A Project Report for **Scholarly Circle**

Version 1.0

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Chapter-1 Introduction

1.1 Introduction

In the rapidly evolving landscape of academic research and project management, the need for efficient collaboration and resource-sharing platforms has become increasingly evident. To address this demand, we present Scholarly Circle, an innovative project and research paper sharing platform designed to facilitate seamless communication, collaboration, and dissemination of knowledge within academic communities.

Scholarly Circle serves as a centralized hub where Chairman, Supervisors, and Authors can converge to share and access project and thesis reports, fostering a collaborative environment conducive to academic advancement. Through its intuitive interface and robust feature set, Scholarly Circle aims to streamline the process of project supervision, report management, and information dissemination.

With a focus on user-centric design and functionality, Scholarly Circle offers a range of tools and functionalities tailored to meet the diverse needs of its users. From role-based access control to comprehensive search capabilities, the platform empowers users to efficiently navigate through a vast repository of research papers, facilitating discovery and knowledge exchange.

Key features of Scholarly Circle include:

- Role-Based Access Control: Differentiated access levels ensure that users can perform tasks according to their roles and responsibilities, promoting efficient collaboration and accountability.
- Comprehensive Search Functionality: Advanced search tools enable users to quickly locate relevant project and thesis reports based on keywords, authors, supervisors, and other criteria, enhancing discoverability and accessibility.
- **Secure Report Management:** Robust security measures and version control mechanisms safeguard sensitive data and ensure the integrity of uploaded reports, fostering trust and confidence among users.
- User Account Management: Seamless account creation and approval processes facilitate user onboarding, while profile management tools empower users to customize their experience and track their contributions.
- Actionable Statistics: Detailed analytics and reporting capabilities provide valuable insights into platform usage and engagement, enabling stakeholders to make informed decisions and drive continuous improvement.

As we embark on this journey to revolutionize academic collaboration and knowledge dissemination, we invite Chairman, Supervisors, Authors, and academic communities at large to join us in shaping the future of scholarly communication with Scholarly Circle. Together,

we can create a vibrant ecosystem where ideas flourish, connections thrive, and innovation knows no bounds.

1.2 Purpose of Scholarly Circle

The purpose of the proposed research paper-based web application is to provide a centralized platform for researchers, academics, and students to access, share, and collaborate on research papers. The application aims to address several key objectives:

Centralized Access to Research Papers: The application will serve as a one-stop destination for accessing a wide range of research papers across various disciplines. This centralized access eliminates the need for users to search multiple databases or websites, saving time and effort.

Facilitate Collaboration and Knowledge Exchange: By providing a platform for researchers to share their work, the application encourages collaboration and knowledge exchange within the academic community. Users can easily discover and engage with research papers relevant to their interests, fostering intellectual discourse and collaboration opportunities.

Enhance Research Visibility and Impact: Researchers can upload their papers to the platform, increasing the visibility and reach of their work within the academic community. This exposure can lead to greater citation rates, collaborations, and recognition for their contributions to their respective fields.

Features for Effective Paper Management: The application will include features such as search functionality, categorization by subject areas, and user-friendly interfaces for browsing and navigating research papers. Additionally, users may have the ability to bookmark papers, set up alerts for new publications, and track citation metrics.

Support Academic Institutions and Libraries: Academic institutions and libraries can leverage the application to provide their students, faculty, and researchers with access to a comprehensive repository of research papers. This supports their mission of promoting scholarly research and academic excellence.

Overall, the proposed web application aims to streamline the process of accessing, sharing, and collaborating on research papers, ultimately contributing to the advancement of knowledge and innovation within the academic community.

1.3 Background and Problem Statement Background

The background of the Scholarly Circle can be understood in the context of several factors and trends within the academic and research communities:

Explosion of Research Output: With the exponential growth of research output across various disciplines, accessing relevant and high-quality research papers has become increasingly challenging for researchers, academics, and students. The sheer volume of publications makes it difficult to stay updated with the latest advancements in one's field of study.

Fragmentation of Research Databases: Research papers are often dispersed across multiple databases, journals, and websites, each with its own access requirements and search interfaces. This fragmentation creates barriers to efficient access and discovery of research papers, leading to information silos and inefficiencies.

