Software Requirements Specification

For

Acad-Hub V1.0

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Introduction

This document is broken into a number of sections used to logically separate the software requirements into easily referenced parts. This Software Requirements Specification aims to describe the Functionality, External Interfaces, Attributes and Design Constraints imposed on Implementation of the software system described throughout the rest of the document.

1.1 Purpose

The purpose of Software Requirements Specification (SRS) document is to describe the external behavior of the Acad-Hub. Requirements Specification defines and describes the operations, interfaces, performance, and quality assurance requirements of the Acad-Hub. The document also describes the nonfunctional requirements such as the user interfaces. It also describes the design constraints that are to be considered when the system is to be designed, and other factors necessary to provide a complete and comprehensive description of the requirements for the software. The Software Requirements Specification (SRS) captures the complete software requirements for the system, or a portion of the system.

1.2 Project Scope

The software system being produced is called Acad-hub. It is being produced for the general welfare of the students of IIT-Guwahati. This system is designed to “provide automation support” for the planning of the users’ courses and a complete one in all system for all academic and university related automation. This system is compatible with Linux operating systems, provided they have an active intranet connection to the Institute’s servers. The system will be run client-side with each user having a GUI to interact with it. Acad-Hub will allow any user to create a profile associated with his roll number. The user, through the process of profile creation, will have access to the various services provided by Acad-Hub. The intelligently determines the courses to be taken up by a user and the resources associated with it. The system will allow users to browse, search, select, and add courses to their course list.

Acad-Hub also allows to view notes uploaded by other users, search for books to rent and lease and even provides links to PDFs to the course books.
It also dynamically suggests you the best rated notes for the course and also gives reminders about exams.

1.3 Document Conventions

The following are the list of conventions and acronyms used in this document and the project as well:

- Administrator: A login id representing a user with user administration privileges to the software
- User: A student's unique profile with his Institute roll number
- Client: Intended users for the software
- SQL: Structured Query Language; used to retrieve information from a database
- SQL Server: A server used to store data in an organized format
- Layer: Represents a section of the project
- User Interface Layer: The section of the assignment referring to what the user interacts with directly.
- Application Logic Layer: The section of the assignment referring to the Server. This is where all computations are completed.
- Data Storage Layer: The section of the assignment referring to where all data is recorded
- Data flow diagram: It shows the dataflow between the entities.
- Use Case: A broad level diagram of the project showing a basic overview
- Interface: Something used to communicate across different mediums

1.4 Intended Audience and Reading Suggestions

We are developing our project Acad-Hub for our Institute IIT-Guwahati. This SRS is mainly developed for the Project Development team. The team consists of the developers, the reporters and the users.

- **User-** This document is intended to user to make them ensure that this document meets the needs of the users.

- **Project Developer-** The Developer will refer to the SRS document to make sure that they developed exactly what the customer requires. The SRS document helps the maintenance engineers to understand functionality of the system, a clear knowledge of the functionality can help them to understand design and code.

- **Professor Saurabh Joshi and various T/As (Reporters)-** The reporters will read this SRS document and he will ensure that the requirements are understandable from functionality point of view so that he can test the software and validate it's working.

This document will be reviewed frequently by the above audiences to check if the different phases of the project are being completed by meeting the given requirements. If there are any changes in the requirements in the course of the project they must be included in this document by making the necessary changes.

1.5 Suggestions

1. The user may read the whole SRS but the Introduction, Overall description and System features are the main pages of notice.
2. The developer must go through the whole SRS for understanding the requirement and functioning of software. They must also see the class and object diagram and state transmission diagram for coding the modules.
3. A tester must be aware of coding language and visit through the code section and check the required output.

1.6 References

https://www.scribd.com/doc/17337071/Srs-Library-Management-System
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Overall Description

2.1 Product Features

The Software Requirements Specification captures all the requirements in a single document. The Acad-Hub application is supposed to have the following features.

