Final Project Report

Team Nexus
Team No.: 32

December 3, 2023

Project Details

- Project Title: PhD Research Knowledge Collaboration Tool
- Project No.: 4
- Instructor/Mentor: Soumitra Ghosh
- Project GitHub Repository URL: https://github.com/saikiran006/PhD-Research-Knowledge-Collaboration-Tool

Team Members

Name	**Roll Number**
Kote Sai Kiran	2023201067
Naitik Kariwal	2023201044
Jayank Mahaur	2023201043
Nevil Sakhreliya	2023201005

Roles and Responsibilities

- Kote Sai Kiran: UI Design and Development
- Naitik Kariwal: Build the Recommendation system
- Jayank Mahaur: Database Schema Design and Management
- Nevil Sakhreliya: Build the Rest APIs for CRUD operations on the DB

Requirements

Stakeholders

PhD and Research Scholars, Research Scholars and Groups.

Objectives

1. Help a PhD student find an efficient Research Knowledge Collaboration tool.
2. Provide an efficient search engine to find papers based on title, author, topic, etc.
3. Implement an efficient storage management system.
4. Develop an interactive UI to visualize information and explore.
5. Implement a strong recommendation system based on multiple criteria.
6. Capture comments and ideas in an efficient manner for recommendations or future revisits by the student.

Functional Requirements and Logic

User Authentication and Authorization

Use Case 1: User Registration

- Description: Users can create an account by providing unique credentials, including a username and password. The system ensures the uniqueness of user accounts.

Use Case 2: Secure Login and Logout

- Description: Authenticated users can securely log in and log out of the system. Proper authentication mechanisms are implemented to protect user accounts.

Research Paper Management

Use Case 3: Bookmarking Research Papers

- Description: Authenticated users can bookmark research papers, adding them to their personal collection for easy access and reference.

Use Case 4: Reading and Navigation

- Description: Users can read research papers directly from the system and navigate to the original source for in-depth study.

Use Case 5: Categorization of Papers

- Description: Users can categorize research papers based on research topics or tags, enabling efficient organization and retrieval.

Search and Retrieval

Use Case 6: Paper Search

- Description: Users can search for research papers based on titles, keywords, or topics. The system provides an intuitive search functionality to retrieve relevant papers.

Use Case 7: Visualizing Paper Relationships

- Description: Users can visualize the relationships between papers in the form of a dynamic graph. Clicking on a node allows users to navigate directly to the selected paper.

Recommendation System

Use Case 8: Providing Recommendations

- Description: The system provides personalized recommendations based on user search input. Recommendations consider factors such as paper titles, topics, research interests, and keywords.

Knowledge Capture and Annotations

Use Case 9: Adding, Updating, and Removing Comments/Ideas

- Description: Users can interact with research papers by adding, updating, or removing comments and ideas. This feature enhances collaboration and knowledge sharing.

Use Case 10: Structured Comment Management

- Description: Users can view and manage comments in a structured manner, allowing for organized discussions and easy retrieval of valuable insights.

Technology Stack

- Frontend: HTML5, CSS3, JavaScript, React.js.
- Backend: Python, Django, RESTful API.
- Database: Graph Database.
- Version Control: Git.