Globalization of Research Collaboration: Collaboration among researchers and academics from different institutions, regions, and countries has become commonplace in today's interconnected world. However, existing platforms for sharing research papers may not adequately support seamless collaboration and knowledge exchange on a global scale.

Digital Transformation in Academia: The digital transformation of academic publishing and scholarly communication has led to the proliferation of online platforms and tools for accessing, sharing, and disseminating research outputs. There is a growing demand for user-friendly and feature-rich web applications that cater to the evolving needs of researchers and academics.

Open Access Initiatives: The open access movement advocates for free, unrestricted access to scholarly research literature, with the aim of democratizing knowledge and promoting global collaboration in research. Many funding agencies, institutions, and publishers are increasingly embracing open access principles, driving the need for platforms that support open access publishing and sharing of research papers.

In light of these trends and challenges, the proposed research paper-based web application seeks to address the need for a centralized, user-friendly platform that facilitates access, sharing, and collaboration on research papers. By leveraging modern web technologies and design principles, the application aims to streamline the research workflow, enhance research visibility, and foster collaboration and knowledge exchange within the academic community.

Problem Statement

One of the challenges of developing web applications is that there are many different technologies that can be used. This can make it difficult to choose the right technologies for the specific needs of the application. Additionally, the web development landscape is constantly changing, so it is important to stay up-to-date on the latest trends and technologies.

Another challenge of developing web applications is that they need to be secure. Web applications are often targeted by hackers, so it is important to implement security measures to protect the data of users.

1.4 Motivation

There are many motivations for developing Scholarly Circle. Some of the most common motivations include:

To make research papers more accessible and discoverable: Research papers are often published in academic journals, which can be difficult to access for people who are not affiliated with an academic institution. A web application can make research papers more accessible to a wider audience, including students, researchers, and the general public.

To enable new ways to interact with research papers: A web application can enable new ways to interact with research papers, such as through search, visualization, and collaboration tools. This can make it easier for researchers to find and use relevant information, and to share their work with others.

To promote the dissemination of research: A web application can help to promote the dissemination of research by making it easier for people to share and discuss research papers. This can help to raise awareness of new research findings and to accelerate the pace of scientific discovery.

1.5 Challenges

here are a number of challenges that can be faced when developing a research paper based web application. Some of the most common challenges include:

Complexity: Research papers can be complex and contain a lot of information. This can make it difficult to translate the paper into a web application that is easy to use and understand.

Data management: Research papers often contain a lot of data, which can be challenging to store and manage in a web application.

Interactivity: Research papers are typically static documents, but a web application should be interactive and allow users to explore the data and findings in a meaningful way.

Audience: Research papers are typically written for a specific audience, such as academics or experts in a particular field. However, a web application should be accessible to a wider audience, including people with less expertise in the subject matter.

Security: Research papers may contain sensitive data, so it is important to develop a secure web application that protects this data from unauthorized access.

1.6 Objectives

The objectives for Scholary Circle can vary depending on the specific topic of the research paper. However, some common objectives include:

- To provide a platform for users to access and interact with the research data in a meaningful way.
- To enable users to explore and analyze the research data in new and innovative ways.
- To facilitate collaboration between researchers and other stakeholders.
- To communicate the findings of the research to a wider audience.

Chapter-2 Feasibility Study

A feasibility study for Scholary Circle involves assessing the viability and practicality of developing such a platform. Here's a breakdown of key components typically considered in such a study:

1. Market Analysis:

- Identify the target audience for the web application, such as students, researchers, academics, or professionals.
- Analyze existing platforms offering similar services to understand market demand and competition.
- Evaluate potential user needs and preferences to ensure the proposed application meets market expectations.

2. Technical Feasibility:

- Assess the technical requirements for developing the web application, including programming languages, frameworks, databases, and hosting options.
- Evaluate the availability of resources such as skilled developers, technology infrastructure, and tools necessary for development.
- Determine if the project can be completed within the allocated budget and timeline.

