PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Software Requirements Specification for Research Paper Management

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version
-	22-09-23	Initial	0

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1. Introduction

1.1 Purpose

The Research Paper Management System is designed to streamline the process of managing research papers within an academic institution. This SRS document outlines the software requirements for the system, detailing its scope, functionality, and intended audience.

1.2 Intended Audience

This document is intended for developers, project managers, marketing staff, users, testers, and documentation writers. It provides a comprehensive overview of the Research Paper Management System, including its objectives, functionalities, and user roles.

1.3 Product Scope

The Research Paper Management System is a comprehensive software solution aimed at facilitating efficient collaboration between students and faculty members in the development of research papers. It encompasses features for creating, editing, reviewing, and tracking the progress of research projects. Additionally, it provides a centralized hub for accessing journals and conferences, as well as submitting papers.

1.4 References

EndNote
Website: https://endnote.com/
Description: EndNote is a reference management software that helps researchers organize their references, citations, and bibliographies.

Zotero
Website: https://www.zotero.org/
Description: Zotero is a free, easy-to-use tool to help you collect, organize, cite, and share your research materials.

Mendeley
Website: https://www.mendeley.com/
Description: Mendeley is a free reference manager that helps you organize your research, collaborate with others online, and discover the latest research.

RefWorks
Website: https://refworks.proquest.com/
Description: RefWorks is a web-based reference management software that helps researchers store, organize, and cite their references.

Citavi
Website: https://www.citavi.com/
Description: Citavi is a reference management and task planning program for researchers.

ReadCube
Website: https://www.readcube.com/
Description: ReadCube is a reference management software designed for researchers, librarians, and academics.

Papers
Website: https://www.papersapp.com/
Description: Papers is a reference management software for Mac, iOS, and Windows.

JabRef
Website: https://www.jabref.org/
Description: JabRef is an open-source bibliography reference manager.

Citeulike
Website: http://www.citeulike.org/
Description: Citeulike is a free service for managing and discovering scholarly references.

Docear
Website: http://www.docear.org/
Description: Docear is an academic literature suite for searching, organizing, and creating academic literature.

2. Overall Description

2.1 Product Perspective

The Research Paper Management System is a standalone product designed to serve as a crucial tool within the academic institution's ecosystem. While it may interface with existing systems for data retrieval and storage, it operates independently, providing a dedicated platform for research paper management.

2.2 Product Functions

- Efficient Collaboration
- Streamlined Paper Management

- Facilitate Literature Survey
- Meeting Requests
- Faculty Review and Suggestions
- Journals and Conferences Calendar
- Paper Submission

2.3 User Classes and Characteristics

Students: Engage in research paper creation, modification, and meeting requests. May have varying levels of technical expertise and research experience.
Faculty Members: Review and provide feedback on student papers, add papers to the literature survey, and manage meetings. Expected to have a higher level of expertise in the field.
Guests: View journals and conferences in a calendar format. Limited interaction with the system.

2.4 Operating Environment

The Research Paper Management System will operate in a standard computing environment. It is platform-independent and compatible with modern web browsers. It requires a reliable internet connection for full functionality.

2.5 Design and Implementation Constraints

The system must comply with all relevant corporate and regulatory policies regarding data security and privacy.
It will be developed using industry-standard technologies and programming languages.
Integration with existing academic systems may be required for seamless data flow.

2.6 Assumptions and Dependencies

It is assumed that users will have basic computer literacy and access to a compatible device with a web browser.
The project is dependent on the availability and compatibility of third-party components for specific functionalities.

3. External Interface Requirements

3.1 User Interfaces

The user interface will consist of the following elements:
Login View: Allows users to log in to their accounts.
Sign Up: Allows new users to create accounts.

Student Dashboard: Provides options to create projects, manage literature survey links, modify papers, and request faculty meetings.
Faculty Dashboard: Allows faculty members to review papers, provide suggestions, add papers to literature survey, and manage meeting requests.
Guest Dashboard: Provides access to view journals and conferences in a calendar.

