Software Requirements Specification

for

ScholarSphere

Version 1

Prepared by Group 20

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Name	Date	Reason for changes	Version
Group 20		Initial Revision	--
Group 20	3 / 29 2024	Added use case, block, activity diagrams Added tables Made other minute changes	01

Software Requirements Specification

1. Introduction

Maintaining a record or a log individually and managing the data of multiple research publications and journals manually is a tedious and time draining process. Many people work together to update and provide details for journals and research publications. It is very difficult to update or quote citations for journals manually when several hundreds of journals and research publications exist. It is very difficult to detect plagiarism without citation, falsification, and misinterpretation manually. It will consume too much time as a whole for managing and update various research publications and journals as a whole.

Hence, the motive is to develop a web portal for managing journals and publications published by students and staffs in the institution. The portal allows the users to list, compare and categorize the research publications and journals published over the years. The main function of this website is for easy access of research journals, their relevant statistics, and other features all in one place.

1.1   Purpose

The purpose of **Software Requirements Specification (SRS)** document is to describe the external behavior of the ScholarSphere. Requirements Specification defines and describes the operations, interfaces, performance, and quality assurance requirements of the ScholarSphere. 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. Requirements described in this document are derived from the Vision Document prepared for the ScholarSphere.

1.2   Scope

The Software Requirements Specification captures all the requirements in a single document. The ScholarSphere that is to be developed contains records of all research publications and journals with along with information such as author, date of publish and type of publication/journal. Login credentials of staff and students are stored. The ScholarSphere   is   supposed   to   have   the   following   features.

- The product provides members access to records of all research publications. It provides logon feature to users.
- The system contains information about user such as name, department, qualification (staff or student) and list of journals published by the user.

- The system provides the members with the option to check their account and/or change their options like password of the account whenever needed.
- The system lets the website manager(s) to add/remove records of any research publication and maintain its catalogue. They can add/remove any member according to their discretion.
- The system provides a comprehensive list of all publications which can be filtered by author, name, date, type of publication etc.
- The system provides visual statistical information about research journals published over a period of time based on category and field of research. This information can be tailor-made to show information about research journals published by a specific author.
- The system keeps track of the citations that a publication which can be viewed subsequently.

1.3   Overview

The SRS will give a detailed description of the ScholarSphere portal. This document will provide the gist of the requirements, overview of the characteristics and constraints of the system.

2. Overall Description

2.1.   Product Perspective

The ScholarSphere is a package to be used by students and staff of this institution to access the catalog of published material efficiently. This web portal provides easy access to research publications, journals and their pertinent information all in one place which would be otherwise difficult to do so directly without aid. The catalog of published research material of all categories and types are updated regularly by the website managers.

Statistical information about published material over the years, relevant information about an individual research paper such as citations, type of publication (Thomson Reuters etc.), other papers by the author can be viewed by the user.
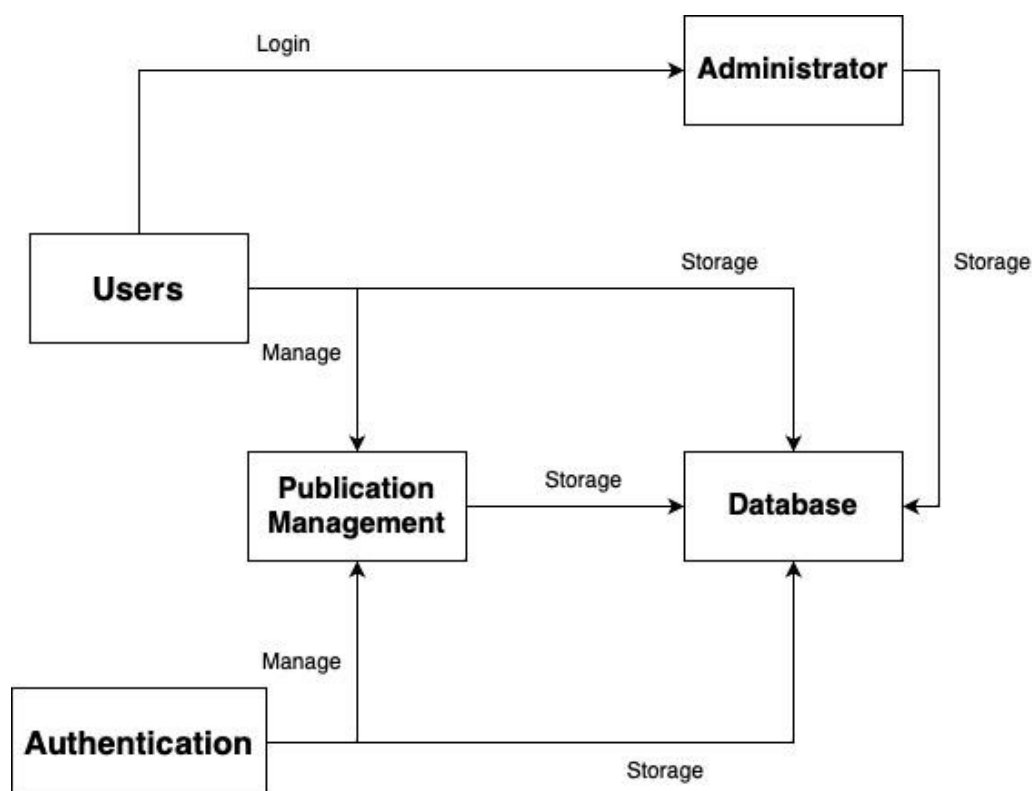
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Fig1. System Block Diagram