3. Functional Requirements:

- Define the core features and functionalities of the web application, such as user authentication, document upload, search capabilities, and collaboration tools.
- Identify any additional features or enhancements that may differentiate the application from competitors and attract users.

4. Financial Feasibility:

- Estimate the development costs, including expenses for hiring developers, purchasing software licenses, hosting fees, and marketing efforts.
- Project potential revenue streams, such as subscription fees, advertising, or freemium models, to determine the application's profitability.
- Conduct a cost-benefit analysis to compare the expected returns against the investment required to develop and maintain the web application.

5. Legal and Regulatory Considerations:

- Identify any legal or regulatory requirements applicable to the web application, such as data privacy laws, intellectual property rights, and accessibility standards.
- Ensure compliance with relevant regulations to avoid legal issues and protect users' rights and information.

6. Operational Feasibility:

- Assess the operational aspects of running the web application, including user support, maintenance, and scalability.
- Determine the organizational structure and personnel required to manage and operate the platform effectively.
- Evaluate the potential impact on existing workflows and processes within the organization or team responsible for developing and maintaining the application.

7. Risk Analysis:

- Identify potential risks and challenges that may impact the success of the project, such as technical issues, market competition, or changes in user preferences.
- Develop risk mitigation strategies to address and minimize the impact of these risks, ensuring the project's resilience and sustainability.

By conducting a comprehensive feasibility study covering these aspects, stakeholders can make informed decisions about the viability of developing Scholarly Circle and plan accordingly to maximize its success.

Chapter-3 Design and Analysis

3.1 Project architecture:

We follow an architecture to develop a software project. While developing this project we will go through Software Development Life Cycle (SDLC) which is given in figure-1. Software Development Life Cycle (SDLC) is a process used to design, develop and test high-quality software. The SDLC aims to produce high-quality software that meets or exceeds customer expectations, reache completion within times and cost estimates. SDLC consists of 7 stages. They are –

- 1) Requirement gathering
- 2) Analysis and Planning
- 3) Security and Performance Architecture
- 4) Agile Scrum Based Development
- 5) System Testing
- 6) Deployment
- 7) Support and Management

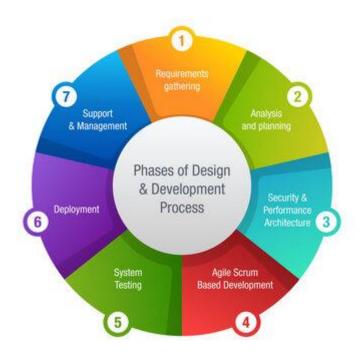


Figure -1: Software Development Life Cycle (SDLC).

Following are the most important and popular SDLC models followed in the industry –

- Waterfall Model
- Iterative Model
- Spiral Model
- V-Model
- Big Bang Model

Among all these models, we used the Iterative model in our software development. It is One of the simplest model. The iterative model (Figure-2) is utilized in such instances. Each iteration goes through all of the SDLC phases, and these cycles are repeated until the SDLC is completed. It was typical for the team to work on many SDLC phases concurrently. There are numerous reasons why the iterative approach was chosen for this project. Such as,

- i. This model is quite adaptable. Because new features can be introduced at any point during development.
- ii. In the Iterative model, changing the design or criteria is more economically efficient.
- iii. We construct and improve the product step by step in an iterative manner. As a result, we may detect flaws at an early stage. This prevents the flaws from flowing downhill.
- iv. Parallel development is possible.
- v. In comparison to other process models, it necessitates smaller development team.

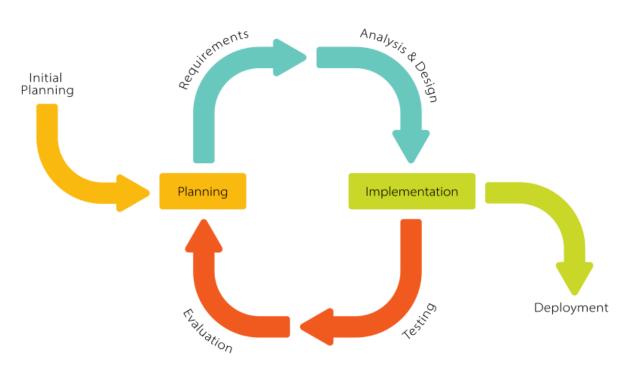


Figure -2: The Iterative Model of SDLC

3.2 System Implementation

3.2.1 Software requirements: The following Softwares will be used in this project:

Operating System	Linux, MacOS, Windows XP or later	
Browser	Google Chrome, Firefox	
Editor	Notepad++, Visual Studio Code, WebStorm	