3.2 Software Interfaces

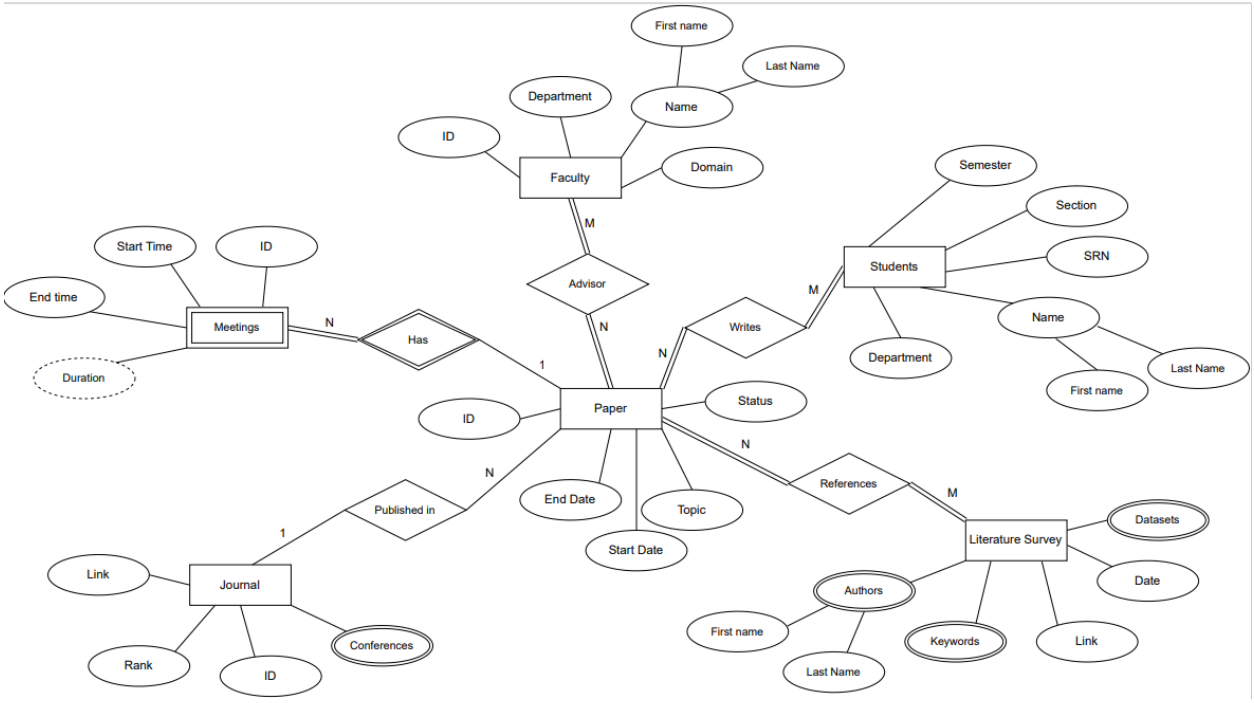
The system will interface with the following components:
Database
Operating System: Compatible with Windows, macOS, and Linux.
Web Browser: Compatible with the latest versions of Chrome, Firefox, Safari, and Edge.

3.3 Communications Interfaces

The system will utilize HTTP for communication between the client and server. All data transmission will be encrypted using HTTPS.

4. Analysis Models

Entity-Relationship Diagram



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5. System Features

5.1 System Feature 1: User Authentication and Authorization

5.1.1 Description and Priority

This feature involves authenticating users and assigning appropriate permissions based on their roles within the system. (High Priority)

5.1.2 Stimulus/Response Sequences

Stimulus: User attempts to log in.

Response: System validates user credentials. If valid, the user is granted access to their respective dashboard.

5.1.3 Functional Requirements

REQ-1: The system shall provide a user registration page to create new accounts.

REQ-2: The system shall hash and securely store user passwords in the database.

REQ-3: Users shall be able to log in using their registered email address and password.

REQ-4: The system shall implement role-based access control (RBAC) to assign permissions to users based on their role (student, faculty, guest).

REQ-5: Students shall be able to update the status of their projects.