- The application provides the students with instant download of course books and looking up the location and availability of the books in library.
- The system also gives a student an option of dropping or adding a course so that only those courses' information is displayed in which the student is actually enrolled in.
- The app provides the student in a need to buy a course book with a facility to contact with someone who already possesses one.
- This project also gives students to share their notes or extra reference materials for a particular course.

This app can also be used to display the exam schedule for the opted courses.

The features that are described in this document are used in the future phases of the software development cycle. The features described here meet the needs of all the B.Tech students studying in IIT Guwahati. The success criteria for the system is based in the level up to which the features described in this document are implemented in the system.

2.2 User Classes and Characteristics

The users of the system are students of the institute and the administrators who maintain the system. The students and the administrator are assumed to have basic knowledge of the computers. The administrators of the system to have more knowledge of the internals of the system and is able to rectify the small problems that may arise due to disk crashes, power failures and other catastrophes to maintain the system. The proper user interface, users manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without any problems.

2.3 Operating Environment

Software Requirements Specification for Acad-Hub

Client Side:

- Operating System: Linux
- Processor: Pentium 3.0 GHz or higher
- RAM: 256 Mb or more
- Hard Drive: 1 GB or more
- Network : Lan and Internet Connectivity

Server Side:

- Operating System: Linux
- Processor: Intel Celeron or above
- RAM: 2 GB or more
- Network: Gigabit Lan
- Hard Drive: 10 GB or more

2.4 Design and Implementation Constraints

The information of all the courses must be stored in a database that is accessible by Acad-Hub. The university information security system must be compatible with the the software. Acad-Hub server is connected to the institute intranet and is online 24/7. The user accesses the software using a compatible operating

system with required Network specifications. The users must have their correct roll numbers to enter into the software.

2.5 User Documentation

Help is provided for each of the feature available with Acad-Hub. The nature of these systems is unique to application development as they combine aspects of programming (hyperlinks, etc) with aspects of technical writing (organization, presentation). The User Manual describes the use of the software to users. An installation document will be provided that includes the installation instructions and configuration guidelines, which is important to a full solution offering. Also, a Read Me file is typically included as a standard component. The Read Me includes a changelog and a discussion of compatibility issues with earlier releases. Most users also appreciate documentation defining any known bugs and workarounds in the Read Me file.

2.6 Assumptions and Dependencies

The users have sufficient knowledge of computers. The institute computer should have Internet connection and Internet server capabilities. The users know the English language, as the user interface will be provided in English. The product can access institute student database