or any text editor
1

Table-1: Software Requirements of the System

3.2.2 Hardware requirements: The following hardware will be used in this project:

Processor	Standard Processor
RAM	2 GB RAM or more
Hard Disk	50 GB or more
Monitor	Standard Monitor
Keyboard	Standard Keyboard
Mouse	Standard Mouse

Table-2: Hardware Requirements of the System

3.3 Technologies and Tools:

Client-Side Scripting Technologies:

- HTML (HyperText Markup Language)
- CSS (Cascading Style Sheets)
- SASS (Syntactically Awesome Stylesheet)
- JavaScript (Programming Language)
- React.js (JavaScript Library)

Server-Side Scripting Technologies:

- Node.js (JavaScript Run-time Environment)
- Express.js (Node.js Framework)
- MySQL (Relational Database)

Version Control System:

• Git (For Version Control System)

HTML: HTML (Hypertext Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation (CSS) or functionality/behavior (JavaScript). "Hypertext" refers to links that connect web pages to one another, either within a single website or between websites. Links are a fundamental aspect of the Web. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web.

CSS: Cascading Style Sheets (CSS) is a simple mechanism for adding style (e.g., fonts, colors, spacing) to Web documents. It is a stylesheet language used to describe the presentation of a document written in HTML or XML. CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.

SASS: Sass is an extension to CSS. It is a CSS pre-processor. It is completely compatible with all versions of CSS. It reduces repetition of CSS and therefore saves time. It was designed by Hampton Catlin and developed by Natalie Weizenbaum in 2006

JavaScript: JavaScript is a scripting or programming language that allows you to implement complex features on web pages — every time a web page does more than just sit there and display static information for you to look at — displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc. — you can bet that JavaScript is probably involved. It is the third layer of the layer cake of standard web technologies, two of which (HTML and CSS) we have covered in much more detail in other parts of the Learning Area.

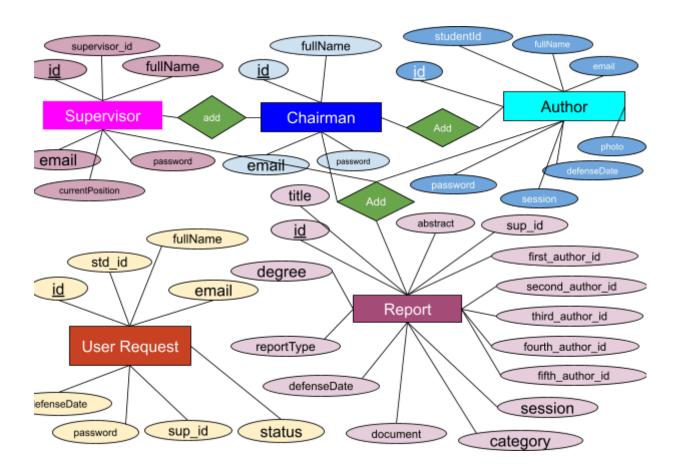
React.js: React is a JavaScript library used for building user interfaces for web applications. It was developed by Facebook and released as an open-source project in 2013. React allows developers to build complex UI components using a declarative syntax and a "component-based" approach, where UI elements are treated as independent and reusable building blocks.

Node.Js: Node.js is an open-source, cross-platform, server-side runtime environment for executing JavaScript code outside of a web browser. It was developed by Ryan Dahl in 2009 and is built on the V8 JavaScript engine used in Google Chrome

Express.js: Express is a minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications. Express JS is a Node.js framework designed to build API's web applications cross-platform mobile apps quickly and make node js easy.