5.2 System Feature 2: Dashboard Views

5.2.1 Description and Priority

This feature provides distinct dashboards for different user roles (student, faculty, guest) to access relevant functionalities. (High Priority)

5.2.2 Stimulus/Response Sequences

Stimulus: User logs in with their credentials.

Response: Based on the user's role, they are directed to their respective dashboard.

5.2.3 Functional Requirements

REQ-6: The system shall display a student dashboard with options to create projects, manage literature survey links, modify papers, and request faculty meetings.

REQ-7: The system shall present a faculty dashboard allowing them to review student papers, provide suggestions, add papers to literature survey, and manage meeting requests.

REQ-8: The system shall show a guest dashboard with the ability to view upcoming journals and conferences in a calendar format.

5.3 System Feature 3: Project Management

5.3.1 Description and Priority
This feature enables users to create, edit, and manage research projects. It also allows for the upload of related files and setting project status. (High Priority)

5.3.2 Stimulus/Response Sequences
Stimulus: User navigates to the project management section and selects an action (create, edit, etc.).
Response: The system displays the corresponding interface for the selected action.

5.3.3 Functional Requirements
REQ-9: The system shall allow users to create new research projects.
REQ-10: Users shall be able to edit existing project details and upload files related to the project.
REQ-11: The system shall provide an option to set the status of the project (e.g., in progress, completed).
REQ-12: Users shall be able to delete projects if needed.

5.4 System Feature 4: Collaboration Tools

5.4.1 Description and Priority
This feature facilitates communication and collaboration between students and faculty members for research projects. (High Priority)

5.4.2 Stimulus/Response Sequences
Stimulus: User invites a faculty member to collaborate on a project.
Response: The system sends a collaboration request to the selected faculty member.

5.4.3 Functional Requirements
REQ-13: The system shall allow students to invite faculty members to collaborate on projects.
REQ-14: Faculty members shall receive notifications of collaboration requests and be able to accept or reject them.
REQ-15: The system shall provide a messaging system for communication between collaborators.

5.5 System Feature 5: Literature Survey

5.5.1 Description and Priority
This feature allows students to manage literature survey links associated with their projects, with faculty review and suggestions. (Medium Priority)

5.5.2 Stimulus/Response Sequences
Stimulus: Student adds a literature survey link to their project.
Response: The system records the added link and may notify the faculty member for review.
5.5.3 Functional Requirements
REQ-16: Students shall be able to add and delete links related to their literature survey.
REQ-17: Faculty members shall receive notifications of added links and be able to review and provide suggestions.
REQ-18: The system shall maintain a history of literature survey links for each project.

5.6 System Feature 6: Meeting Requests

5.6.1 Description and Priority
This feature allows students to request meetings with faculty members for guidance and feedback on their projects. (Medium Priority)

5.6.2 Stimulus/Response Sequences
Stimulus: Student initiates a meeting request.
Response: The system notifies the selected faculty member of the meeting request.

5.6.3 Functional Requirements
REQ-19: Students shall be able to request meetings with faculty members.
REQ-20: Faculty members shall receive notifications of meeting requests and be able to accept or reject them.
REQ-21: The system shall provide a scheduling interface for selecting meeting times.

5.7 System Feature 7: Faculty Review and Suggestions

5.7.1 Description and Priority
This feature empowers faculty members to review student papers and provide suggestions for improvement. (High Priority)

5.7.2 Stimulus/Response Sequences
Stimulus: Faculty member accesses a student's paper for review.
Response: The system displays the paper and provides options for adding suggestions/comments.

5.7.3 Functional Requirements
REQ-22: Faculty members shall be able to review student papers and add suggestions/comments.
REQ-23: The system shall maintain a record of reviews and suggestions for each paper.
REQ-24: Students shall receive notifications of new reviews and suggestions.

5.8 System Feature 8: Journals and Conferences Calendar

5.8.1 Description and Priority
This feature provides a calendar view of upcoming journals and conferences to keep users informed of relevant events. (Medium Priority)

5.8.2 Stimulus/Response Sequences
Stimulus: User accesses the calendar view.
Response: The system displays a calendar with details of upcoming events.

5.8.3 Functional Requirements
REQ-25: The system shall display a calendar with information about upcoming journals and conferences.
REQ-26: Users shall be able to click on an event to view detailed information.