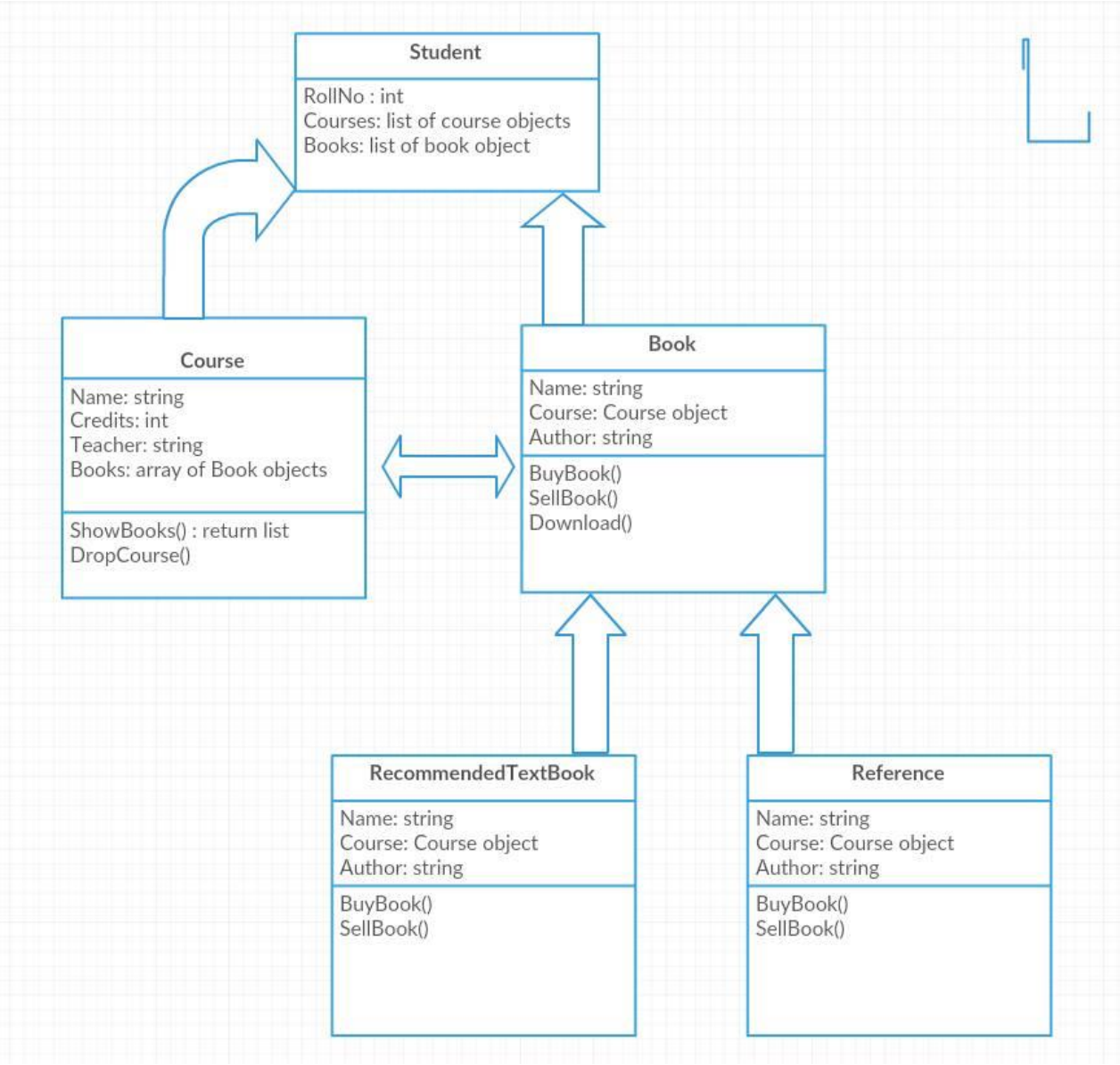
System Features

3.1 Module Description

User Module:

- Course List along with the credit break-down (for all department)
- Create user
- Book Information
- Course Description
- Course Syllabus
- Exam Date and Venue
- Book Wish-list
- Book Lend
- Book Borrow
- User information
- Add Courses
- Delete Courses
- Adjust for Backlogs

- Download Books
- Library Book Availability
- Rate Books and Notes
- Upload Notes
- Download User uploaded Notes
- Get Book Suggestions
- Book search
- Form Search



