# Software Requirements Specification

**for**

# Resource Sharing Portal (Study Kit)

**Version 1.0 approved**

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# Revision History

| Name | Date | Reason For Changes | Version |
|---|---|---|---|
| Sahil and Shivan | 29/11/2021 | Initial Version | 0.1 |
| | | | |

# 1. Introduction

## 1.1 Purpose

*The purpose of this document is to present a detailed description of the Resource Sharing Portal. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system. The system when ready will help students study better and help fellow students and also the teachers to share resources.*

## 1.2 Document Conventions

*This template is fetched at https://web.cs.dal.ca/~hawkey/3130/srs_template-ieee.doc. Defined terms are highlighted with bolding. Requirements will come with priority to indicate in which order they will be implemented. Versions might be released with only some of the total list of requirements implemented.*

## 1.3 Intended Audience and Reading Suggestions

*The readers intended are various types of users that include students, teachers and developers. The next chapter, the Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter.The third chapter, Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product. Both sections of the document describe the same software product in its entirety, but are intended for different audiences and thus use different language.*

## 1.4 Product Scope

*In college students are taught around seven new courses every five months and to learn something new, proper guidance is needed. Students sometimes find it difficult to grasp concepts in class in one go. Although teachers and textbooks are always there, in today's world even better resources like youtube videos are available to make learning smoother. Seniors and fellow*

*students who have helpful resources don't have any dedicated platform that can act as a bridge in passing on those resources to their fellow classmates and juniors in an organized manner.*

### 1.5 References

*IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.*

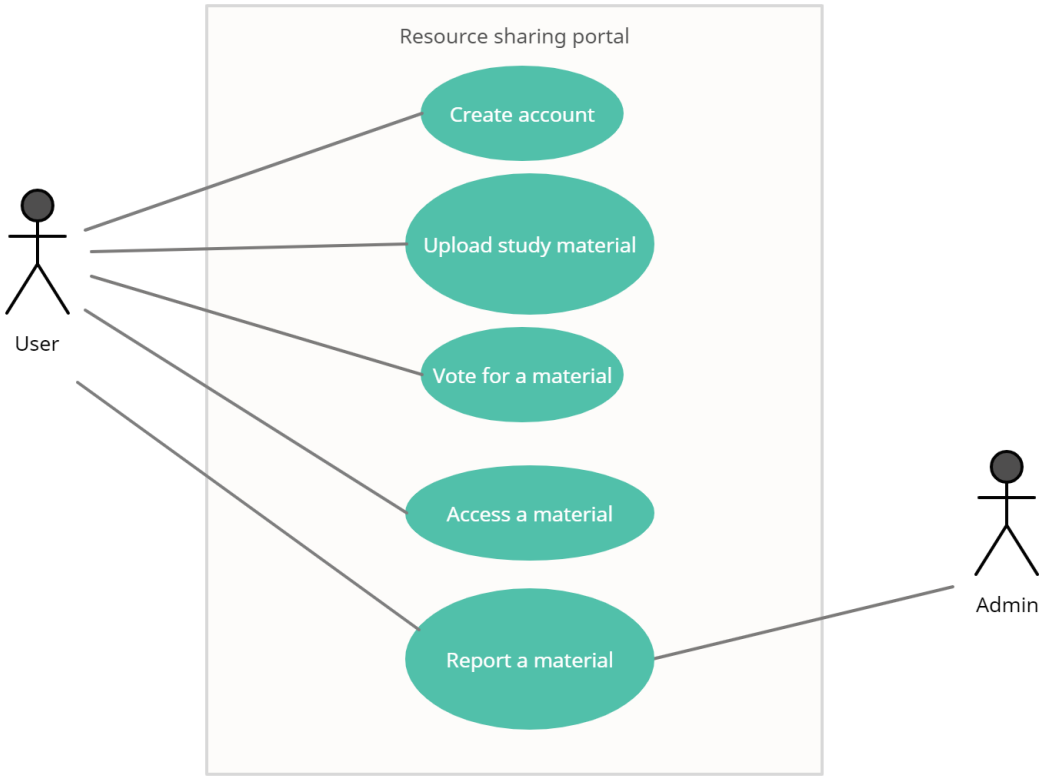
# 2. Overall Description

## 2.1 Product Perspective

*Resource sharing portal is a self contained product, however, it will require users to have access to a web browser on their workstation computer. This means that the users of the system do not need to invest in any other software to get the most out of the software system as any Windows based PC comes installed with a web browser, and any non Windows machine can use FireFox or other freeware browsers. The system is to be a web-enabled system, meaning that all user interaction is done through a web browser. The portal is in the context of college academics hence originates from the facility that students need.*