MySQL: MySQL is the world's most popular open source database. According to DB-Engines, MySQL ranks as the second-most-popular database, behind Oracle Database. MySQL powers many of the most accessed applications, including Facebook, Twitter, Netflix, Uber, Airbnb, Shopify, and Booking.com. Since MySQL is open source, it includes numerous features developed in close cooperation with users over more than 25 years. So it's very likely that your favorite application or programming language is supported by MySQL Database.

Chapter-4 Final Entity Relationship Diagram



The system consists of 5 entities: Chairman, Supervisor, Author, Report and User Request Attributes of the entities:

Chairman: id, full name, email, password

Supervisor: <u>id</u>, supervisor_id, full_name, email, password, current_position, photo **Author:** <u>id</u>, student_id, full_name, email, password, defense_date, session, photo **Report:** <u>id</u>, title, abstract, supervisor_id, first_author_id, second_author_id, third_author_id, fourth_author_id, fifth_author_id, session, category, document, defense date, report type, degree

User Request: id, student id, email, password, supervisor id, defense date, photo, status

Each entity has a primary key, which is used to uniquely identify each record in that entity's table.

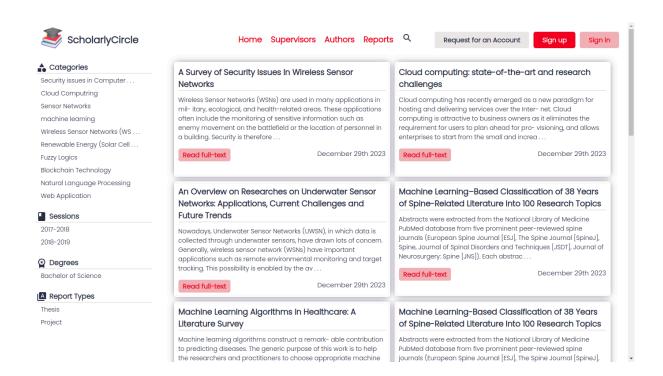
Chapter-5 Final Outcome of the project

Scholarly Circle is a project and thesis reports sharing platform for the Department of Computer Science and Telecommunication Engineering, Noakhali Science and Technology University.

Scholarly Circle offers a variety of features, including:

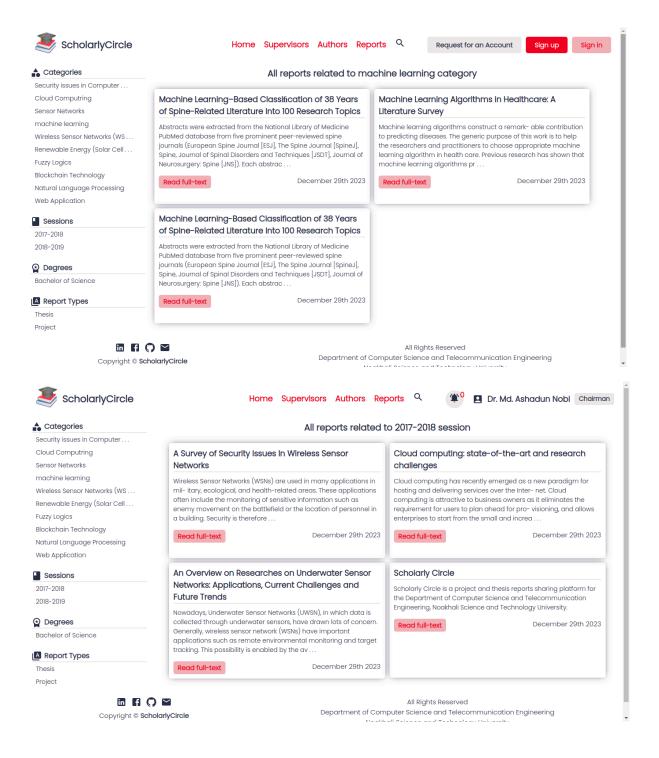
1. A project and thesis reports sharing platform

a. Scholarly Circle serves as a centralized platform where individuals associated with the Department of Computer Science and Telecommunication Engineering at Noakhali Science and Technology University can share their project and thesis reports. This allows for easy access and collaboration among students, faculty, and staff involved in research and academic activities.



