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**404 Not Found**

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**Digital Newspaper Website  
Vision Document**

**Version 2.0**

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Vision (Small Project)	Date: 19/07/2025
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## Revision History

Date	Version	Description	Author
13/06/2025	1.0	Build some initial visions for the project: - <b>Subsection 2.2:</b> Product Position Statement. - <b>Subsection 3.4:</b> Summary of Key Stakeholders and User Needs. - <b>Section 5:</b> Product Features - <b>Section 6:</b> Non-functional Requirements ( <b>except 6.1:</b> Applicable Standards, <b>6.9:</b> Documentation Requirements, <b>6.10:</b> Priority & Risk)	Lê Thị Minh Thư
		Build some initial visions for the project: - <b>Subsection 3.1:</b> Stakeholder Summary - <b>Subsection 3.2:</b> User Summary - <b>Subsection 3.5:</b> Alternatives and Competition.	Thạch Ngọc Hân
		Build some initial visions for the project: - <b>Subsection 3.3:</b> User environments - <b>Subsection 6.1:</b> Applicable Standards.	Trần Hữu Khang
		Build some initial visions for the project: - <b>Subsection 4.1:</b> Product Perspective, includes relationship explanation, logical architectures and Installation& Deployment view. - <b>Subsection 6.9:</b> Documentation Requirements - <b>Subsection 6.10:</b> Priority& Risk	Lê Đình Minh Quân
		Build some initial visions for the project: - <b>Section 1:</b> Introduction and References - <b>Subsection 2.1:</b> Problem Statement.	Nguyễn Tấn Lộc
19/07/2025	2.0	Add some features to <b>product features:</b> <b>At section 5:</b> Product Features - Add two new product features, <b>index 21:</b> Logout, <b>index 22:</b> Check Plagiarism	Thạch Ngọc Hân
		Add some requirements to <b>non-functional</b>	Lê Thị Minh Thư

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		<p><b>requirements:</b></p> <p><b>At section 6:</b> Non-Functional Requirements</p> <ul style="list-style-type: none"> <li>- <b>Subsection 6.3</b> Performance: Add three new requirements at the end of this subsection.</li> <li>- <b>Subsection 6.7</b> Security: Add three new requirements at the end of this subsection.</li> <li>- Add new <b>subsection 6.11</b> Scalability.</li> <li>- Add new <b>subsection 6.12</b> Data Consistency.</li> </ul>	

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# Vision (Small Project)

## 1. Introduction

The purpose of this document is to collect, analyze, and define high-level needs and features of the Digital Newspaper Website. It focuses on the capabilities needed by the stakeholders and the target users, and **why** these needs exist. The details of how the Digital Newspaper Website fulfills these needs are detailed in the use-case and supplementary specifications.

The introduction of the **Vision** document provides an overview of the entire document. It includes the purpose and references of this **Vision** document.

### 1.1 References

This document use resources derived from:

1. Lecture Notes - Software Engineering Course FIT HCMUS 2024-2025
2. Guideline playlist from our lecturer Ho Tuan Thanh ([Link: https://www.youtube.com/playlist?list=PL3Bp9JDvkAra8rRrUPOpfKdKvJ6-okqaw](https://www.youtube.com/playlist?list=PL3Bp9JDvkAra8rRrUPOpfKdKvJ6-okqaw))

## 2. Positioning

### 2.1 Problem Statement

The problem of	limited accessibility, outdated information flow, and lack of user interaction, and the inefficiency of physical newspaper delivery in the digital era
affects	readers who want to receive news updates as quickly as possible from all fields every day, as well as journalists, editors, and publishers who seek fast, interactive, and reliable methods to consume and manage news content
the impact of which is	users are unable to access news in a timely manner; the cost of printing and distribution is high for both producers and consumers; any reduction in the delivery and distribution process limits access to newspapers, especially for students or individuals without transportation; this leads to lower user engagement and decreased efficiency in content management due to delayed information flow.
a successful solution would be	providing real-time access to news from all fields, allowing users to interact through commenting, sharing, and rating. It also reduces printing and distribution costs. The platform would reach a wider audience, including those in remote areas; support multimedia content such as images, videos, and audio; and enable journalists and editors to manage content efficiently. It should be easily accessible on both mobile and desktop devices — essentially, any device with a web browser.