## 2.2 Product Functions

- *Creation of user accounts.*
- *Uploading of study material such as a book, notes, video link or course.*
- *Accessing uploaded resources in specified order.*
- *Searching for a resource.*
- *Upvote and downvote facility for a resource.*
- *Reporting facility.*




## 2.3 User Classes and Characteristics

*There are three types of users in this system. The first two are, authorized users, and non authorized users, the only distinction between them is that authorized users are allowed to upload, upvote and report material whereas others will be just able to see the portal. It is the third type of user, the administrator, who is able to initially setup the system, add new users, and set their authorization level.*

*Most users will be of the non-authorized type. These users will just visit the portal to find resources of their need and use it for their learning.*

*The next most common type of user is the authorized user. These users will form a superset of unauthorized users meaning that the features that unauthorized users enjoy will be enjoyed by authorized users too but with some additional features as well.*

*Finally, the system administrators are users who are able to set up the system from the initial installation and maintain the system's user accounts. They will be handling any kind of undesired behaviour of the ortal and will be responsible for resolving the issue of reported content.*

## 2.4 Operating Environment

*The software will work in computers with any kind of operating system having browser applications and a stable internet connection. The preferred RAM of the computer should be greater than 1GB and the internet connection speed greater than 1mbps.*

## 2.5 Design and Implementation Constraints

*There are a number of constraints which the system must abide by during development. The system must be developed within their bounds. These constraints dictate a number of the functional and nonfunctional requirements specified by this document. Others are because of a requirement specified to us by our customer. All are important to be aware of during the implementation of the software system.*

*o System is to be developed for distributed use as a web application. This will limit the ability for real time updates to the system.*
*o System is to be developed in HTML CSS and Javascript with django python in backend and mySQL as a database.*
*o Data must be stored in a relational database for quick queries and storage.*
*o Passwords must be sent and stored in encrypted form.*
*o Some users are authorized users while some are non-authorized users. Non-authorized users can not see other user's preference and exclusion sets.*
*o Server-Client communication must be done over TCP connections*
*o Meetings can be rescheduled up to 24hrs prior to their current start time.*

## 2.6 User Documentation

*For user documentation and information, please consult section 3: External Interface Requirements and attached user manual.*

## 2.7 Assumptions and Dependencies

- *System will be installed on a machine running Windows operating system and mySQL 5.0 or newer.*
- *Reporting a content will result in admin accessing it and probably removing it subsequently based on the grounds mentioned as violation in the report.*
- *The uploading and downloading speed of a content will depend on the internet speed of the user and business of the server.*

# 3. External Interface Requirements

## 3.1 User Interfaces

*The user interface will be through a webpage:*

- *Landing page consisting of some of the recently uploaded resources. Button to various course wise pages will also be available.*
- *After registration and login, the home page of the user will have his/her details and recent activity details. It will also have the option to upload content by filling a form. Registered users will also be able to upvote, downvote and report content.*
- *Admin will get details of reported content on which he can take action.*

## 3.2 Hardware Interfaces

- *Computer with power and internet supply which will run a browser in it.*

## 3.3 Software Interfaces

- *Operating system - Windows preferred for a user friendly interface.*
- *Browser - preferably google chrome which supports CGI, HTML & Javascript.*
- *Database interface - Relational mySQL database.*

## 3.4 Communications Interfaces

*This project supports all types of web browsers with internet connection. We are using simple electronic forms for registration, and uploading.*

# 4. System Features

## 4.1 Use case name and identifier – Create an account (U1)

### 4.1.1 Description and Priority

*The purpose of the U1 use case is to allow the users to register on our portal by creating an account using which they can upload any kind of study material that they have and also can buy and sell books inside the campus.*