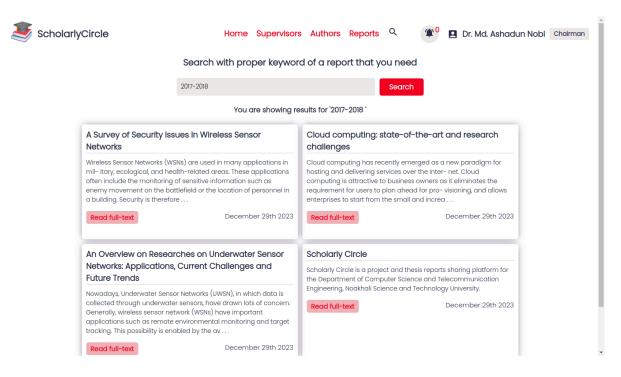
2. Report filtering

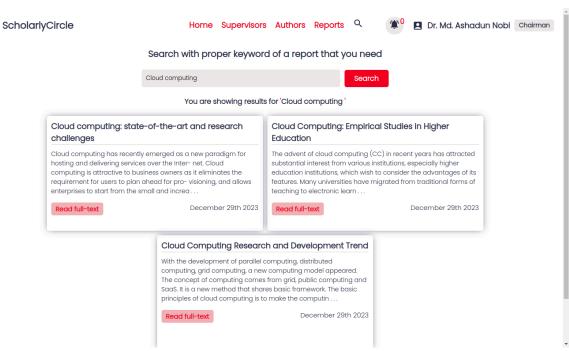
a. Users of Scholarly Circle can filter project and thesis reports based on various criteria such as categories, sessions, degrees, and types. This feature enhances the usability of the platform by enabling users to quickly find relevant reports based on their specific interests or needs.



3. Search tool

a. The platform features a search tool that enables users to easily find specific project or thesis reports by entering relevant keywords. This functionality enhances the efficiency of accessing relevant information within the repository.





4. Roles

a. Chairman

i. The Chairman holds administrative privileges on the platform. They can add supervisors and authors to the system, as well as share project and thesis reports. This role enables the Chairman to manage the user base and facilitate the sharing of reports within the department.

b. Supervisors

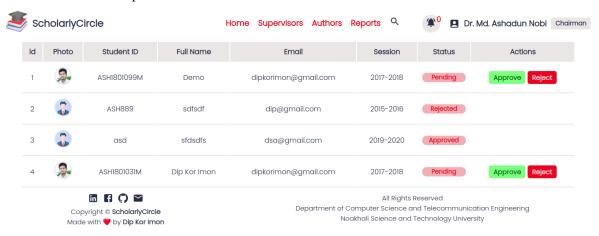
i. Supervisors have the authority to add authors and share project and thesis reports. This role is typically assigned to faculty members who oversee the work of students and assist them in completing their projects or theses.

c. Authors

i. Authors are individuals who have created project or thesis reports under the supervision of a faculty member. They can share their reports on the platform, allowing others to benefit from their research and findings.

5. Request for an account

a. Supervisors and authors can request account creation on Scholarly Circle. These requests are subject to approval by the Chairman and supervisors to ensure that only valid individuals associated with the department are granted access to the platform. This process helps maintain the integrity and security of the platform.



6. Statistics of Scholarly Circle

a. The platform maintains statistics on various metrics such as the total number of Supervisors, Authors, and Reports added. These statistics provide insights into the usage and growth of the platform over time, which can be valuable for administrators and stakeholders in assessing its impact and effectiveness.

Statistics of Scholarly Circle Statistics of Scholarly Circle is a study of data: describing total number of Supervisors, Authors and Reports are added. 15 43 15 Supervisors Authors Reports



Conclusion

The conclusion of Scholarly Circle should summarize the main findings of the paper and discuss their implications. It should also highlight the limitations of the study and suggest directions for future research.

Scholarly Circle is a valuable resource for scientists and researchers. It provides a platform for sharing research and finding collaborators. However, it is important to be aware of the potential for academic misconduct on the website.

Overall, our results suggest that Scholarly Circle is a promising tool for task. Further research is needed to evaluate the application's effectiveness in real-world settings and to identify ways to improve it.

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