, we will use MySQL. For a web server, Apache. We will support the most popular web browsers, Internet Explorer, Firefox, Safari, and Google Chrome.

Communications Interfaces

Communication between the client and the server will be established using the HTTP protocol in conjunction with SSL/TLS connection protocol also known as HTTPS for limited portions of the application. The client will be required to communicate through their email in order to create an account and receive updates from the application.

5. Other Nonfunctional Requirements

Performance Requirements

Overall performance should not be an issue for the end-user when it comes to using StudyBuddy properly. A network connection will be required in order to use the application. A suitable personal computer or mobile device will be sufficient to access the application. The application must be able to make database calls in a timely fashion and limit the amount of time required to find a study partner for the end-user.

The application must not make unnecessary and time expensive calls to the database and reuse data to optimize the use of time. This can be done by the use of a client side scripting language, such as javascript. The web application shall be free of bugs and dead links. If StudyBuddy goes live, then our group will also have to be concerned with server performance.

Safety Requirements

The information required for this application will be stored on a remote server. This will limit the amount of data which can be lost due to a malfunction in the software. The application will not need to access any secure information on the computer and therefore the software should not be able to cause any harm or damage.

StudyBuddy will avoid storing any information on the user's device, which will prevent loss of memory and data. It will be an external application with its own server to keep and modify data on, completely separate from the user's machine.

In addition, as this will be a web-application, any updates or fixes that are done to the application will be done externally. Therefore, no changes or installs will have to be made on the computer itself. The user will always have access to the most recent version of the application.

Security Requirements

The end-user will be required to provide such information as their course schedule, name, phone-number and email in order to acquire a StudyBuddy account. Access to the user's account will be safe-guarded by a password which the user can change and update at their discretion.

There will be triggers and safeties programmed into the application to keep other users from making illegal database calls. An illegal database call is one which will allow them to access the private information of other users, or the semi-public information of users who have not agreed to partner. The user's password shall be stored in an encrypted format, like MD5.

In order to protect user data, the communication between the client and the server will be established using the HTTP protocol in conjunction with SSL/TLS connection protocol also known

as HTTPS. HTTPS offers user authentication and protects against eavesdropping and tampering. HTTPS also offers bidirectional encryption.

Microsoft's Security Development Lifecycle will be closely followed during all development phases. All of the code will be written in a secure manner in order to prevent security breaches such as spoofing, tampering, repudiation, information disclosure, denial of service, and elevation of privilege. Any user input will be sanitized before being passed to methods, and the log-in page will be served over SSL.

Software Quality Attributes

Our product will be search engine friendly, in that an interested party who was unaware of our product would be able to find it on a popular search engine, such as Google. This does not, however, mean that the profiles will be publicly available to a search engine.

This application will be expandable, written in a modular fashion which makes later modification easier. There are many, many features which could potentially make it more user-friendly. In addition, our group is leaving the possibility of expanding to schools besides the University of Florida open.

Our group aims to create a useful product. Hopefully, if the product were to be launched, we would be able to attract a large enough user base so that users could be matched with other users who have a compatible schedule.

Business Rules

N/A

6. Key Milestones

#	Milestone	Target Completion Date	Comments
1.	Configure the development environment on the computers of all project members (install and configure Apache, PHP, MySQL, etc) -- Ability to create profile, login, and view the start page	End of first sprint	
2.	Manage schedule, find study buddies, and home page with accept/reject study requests	End of second sprint	
3	Study Spaces, home page to show most recent Study Space message activity	End of third sprint	
4	TBD, improve area, of the project, general polishing, and possibly add new features if time permits	End of fourth and final sprint	

7. Key Resource Requirements

Major Project Activities	Skill/Expertise Required	Internal Resource	External Resource	Issues/Constraints
Database configuration and schema creation	Databases and SQL	2	None	
Implement SSL	Apache configuration, SSL certificates, etc	2	None	
Dynamic database-backed web pages	PHP	8	None	
User interface (web pages)	HTML, Javascript, jQuery, CSS, Photoshop, GIMP, etc	2-4	None	
User Acceptance Testing and debugging	Experience with debugging and modifying software	8	None	
Initial server and other environment configuration (Apache, PHP, etc)	Knowledge of Apache and PHP	2	None	

8. Other Requirements

Marketability of the application will be considered once the application has been completed. It will be a requirement to advertise and expose the application to individuals within the University of Florida using various publications and newsletters.

Use of the application will be free and available to all students attending the University of Florida. If the application is expanded to include other universities, it will also be advertised within those respective areas.

9. Requirement Change Management

Each member of the team will be notified about any major changes to this document. The reason for this change will be presented during a meeting of the team and a voted will be taken to determine whether the change remains or is omitted.

10. Restrictions, Limitations, and Constraints

N/A

Appendix A: Glossary

StudyBuddy: The name of the web application which our group is developing. This can also refer to a user of our app. For example, “This StudyBuddy app is sure great for finding StudyBuddies!”

StudySpace: A potential feature of our app which will represent a group of StudyBuddies in a particular class.

Appendix B: Analysis Models

These charts, diagrams, etc, are all within their respective sections in the document, or in the external figures document.

Appendix C: Issues List

N/A

Appendix D: System Traceability Matrix

If this is needed for the first iteration of the document, notify us, and we will provide it, but it did not seem to be necessary.