

FACULTY OF TECHNOLOGY

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY(BIT)

PROJECT TITLE: LIBRARY MANAGEMENT SYSTEM FOR WAGBERI HIGH SCHOOL

PROJECT DOCUMENET: SYSTEM REQUIREMENT SPECIFICATION

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1. INTRODUCTION
   1. **purpose and scope**

The purpose of this SRS document is to give insight into the design of the library management system. This information will contain information about the system architecture and design considerations.

* + - * Scope

This document only describes the system design and architecture and the application interaction with users and other systems. It defines the application components and how they interact with each other.

* 1. **Intended audience and reading suggestions**

This document’s intended audience are:

* + - * + Developer: This is the person responsible for the creation of the application from start to the end.
        + Project supervisor: This is the person assigned to the developer to provide guidance and support.
        + Users: These are people who use the system like students or lecturers and the application administrator.
        + Testers: They are individuals tasked with examining the functionalities of the application.
  1. **project scope**

The Library Management system is a platform that aims to improve the library managment system in Wagberi high school. This application targets the students, lecturers and administration especially. Library Management system will post books in simple formats . The application will be able to narrow down specific books to specific audiences.

1. OVERALL DESCRIPTION
   1. **Product perspective**

The library management system is a dynamic application aimed at complementing the current physical library. The application’s focus is the communication between lecturers and students although a lot more is achieved by the application.

* 1. **User classes and characteristics**

The application has four typesof users as discussed below:

* + - * Students - a person registered under any course that is currently in session. The student logs in to the application after registering and being verified by the application admin. This user has access to all school books, faculty specific and especially academic books specific to his/her current course/class.
      * Lecturers - A person who is currently teaching any course. The lecturer logs in after registration and verification from the application admin; he/she has access to general university books, faculty specific books, and course/class specific books.
      * Administrator - A person who manages the application e.g. verify/add a student or a teacher, posts a books, delete a books etc.
      * Administration - the management of Wagberi high school. They have the privilege of posting books, and accessing any books.
  1. **Operating environment**

The library management system will run on the web patform. The application will be developed specifically to accommodate a wide range of the web operating system versions. The software will be extremely user-friendly, removing the need for training users.

* 1. **Design and implementation constraints**
     + - * *Safety and security of the users – This assurance to users that there user is only used for the library management system purposes with their consent.*
         * *Regulatory policies – These are set policies to govern the practices in the development of applications.*
         * *Reliability requirements -The application should be reliable for the users’s convenience.*
  2. **User documentation**

On the completion this application comes with several user documentation files. They are: User manual, and a tutorial.

* 1. **Assumptions and Dependencies**

This document makes several assumption:

* + - * + That majority of the students and lecturers use the web platform.
        + That library management system has the ability or means to host an application server and a database.
        + That library management system has a capable IT department to resolve minor issues.
        + That library management system will allow the application to access its databases.

Dependencies

* + - * + This application will depend on the internet for it to be functional
        + It depends on the system users to report issues.
        + The library management system database on students to verify students credentials

1. FUNCTION REQUIREMENT
   1. Authentication of users; the application should correctly authenticate users who essentially are the Wagberi high school fraternity members; students, lecturers and the administration. For members of Wagberi high school credentials to authenticate the users will be student/employee ID number and their national ID as their password. Scenario: Abdi is a university student who has just learnt of the new Library Management system he goes to the web, searches and finds the system through the student management system. On launching, the first page prompts him to either log in or register a new account. Abdi registers a new account by entering his credentials (his school ID, and name). A successful registration message is displayed. He is now requested to enter his student Id and name as the password to log in. The application displays a successful log in and proceeds to the home page. Use case for authentication:

(New user)

User (lecturer, student)

* 1. Accessing books: the application should ensure access of the books by various users. The books should be personalized. They should be in easy and widely used formats e.g. standard images, text. The books should also have convenient focus/zoom functions for easy legibility. Scenario 2: Abdi is not sure of the new books posted, he heard word there will is a new psychology book that is very nice for reading. Therefore, he would like to get updated not to miss either. Since he is already registered and has also logged into the application, he opens the Library management system application and is presented with the homepage screen. This page contains general books in the sense that they are not exactly academic i.e. books from advertisers, memos from the administration, books from various clubs etc. Here he can use the search function to search psychology books which will provide the necessary books regarding psychology. He now proceeds to the personal page which has specific books concerning his faculty, course, unit he takes and specific posters he follows. Ultimately, he gets the books he wants.