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## 2.2 Product Position Statement

For	Readers, journalists, editors and publishers
Who	need real-time, accessible, and interactive news content across various fields with minimal reliance on physical distribution
The (product name)	Newspaper Digital Website
That	delivers up-to-date news instantly, enhances user engagement through interactive features (comments, shares, ratings), supports multimedia content, and allows efficient content management
Unlike	traditional digital news outlets (e.g Vietnamnet, VTV24) and print newspapers.
Our product	enhances user engagement, reduces distribution costs, and ensures accessibility anytime, anywhere, even in remote areas

## 3. Stakeholder and User Descriptions

### 3.1 Stakeholder Summary

Name	Description	Responsibilities
Client/ Project sponsor	The person or entity who sets the project's requirement and goals	<ul style="list-style-type: none"> <li>- Provide initial requirements</li> <li>- Approve deliverables at each phase</li> <li>- Ensure the product meet objectives</li> </ul>
IT support / hosting admin	The person managing the development environment	<ul style="list-style-type: none"> <li>- Configure the web sever</li> <li>- Monitor performance and uptime</li> <li>- Support deployment when needed</li> </ul>
Legal and polly advisor	A representative concerned with copyright, user data privacy and usage terms	<ul style="list-style-type: none"> <li>- Ensure compliance with content copyright laws</li> <li>- Draft/review "Privacy policy" and "Terms of use" pages</li> </ul>

### 3.2 User Summary

Name	Description	Responsibilities	Stakeholder
General reader	A typical user who visits website to read new	<ul style="list-style-type: none"> <li>- Comment in news</li> <li>- Read articles</li> <li>- Search for news</li> <li>- Share articles on social media</li> </ul>	Client / project sponsor
Admin user	System administrator	<ul style="list-style-type: none"> <li>- Manage articles (create/edit/delete)</li> <li>- Manage categories</li> <li>- Moderate content</li> <li>- Manage account</li> </ul>	Client / project sponsor

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Content editor	A person responsible for entering and editing article content	<ul style="list-style-type: none"> <li>- Write and edit articles</li> <li>- Tag and categorize content</li> <li>- Ensure correct spelling and formatting</li> </ul>	Content provider
Guest user	A visitor who accesses the site without logging in	<ul style="list-style-type: none"> <li>- Read articles</li> <li>- No interaction features (no comment, no bookmarks)</li> <li>- Prompted to register</li> </ul>	Project sponsor
System maintainer	A technical person responsible for ensuring the system runs properly	<ul style="list-style-type: none"> <li>- Update the system</li> <li>- Fix bugs</li> <li>- Monitor server performance</li> </ul>	IT support/hosting admin

### 3.3 User Environment

#### User Roles and Involvement

Role	Description	Number of users involved	Task Cycle Frequency
Reader	Consumes news content through reading articles, commenting, sharing, and saving favorites	Thousands	Daily or weekly visits; each session lasts ~5–15 minutes
Writer	Submits articles for editorial review	Small (10-20)	Weekly or bi-weekly submissions
Editor	Reviews, edits, approves, and manages published content	Few (3-5)	Daily monitoring and updates
Admin	Manages system settings, users, and site performance	1-2	Ongoing maintenance and periodic reviews

#### Current and Future Platforms

Platform type	Current use	Future support plan
Web Browser	Primary platform (Chrome, Firefox, Safari, Edge)	Continue full support; improve PWA capabilities
Mobile Devices	Not currently used	Not planned unless demand increases
Tablets	Supported via responsive layout	No major changes planned; ensure UI consistency
Desktop Apps	Not currently used	Not planned unless demand increases

#### Integration with Other Applications

Application	Purpose	Integration needed?
Email Services	Newsletter delivery	Yes
Social Media Platforms	Article sharing	Partial

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Analytics Tools	Track traffic and engagement	Yes
Authentication Providers	Social login options	Optional

### Task Cycles and Time Spent

- **For Readers:**
  - Daily Reading : Average session duration is 5–15 minutes.
  - Weekly Engagement : Users may spend more time on weekends exploring in-depth articles.
  - Commenting/Interaction : Occurs occasionally during or after reading.
  - Favorite Saving/Sharing : Typically done once per session if content resonates.
- **For Writers:**
  - Article Submission Cycle : ~1–2 days from writing to submission.
  - Time Spent per Article : Varies from 1–8 hours depending on depth and research required.
- **For Editors:**
  - Review Cycle : Within 24–48 hours of article submission.
  - Editing & Approval : ~30 mins to 1 hour per article.