- *This requirement is of **high priority**.*

### 4.1.2 Stimulus/Response Sequences

*4.1.2.1 User clicks on the register button provided on the interface.*

*4.1.2.2 An HTML form gets displayed on the user interface with three input boxes, one for entering the email id, one for choosing the password and the last one for confirming the entered password.*
*4.1.2.3 Then the user clicks on the submit button and the credentials are stored in the database.*
*4.1.2.4 In the next step another HTML form opens up asking for the user's personal details.*
*4.1.2.5 After filling all the details and clicking on the submit button, all the details of the user are stored in the database.*
*4.1.2.6 This completes the registration process and the user is automatically logged in and redirected to the home page of the web portal.*

4.1.3 Functional Requirements

REQ-1: The system shall provide the input boxes to take in user email and password.
REQ-2: The email and password validation must be done before submission of the form.
REQ-3: In the form for personal details, all the input boxes should be properly labelled and validation of each input should be done before the final submission of the form.

## 4.2 Use case name and identifier –Logging in to web portal(U2)

4.2.1 Description and Priority

*The purpose of the U2 use case is to allow the users to log on to the web portal with their credentials created during the registration process. The users have to log to the portal to use most of the services offered by the website.*

- *This requirement is of **high priority.***

4.2.2 Stimulus/Response Sequences

*4.2.2.1 User opens the web portal and lands onto the homepage where all the course will be displayed.*
*4.2.2.2 The user then clicks on the sign in option provided in the homepage.*
*4.2.2.3 After clicking the sign in option, the user is redirected to different sign in page, where they enter their credentials.*
*4.2.2.4 The credentials are then verified with the one saved in the database.*
*4.2.2.5 On correct verification of the credentials, the user is logged in and redirected to the homepage.*
*4.2.2.6 If the credentials did not match perfectly then appropriate message is displayed on the screen and the user is prompted to to enter the right credentials.*

4.2.3 Functional Requirements

REQ-1: Two input boxes should be provided, one for entering the email and other for entering the password.
REQ-2: Email verification should be done before submitting.
REQ-3: A submit button should be provided below the input boxes.
REQ-4: If the credentials are correct then the user should be logged in.
REQ-5: If wrong credentials are entered, then an appropriate error message should be displayed.

## 4.3 Use case name and identifier – Upload study material(U3)

### 4.3.1 Description and Priority

*The purpose of the U3 use case is to allow the users to upload any kind of digital study material that they have. It could be PDFs or some links to good courses or material that the juniors or any one interested can refer to. The user can also provide the drive link of the course if he has one.*

- *This requirement is of **high priority.***

### 4.3.2 Stimulus/Response Sequences

*4.3.2.1 User clicks on the upload button provided in the user's profile.*
*4.3.2.2 After clicking on the upload button, three options will be provided to the user to select whether he/she wants to upload a PDF, a course link or drive link.*
*4.3.2.3 Then the option selected in the above step specifies the HTML form that gets displayed on the user interface with all the required input and check boxes.*
*4.3.2.4 The input validation is done for each input before submitting the form.*
*4.3.2.5 After filling all the details and clicking on the submit button, all the details of that material will be stored in the database.*
*4.3.2.6 This completes the uploading procedure and the home page of the web portal is displayed.*

### 4.3.3 Functional Requirements

REQ-1: The system shall provide the input boxes to take in the details about the course to be uploaded.
REQ-2: Validation should be done for each input.
REQ-3: If the material is a PDF, then there should be a upload PDF button that allows the user to upload the pdf from their local system.
REQ-4: If the material is in a drive then there should be a field to accept the link of the drive.
REQ-5: There should also be an upload button to accept the thumbnail for that particular PDF or course that will be displayed on the homepage for users to see.