Books access use case diagram;

User (lecturer, student)

* 1. Management of books; the application should provide for management of books.
  2. Books need to be managed in the following ways:
     1. Posting – this is the placement of books onto the library management system application to inform that target audience
     2. Update – this is the alteration of already posted books by the poster. It can be achieved by uploading an entirely new books to replace the current one or editing the current one.
     3. Delete – this is the pulling down of books from application. Deletion of a book can be done when a book has expired or when a book has been cancelled or books controversial or misleading etc.
     + REQ-1: The application should be able to manage and store books and files.
* REQ-2: The application should provide appropriate UI for books and file upload and download.
  + REQ-3: The application should be able to recognize and authenticate several levels of users.
  + REQ-4: The application should be able to manage and maintain a proper database.
  + REQ-5: The application should be easily operable and user friendly.
  + REQ-6: The application should be able to work seamlessly with the application server.
  + REQ-7: The application should be able to provide push messaging in real time, whenever available.
  + REQ-8: The application should access the internet.
  1. **System features**
     + - Books sharing: This will allow users to share books. These books may range from simple text or image books to files of other formats. The pre-loaded books and files could be accessed without an internet connection. Stimulus/response sequences: Books can be viewed by accessing the home button. Any file to be uploeaded can be browsed and then uploaded.
         * Functional requirements

REQ-1: Access to the internet

REQ-2: Required user authentication

REQ-3: Storage

* + - * Push messaging description and priority: The system shall notify the primary users with recent books and events with an automated message in thier web phones or computers. Stimulus/Response Sequences: A change in the value in the database, caused by a user uploading a books from his client side, will trigger an event which in turns triggers the push messaging event across all users who are set to receive push message for that particular books and/or uploading user in question.
        + Functional requirement
        + REQ-1: Access to the internet
        + REQ-2: Push messaging supporting device
        + REQ-3: Proper user authentication
      * The login page: This is a dedicated interface to capture the log in details of a user. The log in page will authenticate the user to use the system. This is subject to the privileges assigned to that particular user. Stimulus/Response Sequences: A user enters their log in details for verification. If the entered details are correct the user is allowed access to the Library management system homepage. Otherwise, the user is denied access and offered password recovery options and account creation options.
        + Functional requirements:
        + REQ-1: The application shall provide a login input layout with a username and password.
        + REQ-2: The application shal allow the user to key in their valid username.
        + REQ-3: The application shall allow the user to enter their valid password.
        + REQ-4: The application shall verify and authenticate the user.
        + REQ-5: The application shall display a message of a successful or failed login attempt.
        + REQ-6: The application shall update and inform the user the actual dae and time at the toolbar.
        + REQ-7: The application shall then proceed to the next interface on successful login atempt otherwise exit.
      * The library management system homepage: This is the central place where all the general books appear. Books available here are from the administration, students leaders etc. The hompage has a search function which the usercan use to look up books from a specific subjects.
        + Functional requirements:

REQ-1: Access to the internet

REQ-2: Ability to display multiple and diverse books type/formats.

REQ-3: Offer navigation to and from books.

REQ-4: ability to zoom/focus on clicked books.

* + - * Personal page: this page will contain user speicific books as explained below:
        + Student personal page – has information related to his/her academic profile i.e the course he /she is pursuing, the untis he/she is undertaking
        + Lecturer personal page – has the books specific to the units he/she teaches.
        + Stimulus/response sequence: the user can decide to click on any books that interest them, the book is then zoomed or displayed on full screen for easy reading.
        + Functional requirements

REQ-1: Access the internet.

REQ-2: Ability to display multiple and diverse books types/formats.

REQ-3: Offer navigation to and from books.

REQ-4 : Ability to zoom/focus on clicked books.

* + - * Database: refers to the data and infrastructure to be employed. It will handle all the application data, providethe data when needed. The database will be managed by the system administrator. Stimulus/Response Sequences: the application will query the database for data/files, the database will make the requested data available. When a book is posted the database will save it for recordkeeping and tracking.
        + Functional requirements:

REQ-1: Should access the internet.

REQ-2: Should have an optimal querying strategy.

1. EXTERNAL REQUIREMENT
   1. **User interface**

The system will start with a login page to identify the user level and the features will be available accordingly. The application will have easily accessible buttons for all major activities of the software. Key features and recent events will be highlighted to attract user attention. The log in will be compatible with different screen size.

* 1. **Hardware interface**
     + - * The system will interact with the hardware resources of the device on which it is running.
         * There is also need for internet connectivity.
         * The application requires a minimum screen resolution of (240 x 320).
         * This program requires 100MB of RAM.
         * This program requires 1GB of storage.
  2. **Software interface**
     + - * This application will interact with the database for querying/saving files and books
         * The application will interact with the finance system.
         * The application will interact with the library system.
         * The application will interact with the examination system.
  3. **Communication interface**

An active internet connection will be required for the functioning fo the application. An internet connection will then allow the software to connect to the online database. The application will use the Hyper Text Transfer Protocol(HTTP) to transmit data

1. OTHER NON-FUNCTIONAL REQUIREMENT
   1. **Performance requirements**

The application in itself does not require anything specific for basic operation, but the complete software with all its components running may have some performance requirements. Except veiwing pre-loaded books and files, an internet connection is needed for the features of the system to become available.

* 1. **Safety requirement**

Major attention should be given to the safety and security of the data and information that are stored in the software. The database must be trustworthy and non-leakage to ensure no data losss occurs.

* 1. **Security requirements**

User authentication must be absollute and non-by-passable. No user should be able to access the homepage without providing proper authentication.

* 1. **Software quality attributes**
     + - Reliability – To ensure that the application is reliable a number of measures like vigorous testing and fixing of the application will be put in place.
       - Availability – The application will be developed in a way that accommodates majority of the web version.
       - Scalability – The application will be developed in a way that\t it is easily expandable. This is to allow additional functions to be incroporated.