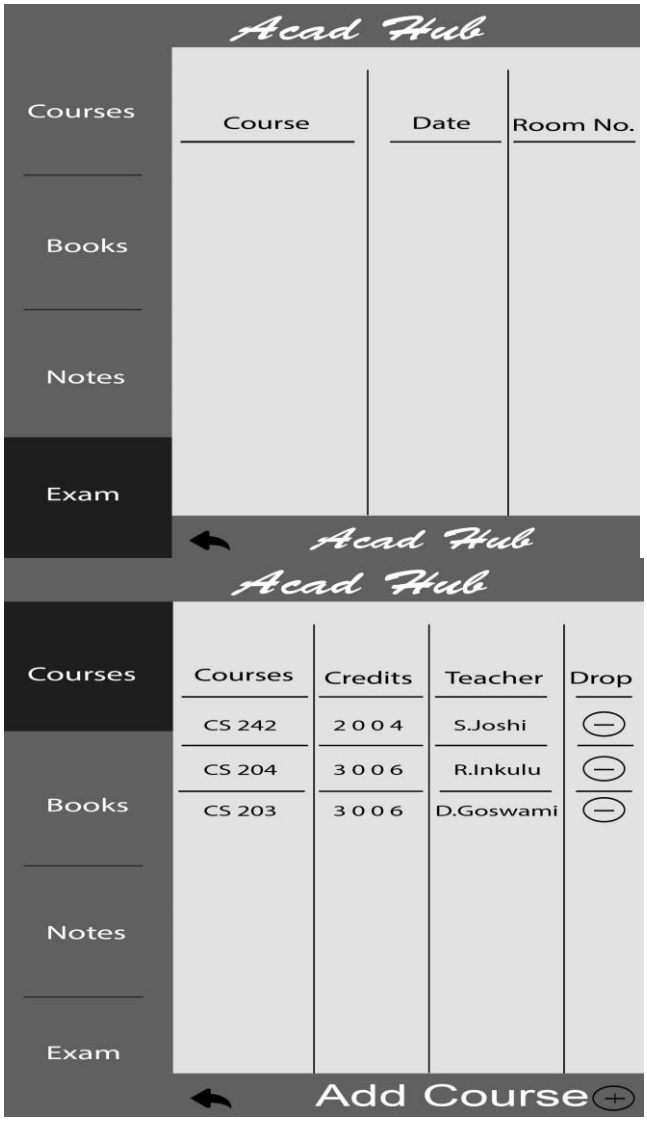
External Interface Requirements

4.1 User Interfaces

The design or layout of every form will be very clear and very interactive to the user.

- When the user opens the software the welcome window will appear.
  In this window, the student can easily enter his Institute roll number.
- Then it will prompt the user that his profile will be created and confirm if the roll number entered is correct.
- A profile is created and user is directed to a screen with four tabs.
    1. Courses
    2. Books
    3. Notes/Other reference material
    4. Exam schedule
- The user can navigate through these tabs and utilise the app.
- In the Courses tab -
    - List of all the courses as per the roll number given.
    - The course structure, showing no. of lectures and total credits throughout the semester.
    - The assigned teacher for the course
    - An option to drop a course.
    - An option to add a course. On clicking this, form for selecting a B.Tech course will be displayed.
- In the Books tab -
    - List of all the books with their corresponding courses.
    - A download button/link against every book.
    - If the book is available in the IITG library, its location and availability.
    - If a student possesses a certain book and wishes to lend it or sell it, he can do so by entering his contact details by clicking on a sell/rent button.
    - If a student wishes to buy a book, he can click on the buy option. On clicking the buy option, a screen with the contact details of all the users wishing to sell/rent/lend that particular book will be displayed.
    - At the bottom, there will be an option of “Download All”. This will download a zip file containing the PDFs of all the listed books.
- In the Notes tab -
    - An option to upload a PDF file of notes or other reference material for a course.
    - A list of all the uploaded notes by other users for the user to download (Redundancy is avoided as far as possible).
    - In the Exam tab -
    - The Exam time table and venues for the opted courses by the user will be displayed.