## 4.4 Use case name and identifier – Accessing uploaded resources(U4)

### 4.4.1 Description and Priority

*The purpose of the U4 use case is to allow the users to view all the different kinds of resources uploaded on the portal such as PDFs and drive links in specified orders such as newest to oldest, on the basis of rating, categories, subjects etc.*

- *This requirement is of **high priority**.*

### 4.4.2 Stimulus/Response Sequences

*4.4.2.1 User opens the web portal and lands onto the homepage where all the courses will be displayed.*
*4.4.2.2 The user first has to log on to the website by using his credentials.*
*4.4.2.3 He can then click on the course that he wants, he/she may either download the PDF or open the drive link given.*
*4.4.2.4 He can also apply filters to sort the courses according to his preferences.*
*4.4.2.5 There will also be an option to upvote or downvote a particular course*
*4.4.2.6 These are all the steps used to access the uploaded resources.*

### 4.4.3 Functional Requirements

REQ-1: The system shall provide a smooth UI experience to access the uploaded content.
REQ-2: Each material must have a thumbnail and a title to be displayed to the user.
REQ-3: Courses should be sorted on the basis of whether it is a PDF or the drive link or any other reference material.
REQ-4: Before accessing any resource it should prompt the user to login.
REQ-5: There should be sort or filter options at the homepage only to apply certain filters.

## 4.5 Use case name and identifier –Searching for a resource(U5)

### 4.5.1 Description and Priority

*The purpose of the U5 use case is to allow the users to search for any material that they wish to access. The user can enter the title of the material that he/she wants and the most relevant materials will be filtered out and displayed to the user.*

- *This requirement is of **medium priority.***

### 4.5.2 Stimulus/Response Sequences

*4.5.2.1 User opens the web portal and lands onto the homepage where all the courses will be displayed.*
*4.5.2.2 The user first has to log on to the website by using his credentials.*
*4.5.2.3 He then enters the title of the material in the search box provided at the header of the website.*
*4.5.2.4 Most relevant searches will be then filtered out and displayed.*
*4.5.2.5 From there users can either select a material or go back to the homepage.*

### 4.5.3 Functional Requirements

REQ-1: There should be an input box in the header to accept the text to be searched.
REQ-2: Input box should be followed by a search button which when clicked searches for relevant matches and displays them
REQ-3: A new page should open with all the searched materials.
REQ-4: If there are no relevant matches then an appropriate message should be displayed on the screen.

## 4.6 Use case name and identifier –Upvote and Downvote facility(U6)

### 4.6.1 Description and Priority

*The purpose of the U6 use case is to allow the users to vote a particular material according to its relevance or how good that particular material is. They can either upvote it or downvote it and the materials will be ordered based on these votes as well as other categories.*

- *This requirement is of **medium priority.***

### 4.6.2 Stimulus/Response Sequences

*4.6.2.1 User opens the web portal and lands onto the homepage where all the courses will be displayed.*
*4.6.2.2 The user first has to log on to the website by using his credentials.*
*4.6.2.3 The upvote and downvote stats will be displayed on the side of corresponding icons for each type of vote.*
*4.6.2.4 For voting a course, the user clicks on the upvote and downvote icons provided for each course.*
*4.6.2.5 After voting, the website will refresh in real time with new upvote and downvote stats.*
*4.6.2.6 This way the user can contribute to the overall performance of the system.*

### 4.6.3 Functional Requirements

REQ-1: There must be upvote and downvote buttons provided with each material.
REQ-2: Real time voting stats should be displayed alongside the buttons.
REQ-3: On clicking any one of the buttons, the web page should refresh with new stats.
REQ-4: The liked material should be added to the user's profile as well.
REQ-5: The ordering of the study materials should be done according to refreshed stats.

## 4.7 Use case name and identifier –Reporting facility(U7)

### 4.7.1 Description and Priority

*The purpose of the U7 use case is to allow the users to report a particular material i.e raise an issue against it. This may be due to irrelevant content on the portal or some offensive and inappropriate material.*

- *This requirement is of **medium priority**.*

### 4.7.2 Stimulus/Response Sequences

*4.7.2.1 User opens the web portal and lands onto the homepage where all the courses will be displayed.*
*4.7.2.2 The user first has to log on to the website by using his credentials.*
*4.7.2.3 The reporting button will be provided with each material.*
*4.7.2.4 For reporting a material, the user has to click on the report button and the reporting notification will be sent to the admin.*
*4.7.2.5 The admin then verifies the reported content and makes a decision on whether to remove the material or not.*
*4.7.2.6 If the content has to be removed, changes to the database are done otherwise the report request is terminated.*

### 4.7.3 Functional Requirements

REQ-1: There must be a reporting button with each content uploaded on the portal.
REQ-2: After the button is clicked, a notification should be sent to the administrator.
REQ-3: On the basis of the decision of the admin, the material is kept or removed from the portal.