2.2.   Product Functions

The following use case diagram depicts the users of the system, and the intended way in which they will interact with the system.
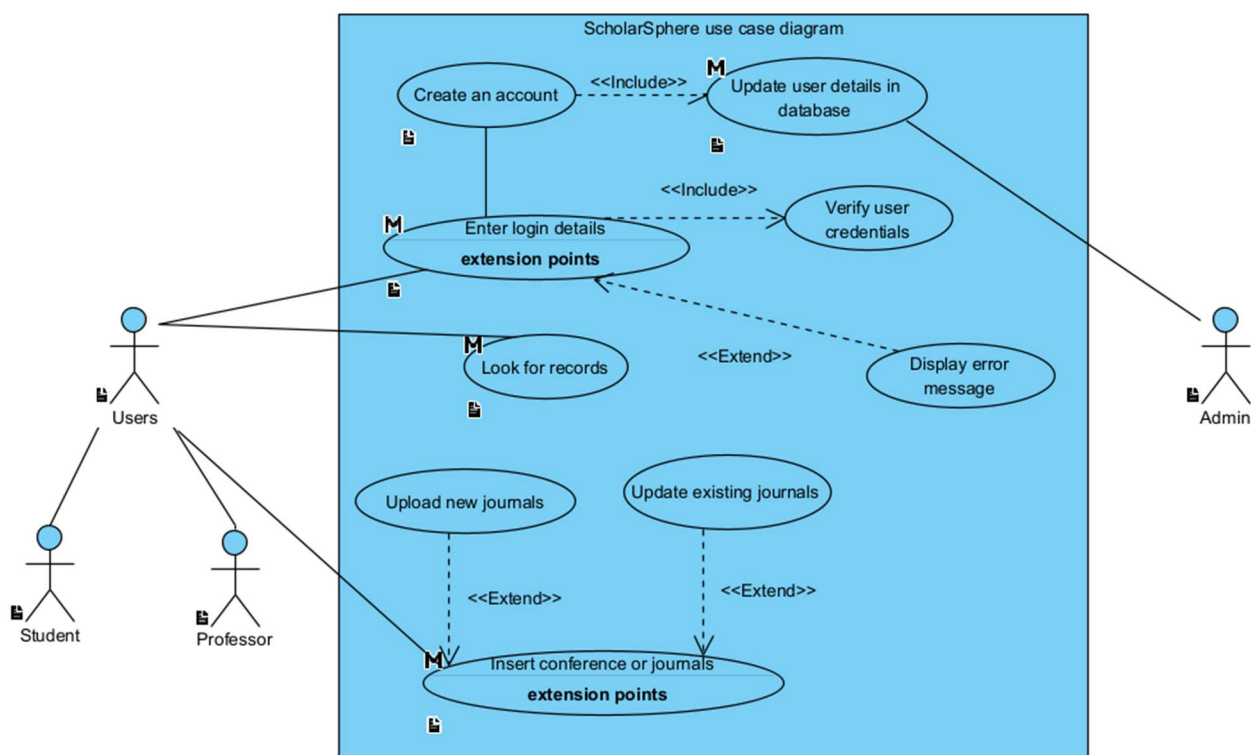

Fig2. Use Case Diagram

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2.3. Use Case Descriptions
2.3.1. Enter Login Details
2.3.2. Look For Records
2.3.3. Insert Conference or Journals

GENERAL CHARACTERISTICS	
Intent	Allow the users to login, search and look for or upload conference or journals
Scope	Online
Primary Actor	Users
Secondary Actors	Student, Professor
Preconditions	User has appropriate login credentials
Assumptions	User has appropriate login credentials
Trigger	Successful completion of Use Case Enter Login Details
Success Post	User is logged in and is able to look for or upload
Condition	conference or journals
Failed Post Condition	User is not logged in

Table1. General Characteristics

Sunny Day Scenario

Step	Action
Start	This scenario begins when the user has logged in with appropriate login details
1	The user is instructed to select between conference or journals
2	The user now has to search for the topic in which they want to look in their selected option in the previous step
3	The list of records appear and user can click on it and read
4	This Use Case ends when the user finishes looking at records and logs out of their profile