### Environmental Constraints

- Device Usage :
  - Writers and editors primarily use desktop/laptop computers for content creation and management.
- Location :
  - Readers access the platform from various locations: home, office, public transport.
  - Writers/editors work remotely or from office environments.
- Connectivity :
  - Most users expect stable internet connectivity. Offline features could be considered in future versions.
- Accessibility Needs :
  - Responsive design supports accessibility standards (e.g., screen readers, keyboard navigation).

## 3.4 Summary of Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Real-time access to news	High	Users can't get news updates immediately when using printed newspapers or old websites.	Physical newspapers or static websites with delayed updates.	Provide live-updated digital articles accessible from any device with internet.



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Interactive features (comment, rate)	High	Users want to express opinions and engage in discussions, but have limited means	Most print media offer no interaction; some sites have limited or unmoderated comments.	Enable commenting, rating, and moderation to ensure safe interaction and foster community engagement.
News accessibility on any device	High	People who live far away or don't have a computer find it hard to access the website.	Paper-based delivery or desktop-only websites.	Ensure responsive web design accessible from mobile, tablet, and desktop.
Moderated comment system	High	If users see rude or harmful comments, they may not trust or enjoy using the platform.	No moderation or only basic word filters.	Implement comment moderation queue and filter inappropriate content before publishing.
Saving and viewing reading history	Low	Users may forget or lose articles they found useful or interesting.	Use external bookmarks or lose track completely.	Allow logged-in users to save favorites and view their reading history.
Sharing articles	Low	Users want to easily share news with friends and on social platforms.	Manual copy-pasting or limited sharing buttons.	Integrate share buttons for platforms like Facebook, Zalo, Instagram, etc.
Content management for journalists	High	Journalists/editors need fast and efficient tools to publish and update articles.	Manual tools, email chains, or CMS with limited functionality.	Build a web-based editor panel for content creation, editing, approval, and scheduling.
Support for multimedia content	Medium	Users want more engaging content formats like video, image, and audio.	Static text articles dominate most traditional news formats.	Integrate support for embedded images, videos, and audio in articles.
Tag-based article browsing	Medium	Users want to explore articles by topic or tag.	Users can only find content by looking through fixed categories, which makes it harder to find specific articles.	Add tags to articles so users can find related content more easily.
User role management (reader/writer/editor)	High	Different users need different access levels to manage content.	All users have the same access rights, regardless of their role.	Implement role-based access control system.
Personalized article recommendations	Medium	Users want suggestions based on their reading habits or trending content.	Static homepage content.	Recommend articles based on history and favorite saved articles.

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View analytics and usage statistics	Medium	Editors/ admins need insight into performance of articles and user behavior	No metrics, or use of external tools.	Generate built-in reports and stats for views, ratings, and user activity.
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### 3.5 Alternatives and Competition

Alternatives	Description	Perceived Strength	Perceived Weakness
Báo Mới	News aggregators that link to various sources across Vietnam	High traffic, popular among casual news readers	No original content, links out to other platforms, not a place to publish directly
VnExpress / ZingNews	Popular Vietnamese online newspapers with professional newsrooms	High credibility, large reader base, professional editorial teams	Not open for user-generated content, limited to professional journalism teams
Google News	Aggregator apps that curate news from various publishers	High visibility, large user base, personalized content delivery	Requires integration, hard to stand out among major news brands, not a writing platform itself
Facebook	News often shared via Facebook Pages or community groups	Viral reach potential, easy for readers to engage or comment	Poor content organization, algorithm-controlled visibility, not ideal for long-form reading

## 4. Product Overview

### 4.1 Product Perspective

The **Digital Newspaper Website (DNW)** is an independent, cloud-hosted web application that delivers real-time news while tightly integrating with several external services (authentication, object storage, analytics, and social-sharing APIs). From a system perspective it occupies the presentation-and-content-management layer of the organisation's information ecosystem and will expose well-defined interfaces to downstream and upstream components.

