## PUBLISHING PLATFORM

Introduction

This PRD outlines the development of a research paper repository platform inspired by Arxiv.org, focusing on the academic and research community's needs. The platform will facilitate the submission, dissemination, and open access of scientific papers across various disciplines. Emphasizing user stories, this document aims to capture the core functionalities required for researchers, readers, and administrators, leveraging the MERN stack for a robust, scalable, and user-friendly experience.

User Stories and Workflows

Researcher Workflow and User Stories

- Paper Submission and Management
    - **User Story:** As a researcher, I want to submit my research papers easily, including metadata (title, authors, abstract, etc.), and manage my submissions (update, withdraw) through a user-friendly interface.
    - **Workflow:** Researchers log into their dashboard to submit new papers via a form that captures all necessary metadata and the paper file. The system processes the submission, storing it in MongoDB and making the paper available for review. Researchers can later update their submissions or withdraw them, with all changes reflected in real-time.
- Pre-publication Feedback
    - **User Story:** As a researcher, I seek constructive feedback on my pre-publication submissions to refine my work before formal review.
    - **Workflow:** Upon submission, the paper is made available in a pre-publication area where other registered users can comment and provide feedback. This interaction is facilitated by real-time communication features, allowing for a collaborative and iterative improvement process.
- Citation and Reference Management
    - **User Story:** As a researcher, I need to manage citations and references within my submissions easily and access bibliographic data for citing others' work.
    - **Workflow:** The platform provides tools for importing and managing bibliographic data in submissions, including citation formatting and reference lists. Integration with existing bibliographic databases (e.g., CrossRef) allows researchers to search for and include references efficiently.

Reader Workflow and User Stories

- Accessing and Reading Papers
    - **User Story:** As a reader, I want to access, download, and read research papers across various fields without barriers.
    - **Workflow:** Readers navigate the platform without needing to log in, search for papers using various criteria (author, title, subject area), and access papers directly in PDF format. The platform supports adaptive web design for optimal reading on different devices.
- Search and Discovery
    - **User Story:** As a reader, I need advanced search capabilities to find research papers relevant to my interests, including full-text search, filtering by date, subject area, and authors.
    - **Workflow:** The platform uses MongoDB's full-text search capabilities, allowing readers to perform detailed searches. Results can be refined using filters, and users can save search queries or set up alerts for new submissions in their areas of interest.

- Collaborative Annotation and Discussion
    - **User Story:** As a reader, I want to engage with content through annotations and discussions, contributing to the academic dialogue around research findings.
    - **Workflow:** Registered users can annotate papers and participate in discussions directly on the platform, fostering a community of collaboration. These features are moderated by administrators to ensure constructive and respectful dialogue.

Administrator Workflow and User Stories

- Content Moderation and Quality Control
    - **User Story:** As an administrator, I need to moderate submissions to ensure they meet the platform's quality standards and are appropriate for the academic community.
    - **Workflow:** Administrators review new submissions for adherence to submission guidelines, including checks for plagiarism, content appropriateness, and formatting. The review process includes tools for administrators to communicate with authors directly for revisions or clarifications.
- User and Role Management
    - **User Story:** As an administrator, I require comprehensive tools to manage user accounts and roles within the platform, ensuring the integrity and security of the user community.
    - **Workflow:** The administrative dashboard provides functionalities for creating, modifying, and deleting user accounts, assigning roles (researcher, reader, moderator), and setting permissions, utilizing MongoDB for secure and efficient data management.
- Analytics and Reporting
    - **User Story:** As an administrator, I want to access analytics on platform usage, including submission rates, download counts, and user engagement metrics, to guide platform improvements and report to stakeholders.
    - **Workflow:** The platform integrates analytics tools to collect and visualize data on user behavior, paper submissions, and engagement. This data helps administrators make informed decisions and supports reporting to funding bodies or institutional stakeholders.

General Requirements:

- **Security:** Implement industry-standard security practices, including HTTPS, data encryption, and secure authentication mechanisms. Regular security audits to protect user data and privacy.
- **Performance and Scalability:** Design the platform for high performance and scalability, using Node.js for efficient server-side operations, MongoDB for scalable data storage, and React for a responsive front-end experience.
- **Accessibility:** Ensure the platform is accessible to users with disabilities, adhering to WCAG guidelines. This includes features like screen reader compatibility, keyboard navigation, and alternative text for images.
- **Interoperability:** Support interoperability with other academic databases and tools, including ORCID for author identification and DOI integration for paper citation.

Technology Stack:

- Backend Language: Node.js
- Web Framework: Express
- Frontend Framework: React
- Database: MongoDB
- **Authentication:** JWT for secure token-based authentication
- **File Storage:** AWS S3 for storing and serving research papers

- **Search Engine:** Elasticsearch integrated with MongoDB for advanced search capabilities