5.9 System Feature 9: Paper Submission

5.9.1 Description and Priority
This feature provides a platform for students to submit their research papers to journals and conferences. (High Priority)

5.9.2 Stimulus/Response Sequences
Stimulus: Student initiates the paper submission process.
Response: The system guides the student through the submission process and provides confirmation upon completion.

5.9.3 Functional Requirements
REQ-27: Students shall be able to initiate the paper submission process.
REQ-28: The system shall guide students through the submission process, including uploading necessary files and providing required information.

REQ-29: The system shall notify students of the submission status (e.g., pending review, accepted, rejected).

6. Other Nonfunctional Requirements

6.1 Performance Requirements

- The system shall support a minimum of 100 concurrent users without significant performance degradation during peak usage periods.
- Response times for critical functions (e.g., logging in, accessing project details) should be within 2 seconds under normal system load conditions.
- The system shall have a system uptime of at least 98% over any given month.

6.2 Safety Requirements

- The system shall provide automatic session timeout after 10 minutes of user inactivity to prevent unauthorized access.
- In the event of a system failure, the data integrity and consistency shall be maintained through regular backups and a robust recovery mechanism.

6.3 Security Requirements

- User passwords shall be stored securely using industry-standard encryption techniques. The system shall implement role-based access control (RBAC) to ensure that users only have access to features and data relevant to their role.
- All data transmitted between the client and server shall be encrypted using SSL/TLS protocols.
- The system shall log and monitor all user activities for auditing and security analysis.

6.4 Software Quality Attributes

Maintainability:
The system shall be designed with modular code to facilitate future updates and enhancements.
Code shall adhere to coding standards and best practices for maintainability.

Usability:
The user interface shall follow established UX/UI design principles for intuitive navigation and ease of use.

Reliability:
The system shall have automated error handling and reporting mechanisms for graceful degradation in case of unexpected errors. The system shall be thoroughly tested for stability and reliability, achieving a minimum of 95% test coverage.

Portability:
The system shall be compatible with the latest versions of major web browsers (Chrome, Firefox, Safari, Edge). The system shall be platform-independent, running on Windows, macOS, and Linux operating systems.

Scalability:
The system architecture shall be designed to allow for easy scaling of resources (e.g., additional servers) to accommodate increased user loads.

Business Rules

The product is to make research work easier for students and faculty. The aim to produce a larger number of quality research papers by making the process of reading, writing and management of papers easier.
The product will be marketed by introducing the students and faculty one-on-one and relying on word of mouth.

Other Requirements

Legal and IP laws may need to be addressed to protect research in the institution, faculty and researchers' rights.

Appendix A: Glossary

Research paper:
A research paper is a comprehensive and detailed document that presents the findings of a specific research study or investigation. It is typically written by scholars or researchers and is intended to contribute new knowledge or insights to a particular field of study.

Literature Survey:
A literature survey is a critical and systematic examination of the existing body of published work (literature) on a specific topic or research question. It provides an overview of relevant studies, identifies gaps in the existing knowledge, and establishes a foundation for the new research.

Citation:

A citation is a reference to a specific source, such as a book, journal article, or website, that has been used as a basis for information or arguments in a research paper. Citations give credit to the original authors and allow readers to locate the sources.

Appendix B: Field Layouts

Information required to register the student

Field	Length	Data Type	Description	Is Mandatory
Name	20	Alphanumeric		Y
SRN	20	Alphanumeric		Y
Course	20	Alphanumeric		Y
Semester	-	Numeric		Y
Field of interest	20	Alphanumeric	Specialised topics such as ML, NLP, GT, etc	N

Information required to register the faculty

Field	Length	Data Type	Description	Is Mandatory
Name	20	Alphanumeric		Y
Faculty ID	20	Alphanumeric		Y
Domain	20	Alphanumeric		Y
Publish paper count	-	Numeric		N

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Appendix C: Requirement Traceability Matrix

Sl. No	Requirement ID	Brief Description of Requirement	Architecture Reference	Design Reference	Code File Reference	Test Case ID	System Test Case ID