Mock Ups: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Books
Notes
Exam
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S.Joshi
CS 204
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R.Inkulu
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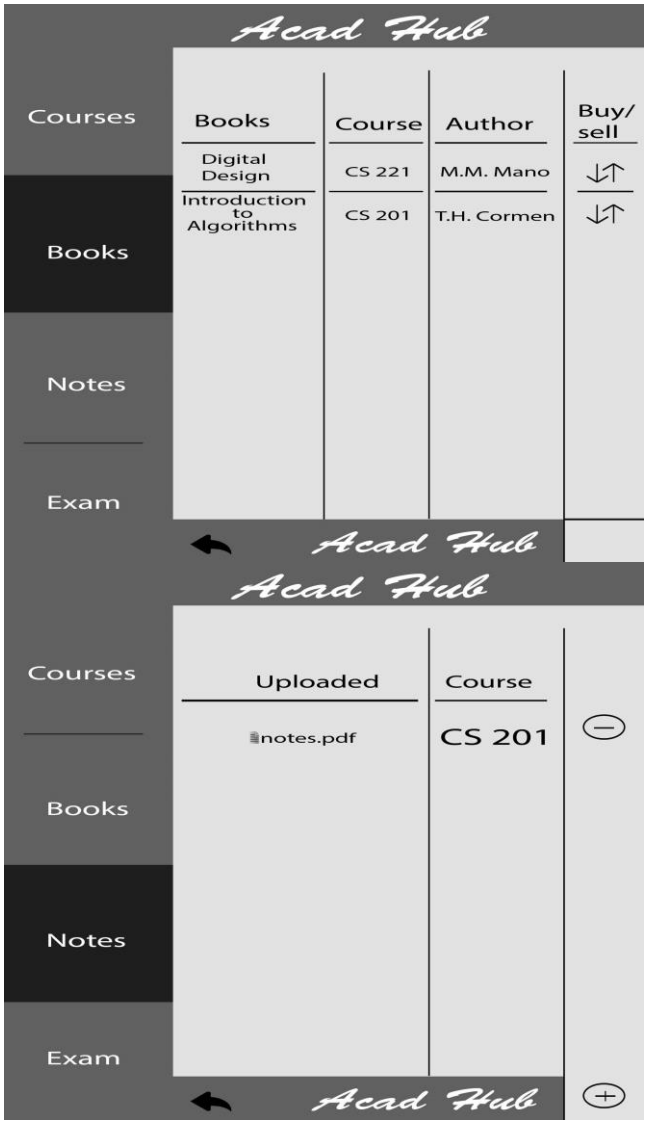
Add Course



4.2 Hardware Interfaces

The existing Local Area Network (LAN) will be used for collecting data from the users and also for displaying all the course information.

4.3 Software Interfaces

The software requires the GTK

4.4 Communications Interfaces

The Acad-Hub application needs to be connected to the IITG intranet for displaying of information and internet for downloading of books.

Other Non-functional Requirements

5.1 Performance Requirements

· The development of the software will be based on the object oriented model.
· The timeline of this software must be in our mind.
· The performance of the functions and every module must be optimized.
· At every step the output of the one phase is the input of the other phase and it will be reliable and accurate.
· For individual function the performance will be well.
· For login to the software roll number will be used.
· The retrieval of data is fast and reliable.
· There should be no ambiguity in the data and records.
· The overall performance of the software will reliable and enable the users to work efficiently.

5.2 Security Requirements

There will be proper security regarding to the accessing of data.
The e-books are downloaded over an encrypted protocol.
The whole software is secure from the external access.

5.3 Software Quality Attributes

Our software has many quality attribute that are given below-

- Availability- The availability of the software is easy and for everyone.
- Correctness- The results of the function are pure and accurate.
- Flexibility- The operation may be flexible and reports can be presented in many ways.
- Maintainability- After the deployment of the project if any error occurs then it can be easily maintain by the software developer.
- Portability-The software can be deployed at any machine.
- Reliability-The performance of the software is better which will increase the reliability of the software.
- Reusability-The data saved in the database can be reused if needed.
- Robustness-If there is any error in any window or module then it does not effect the remaining part of the software.

- Testability-The software will be tested at every stage.
    - Alpha Testing.
    - Beta Testing.
- Usability-To performs any operations and to understand the functioning of software is very easy.
- Productivity-This software will produce every desired result with accurately.
- Timelines-The time limit is very important. It will save much time and provide fast accessing.