A Multi-Role News Publishing Platform with Content Moderation Workflows

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Our group present a comprehensive news platform that further integrates external news sources with user-generated content through a structured moderation workflow. The system implements role-based access control with three distinct user types: general readers, publishers, and moderators. Key contributions include a dynamic content categorization system based on article length, a dual-mode approval workflow for content management, and seamless integration with external news APIs. The platform addresses challenges in content quality control while maintaining user engagement through responsive design and interactive features.

CCS Concepts: • **Information systems** → *Information retrieval*; **Web applications**.

Additional Key Words and Phrases: News Platform, Content Moderation, User-Generated Content, External News API

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1 INTRODUCTION

Modern news consumption platforms face significant challenges in balancing content quality with user participation. Traditional platforms either rely entirely on professional journalism or allow unrestricted user-generated content, creating gaps in quality control and content diversity. This work presents a hybrid approach that combines curated external news sources with moderated user-generated content.

The system implements a three-tier user hierarchy where general users consume content, publishers create original articles, and moderators ensure quality through approval workflows. This architecture addresses the fundamental tension between content accessibility and quality assurance in digital news platforms.

Our primary research contributions include: (1) a novel content categorization system that dynamically organizes articles by length for improved user experience, (2) a dual-approval workflow that maintains content quality while

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enabling user participation, and (3) an integrated architecture that seamlessly combines external news APIs with user-generated content management.

2 SYSTEM ARCHITECTURE AND DESIGN

2.1 Frontend Architecture

Content Categorization System: Articles are dynamically categorized into three sections based on content length, providing users with immediate visual cues about reading time commitment. This length-based categorization emerged from user interface design principles that suggest different reading contexts require different content presentation strategies.

Adaptive Interface Design: The system implements both light and dark mode themes, addressing user preference diversity and accessibility requirements. The header and footer components were redesigned to support multi-role functionality, with contextual navigation elements that adapt based on user permissions.

Role-Specific Interface Elements: Publishers access dedicated article creation panels with publishing workflows, while moderators receive specialized approval interfaces for pending content review. The interface dynamically renders appropriate controls based on authenticated user roles, ensuring clean separation of concerns in the user experience.

2.2 Backend Architecture

Content Management Functions: Core backend functionality includes PUBLISH operations for publishers, DELETE capabilities for content removal, and APPROVE functions for moderator-controlled content validation. These operations maintain data integrity through transaction-based processing and state validation.

External News Integration: The New York Times API integration was enhanced to support section-based content retrieval, enabling dynamic header functionality and content diversity. External articles maintain an implicit approval status, streamlining the content pipeline for established news sources.

Content State Management: The system implements a boolean approval mechanism where articles exist in either approved or pending states. This binary state system simplifies content filtering while maintaining clear content lifecycle management.

2.3 User Role Implementation

Our platform defines a clear role-based access control model that governs user interactions and content workflows. Users are assigned one of three roles—general readers, publishers, or moderators—each with distinct capabilities and responsibilities within the system.

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Figure 1 provides an overview of the role interaction flow. General readers consume approved content and participate in discussions through comments. Publishers contribute original articles that enter a moderated workflow, ensuring content quality before public visibility. Moderators serve as quality gatekeepers, approving or rejecting submitted content based on established platform standards.

The following sections describe the specific workflows and privileges associated with each user role. **Publisher Workflow:** Publishers create content through dedicated interfaces that immediately place articles in pending status. This workflow ensures all user-generated content undergoes moderation review before public visibility, maintaining content quality standards.