## 4.8 Use case name and identifier –Edit user profile(U8)

### 4.8.1 Description and Priority

*The purpose of the U8 use case is to allow the users to make changes or update the personal information of the user and upload a profile picture of their choice.*

- *This requirement is of **low priority.***

### 4.8.2 Stimulus/Response Sequences

*4.8.2.1 User opens the web portal and lands onto the homepage where all the courses will be displayed.*
*4.8.2.2 The user first has to log on to the website by using his credentials.*
*4.8.2.3 Then the user has to click on my profile button and click on the edit option.*
*4.8.2.4 Edit option will open up a prefilled HTML form whose values can then be changed as required.*
*4.8.2.5 There will be an option provided to upload the profile picture as well from the local system of the user.*

*4.8.2.6 The user then clicks on the update button provided below the form which saves the changes made and redirects the user to 'My profile page'.*

4.8.3 Functional Requirements

REQ-1: There must be a button provided to update the user profile.
REQ-2: On clicking the button, the user should be redirected to the update profile page having prefilled HTML page.
REQ-3: The input boxes should be editable and validation should be done for each input.
REQ-4: An upload button should be provided for uploading the profile picture which checks the size of the image before uploading.
REQ-5: An update button should be provided which saves the changes made.

## 4.9 Use case name and identifier –Forgot Password(U9)

4.9.1 Description and Priority

*The purpose of the U9 use case is to allow the users to reset their login passwords if they ever forget it.*

- *This requirement is of **low priority.***

4.9.2 Stimulus/Response Sequences

*4.9.2.1 The user clicks on the forgot password link provided below submit button on the login page.*
*4.9.2.2 Then a new page loads up having an input box to enter the user's email and a proceed button which when clicked sends a mail to the entered email address with link for resetting the password.*
*4.9.2.3 After clicking the link in the mail, a web page opens up where the user can enter the new password and click the submit button to change the box.*
*4.9.2.4 The user can now login to the web portal with a new password.*

4.9.3 Functional Requirements

REQ-1: There must be a link provided for the forgotten password in the login page itself.
REQ-2: On clicking the link, a new page should open up having an input box for accepting the user email id and a proceed button.
REQ-3: On clicking the proceed button, a mail should be sent to the entered email address with the password resetting link.
REQ-4: On visiting the link a web page should open up for accepting the new password in an input box.
REQ-5: A submit button is provided below the input box which when clicked saves the new password.

## 4.10 Use case name and identifier –Content Filtering(U10)

4.10.1 Description and Priority

*The purpose of the U10 use case is to allow the users to filter materials that they wish to access. The user can select the semester, branch and course on which he wants to see the filtered material.*

- *This requirement is of **medium priority.***

4.10.2 Stimulus/Response Sequences

*4.10.2.1 User opens the web portal and lands onto the homepage where all the courses will be displayed.*
*4.10.2.2 The user first has to log on to the website by using his credentials.*
*4.10.2.3 He then selects the filters from the dropdown menu.*
*4.10.2.4 Relevant materials will be then filtered out and displayed.*
*4.10.2.5 From there users can either select a material or go back to the homepage.*

4.10.3 Functional Requirements

REQ-1: There should be a dropdown box in the header from which filter to be applied will be selected.
REQ-2: Dropdown box should be followed by a filter button which when clicked filters out the relevant materials and displays them
REQ-3: A new page should open with all the filtered out materials.
REQ-4: If there are no relevant matches then an appropriate message should be displayed on the screen.

# 5. Other Nonfunctional Requirements

## 5.1 Performance Requirements

*In order to maintain an acceptable latency at the maximum number of users allowed to access the system at any time. Also the connections to the servers will be based on the attributes of the user. The server must be working all the time. The app shall not consume more cache memory. Even if it does, it must provide a choice to the user to clear the app cache manually. The users are provided with the benefit of customizing their privacy settings. Hence, they shall make the best use of these settings.*

*5.1.1 Maximum allowed execution time for U1 use case is 3 seconds, starting at the time when the user presses the submit button for creating the account.*
*5.1.2 Maximum allowed execution time for U2 use case is 3 seconds, starting at the time when the user clicks the sign in button after filling the credentials.*
*5.1.3 Maximum allowed execution time for U3 use case is 5 seconds, starting at the time when the user clicks the upload button for uploading the study material.*