Table2. Sunny Day Scenario

Rainy Day Scenario

Step	Action
Start	This scenario begins when the user enters wrong login credentials

Table3. Rainy Day Scenario

2.3.4. Perform Diagnostics

The main goals of performance diagnostics would be to evaluate the system's dependability, scalability, and responsiveness. This entails keeping an eye on response times for crucial tasks like publication, review assignment, and submission to make sure they stay within reasonable bounds even during periods of high utilization. In scalability testing, the system's ability to withstand growing numbers of concurrent users and submissions without experiencing performance loss is assessed. Furthermore, diagnostic tools would keep an eye on recovery times and system uptime, making sure that any malfunctions are promptly fixed and that recovery methods are effective in order to preserve a high degree of availability. The overall goal of ScholarSphere's performance diagnostics would be to ensure a smooth and effective user experience while managing different activity and workload levels.

2.3.5. Monitor, Report and Abate Hazards

ScholarSphere's monitoring, reporting, and mitigation of hazards entails a methodical approach to detecting and resolving possible threats to the integrity and operation of the system. Continuous monitoring of system logs, performance data, and user feedback enables the early detection of anomalies or vulnerabilities. When dangers are detected, they are immediately notified to authorized administrators or via an automated alert system so that timely action can be taken. Implementing extra security measures, changing system configurations, or applying software patches or updates are examples of mitigation techniques. The integrity and dependability of the conference papers and journal management system are protected by ScholarSphere's strong resilience against possible threats, which is maintained through routine risk assessments and proactive hazard abatement measures.

2.4. User characteristics

The users of the ScholarSphere are the members which is inclusive of students and staff, and the website manager/administrator who maintain the system. The members and managers need to have a basic knowledge requirement of computer knowledge and internet access. 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, user's 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.

2.5.   Constraints

- The information of all the users must be stored in a database that is accessible by the ScholarSphere.
- The university information security system must be compatible with the Internet applications.
  The ScholarSphere is connected to the university computer and is running all 24 hours a day.
- The users access the ScholarSphere from any computer that has Internet browsing capabilities and an Internet connection.
- The billing system is connected to the ScholarSphere and the database used by the billing system must be compatible with the interface of the ScholarSphere.
- The users must have their correct usernames and passwords to enter into the ScholarSphere.

2.6.   Assumptions and dependencies

- The users have sufficient knowledge of computers.
- The University 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 the university student database.

3. Specific Requirements

This section describes in detail all the functional requirements.

3.1   Functionality

3.1.1. Logon Capabilities

- The ScholarSphere **shall** provide the users with logon capabilities.

3.1.2. Mobile Devices

- The ScholarSphere **shall** support mobile devices along with desktop access.

3.1.3 Alerts

- The ScholarSphere **shall** give a notification to the website manager or administrator in case of any issues.

3.2   Usability

- The interface of this portal **shall** be user-friendly and self-explanatory.
- Accessing the portal **shall** be easy as it uses web browser as an interface.
- The portal **shall** be accessed from the internet or it's derivative technologies.

- The ScholarSphere **shall** run 24 hours a day.

3.3   Reliability

- The ScholarSphere **shall** provide complete reliability due to the importance of data and the damages incorrect or incomplete data can do.

3.3.1   Availability

- The ScholarSphere **shall** be completely accessible for free, 24hours a day and 365 days a year.

3.3.2   Mean Time Between Failures (MTBF)

- The ScholarSphere **shall be** created and developed in such a manner that it rarely fails or fails once in a year.

3.3.3   Mean Time to Repair (MTTR)

- The ScholarSphere **shall** be developed in such a manner that even if it fails, it **shall** get recovered within 5-6 hours.

3.3.4   Accuracy

- The accuracy of this portal **shall** be contingent upon the accuracy of speed at which the users use the ScholarSphere.

3.3.5   Maximum Bugs or Defect Rate

- Nothing.

3.3.6   Access Reliability

- The portal **shall** provide complete access reliability.

3.4   Performance

3.4.1   Response Time

- The user **shall** be able to download the information from the website within 2 minutes even the website is under maintenance.
- The information **shall** be refreshed every two minutes.
- The access time for a mobile device **shall** be less than a minute.
- The system **shall** respond to the member in not less than two seconds from the time of the request submittal.
- The system **shall** be allowed to take more time when doing large processing jobs.

3.4.2   Administrator Response

- The system shall take negligible time delay to provide service to the administrator.

3.4.3 Throughput

- The number of transactions **shall** be directly dependent on the number of users, the users may be the Administrator, Students, Professors and also the people who use the website for checking-out information regarding Research publications.