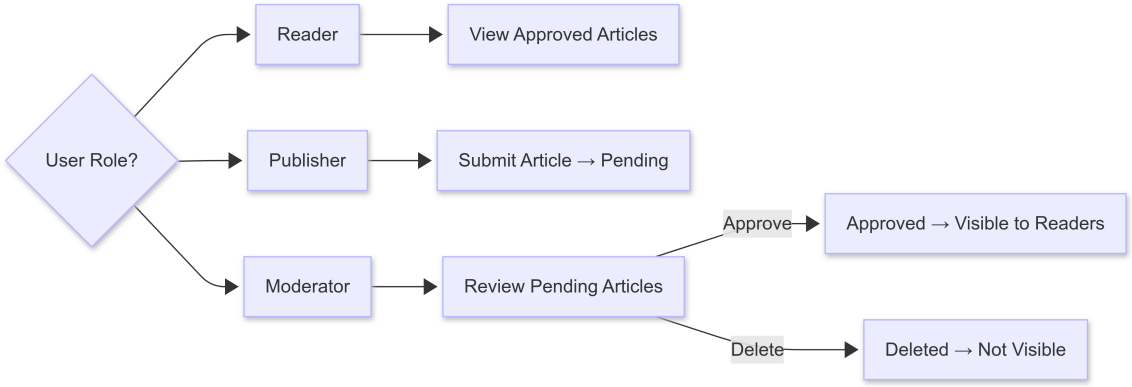

Fig. 1. user role chart

Moderator Functions: Moderators access specialized interfaces for reviewing pending articles, with capabilities to approve or delete submitted content. The moderation workflow implements a single-decision model where articles are either approved for publication or removed from the system.

Content Prioritization: Publisher-generated content receives priority placement in article queries, ensuring user-contributed content maintains visibility alongside external news sources. This prioritization supports community engagement while preserving content hierarchy.

3 TECHNICAL IMPLEMENTATION

3.1 Content Delivery and Filtering

The system implements a sophisticated content filtering mechanism that serves different article sets based on user authentication and role permissions. General users receive only approved content, while publishers and moderators access both approved and pending article collections.

Query Optimization: Article retrieval functions were optimized to handle the dual-content model efficiently, implementing parameter-based filtering that maintains performance while supporting complex permission-based access patterns.

External API Enhancement: The New York Times integration was expanded to support section-based retrieval, enabling more granular content categorization and supporting the redesigned header navigation functionality.

3.2 User Interface Enhancements

Interactive Article Display: The system implements full-article display on user interaction, replacing traditional link-based navigation with in-application content rendering. This approach improves user engagement and reduces navigation complexity.

Comment System Redesign: Comment sections received comprehensive visual and functional redesigns, improving readability and user interaction patterns. The new comment interface supports threaded discussions while maintaining clean visual hierarchy.

Responsive Design Implementation: All interface components implement responsive design principles, ensuring consistent functionality across device types and screen sizes.

4 CONTENT MODERATION WORKFLOW

The implemented moderation system addresses key challenges in user-generated content management through a structured approval process. As shown in Figure **??**, publishers submit articles that enter a pending state, requiring explicit moderator approval before public visibility.

Approval Process: The workflow implements a binary decision model where moderators either approve content for publication or delete it entirely. This simplified decision tree reduces moderation complexity while maintaining content quality control.

Content Lifecycle Management: Articles progress through clearly defined states: creation, pending review, and either approval or deletion. This linear progression ensures consistent content handling and clear user expectations.

Permission-Based Access: Different user roles access different content sets, with general users seeing only approved articles while publishers and moderators access pending content queues for workflow management.

5 SYSTEM INTEGRATION AND PERFORMANCE

The platform successfully integrates external news sources with user-generated content through a unified interface that maintains performance while supporting complex content filtering requirements. The dual-content model enables rich content diversity while preserving quality control mechanisms.

API Integration Efficiency: External news integration maintains real-time content updates while supporting section-based filtering, enabling dynamic content categorization without performance degradation.

User Experience Optimization: The length-based article categorization system improves content discovery by providing immediate visual cues about content commitment requirements, supporting diverse user reading preferences.

6 DISCUSSION AND FUTURE WORK

This work demonstrates the feasibility of hybrid news platforms that combine professional journalism with moderated user-generated content. The implemented role-based architecture successfully addresses content quality concerns while enabling community participation.

Scalability Considerations: The current binary approval system provides a foundation for more sophisticated moderation workflows, including multi-stage review processes and automated content filtering mechanisms.

User Engagement Metrics: Future work should implement comprehensive analytics to measure user engagement patterns across different content types and interface modes, providing data-driven insights for continued platform optimization.

Content Quality Assessment: Advanced content quality metrics could enhance the moderation workflow, providing moderators with automated assistance in content evaluation processes.

7 CONCLUSION

We presented a comprehensive news platform that successfully integrates external news sources with user-generated content through structured moderation workflows. The system implements innovative features including length-based content categorization, role-specific interfaces, and dual-mode content approval processes.

Key technical contributions include the development of a flexible content management architecture that supports both external API integration and user-generated content workflows, a responsive interface design that adapts to user roles and preferences, and a moderation system that balances content quality with user participation.

The platform demonstrates the viability of hybrid news systems that combine professional journalism with community-generated content, providing a foundation for future research in content moderation, user engagement optimization, and scalable news platform architecture

REFERENCES