*5.1.4 Maximum allowed execution time for U4 use case is 3 seconds, starting at the time when the user clicks at any content that he wants to access.*

*5.1.5 Maximum allowed execution time for U5 use case is 3 seconds, starting at the time when the user clicks the search button after entering the text in the search box.*

*5.1.6 Maximum allowed execution time for U6 use case is 2 seconds, starting at the time when the user clicks the upvote or downvote button.*

*5.1.7 Maximum allowed execution time for U7 use case is 2 seconds, starting at the time when the user clicks the report content button. And then the acceptance of the report depends on the availability of the administrator.*

*5.1.8 Maximum allowed execution time for U8 use case is 2 seconds, starting at the time when the user clicks the update profile button after making the necessary changes in the input boxes.*

## 5.2 Safety Requirements

*While creating an account a user has to provide his username and must have a password to it. So next time the user will have to provide his password before signing in. This will stop unauthenticated users from looking into his profile , hence following a safety precaution. Secure access to the customers confidential data. In case the customer forgets or loses Password, the repair functionality helps by choosing the "forgot password" option in the main login window.*

## 5.3 Security Requirements

*This system is provided with authentication without which no user can pass. So only the legitimate users are allowed to use the application. If the legitimate users share the authentication information then the system is open to outsiders.*

*Each user has to login to access most of the features of the system.*

*The sensitive information can only be accessed by the administrator and he is the one who has the access to the database and can make any sensitive change to the system data.*

## 5.4 Software Quality Attributes

***Low Latency:*** *The chat application needs to have a low latency because it needs to look real-time so while you're sending a message, the other person should immediately be able to see that message.*

***High Availability:*** *Obviously, it should also have high availability because the system should not go down no matter what happens.*

***No Lag:*** *There should be no lag as it needs to be a real-time system where one could send and receive messages instantly.*

***Portability:*** *Portability is not a requirement of this system, as the system is to be deployed once on any machine that has some Operating system.*

***Scale:*** *The application must be scalable to accommodate a specified limit of users at any instance.*

***User-friendly:*** *This application is user-friendly, meaning to say even if one uses it for the first time, he'd find it easy to operate the application*

***Based on size*** *- 5mb file can be handled by portal*

***Simplicity*** *- any user will require max 1hr training before using.*

### 5.5 Business Rules

*The owner organization of the software may require the software developed to be under a copyright. In that case, developers must maintain the integrity of the project and provide proper support to the clients*

# 6. Other Requirements

*6.1 Other Non-functional requirements*

- *6.1.1 The system should remain up & running throughout it's working hours*
- *6.1.2 The portal should be responsive to screen dimension*
- *6.1.3 Sessions of different users should not affect each other.*
- *6.1.4 System should be able to service multiple users simultaneously.*

*6.2 Other important requirements*

- *6.2.1 Simplicity of interface.*
- *6.2.2 Error Handling.*

# Appendix A: Glossary

| Term | Definition |
|---|---|
| *Account* | *Registration on to the portal by providing basic details asked so that an entry is created in the database for subsequent logins.* |
| *Author* | *Person submitting an article to be reviewed. In case of multiple authors, this term refers to the principal author, with whom all communication is made.* |
| *Database* | *Collection of all the information monitored by this system.* |
| *Editor* | *Person who receives articles, sends articles for review, and makes final judgments for publications.* |
| *Field* | *A cell within a form.* |
| *Facility* | *Feature provided by the portal* |
| *Member* | *A member of the Historical Society listed in the HS database.* |
| *Reader* | *Anyone visiting the site to read articles.* |
| *Review* | *A written recommendation about the appropriateness of an article for publication; may include suggestions for improvement.* |
| *Reviewer* | *A person that examines an article and has the ability to recommend approval of the article for publication or to request that changes be made in the article.* |
| *Software Requirements Specification* | *A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.* |

| | |
|---|---|
| *Stakeholder* | *Any person with an interest in the project who is not a developer.* |
| *User* | *Reviewer or Author.* |

# Appendix B: Analysis Models

*<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>*

# Appendix C: To Be Determined List

*<Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.>*