3.4.4 Capacity

- The system **shall** be capable of handling 100 users at a time.

3.4.5 Resource Utilization

- The resources **shall** be modified according to the user requirements and also according to the Researches requested by the users.

3.5 Supportability

- The system designers **shall** take in to considerations the following supportability and technical limitations.

3.5.1 Internet Protocols

- The system shall comply with the TCP/IP protocol standards and shall be designed accordingly.

3.5.2 Information Security Requirement

- The system **shall** support the SSNCE information security requirements and use the same standard as the SSNCE information security requirements.

3.5.3 Maintenance

- The maintenance of the system **shall** be done as per the maintenance contract.

3.5.4 Standards

- The coding standards and naming conventions **shall** be as per the standards.

4. Supporting Information

The use-case storyboards or the user-interface prototypes are not available. The appendices are not to be considered as part of the requirements.
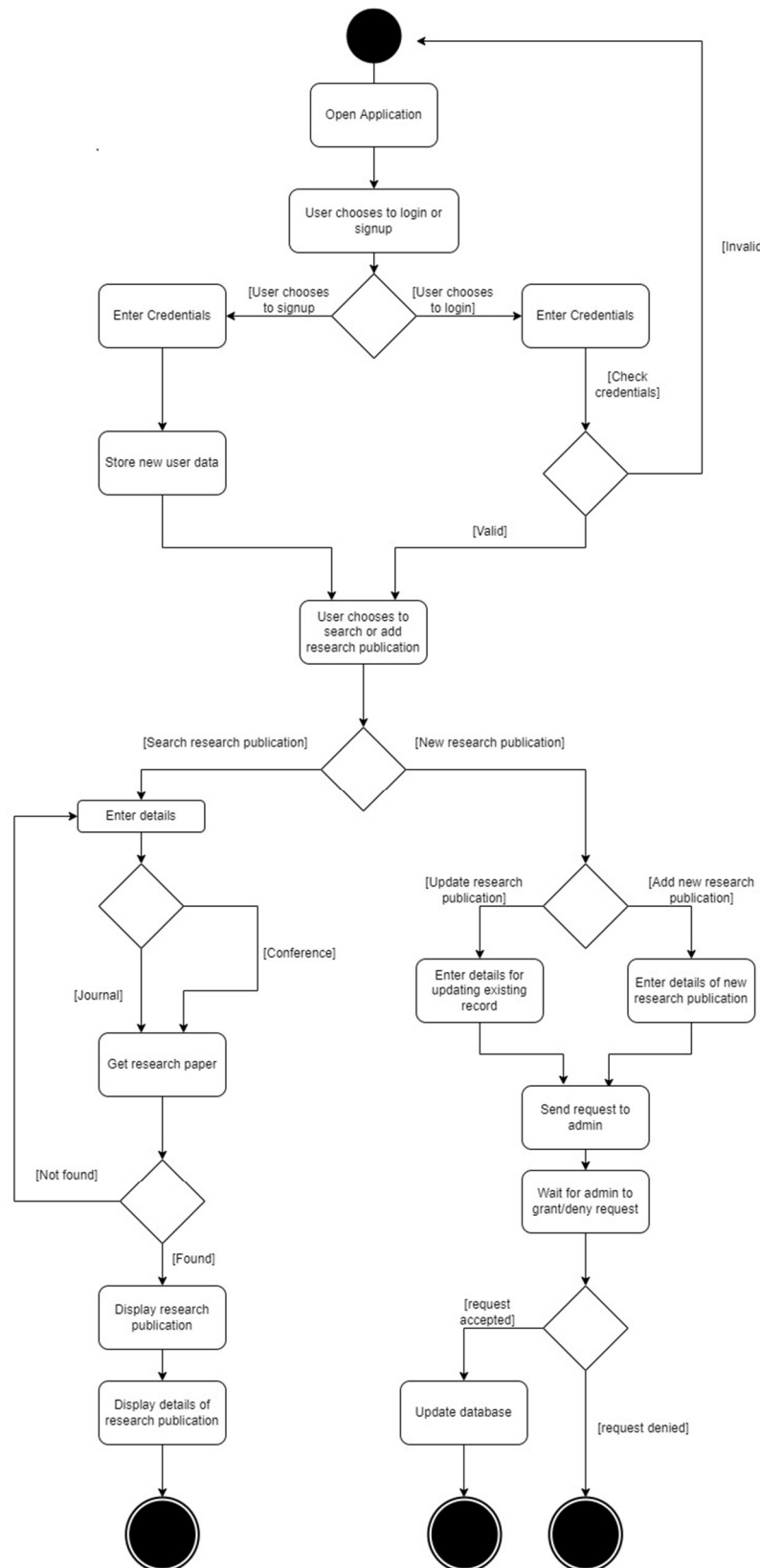
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Fig3. Activity Diagram