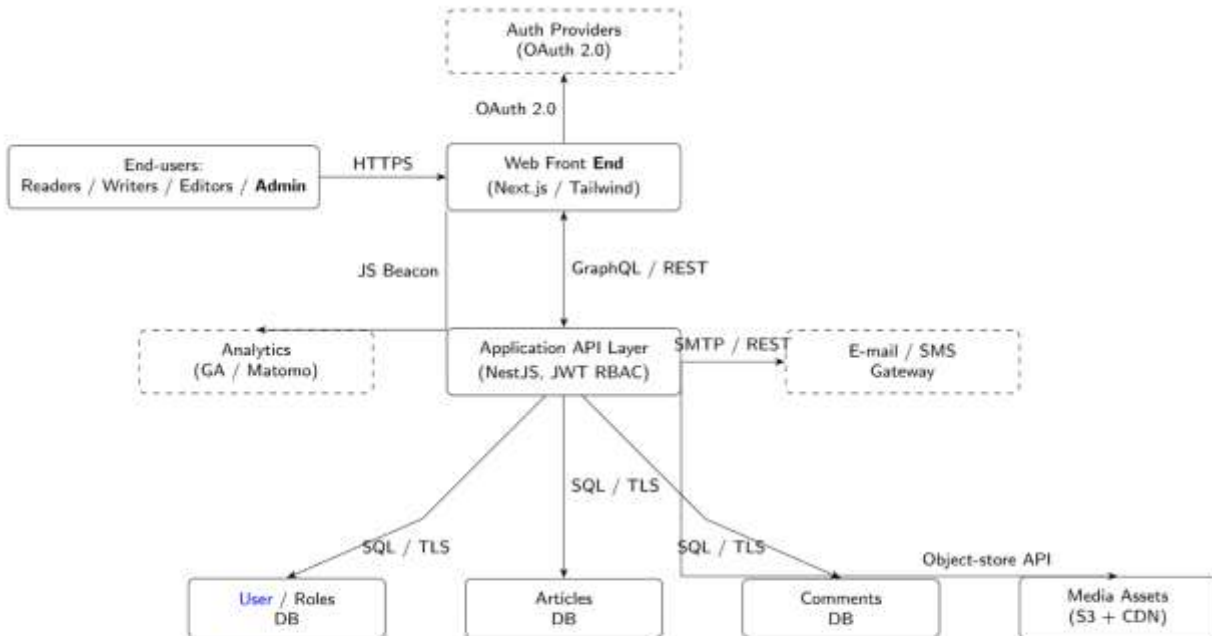
System Context:

Actor / External System	Interaction	Rationale
<b>End-users (Reader, Writer, Editor, Admin)</b>	HTTPS over modern browsers	Consume or manage content through responsive UI (desktop + mobile).
<b>Authentication Providers (Google, Facebook, Apple)</b>	OAuth 2 / OpenID Connect	Optional single-sign-on to reduce registration friction.
<b>Object Storage &amp; CDN (AWS S3 + CloudFront or equivalent)</b>	REST (signed URLs)	Store and serve images, video and audio at scale with low latency.
<b>Relational Database (PostgreSQL)</b>	TLS-secured connection from API layer	Persist articles, comments, user profiles, roles and audit trails.
<b>Analytics Platform (e.g. Google Analytics or Matomo)</b>	JS tracking snippet + server-to-server events	Measure traffic, engagement and content performance.

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<b>E-mail/SMS gateway</b>	SMTP / REST	Deliver password-reset links, account notifications, editorial alerts.
<b>Social-media APIs</b>	REST / GraphQL	One-click article sharing; fetch engagement metrics for dashboards.
<b>Third-party news aggregators (optional future)</b>	RSS 2.0 / JSON Feed	Syndicate selected published articles to external channels.

High-Level Logical Architecture:



*All inter-service traffic is encrypted via TLS; secrets are managed with the cloud provider's secret-manager service.*

#### 4.1.1.1 Relationship to Other Products

- The DNW will **replace legacy static pages** currently hosted under *news.example.edu.vn*, providing a unified publishing workflow instead of manual HTML uploads.
- It will **export RSS/JSON feeds** so that the university portal and mobile app can embed “Latest News” without duplicating data.
- No direct dependencies exist on existing on-premise systems besides the institutional single-sign-on (if adopted); therefore the website can be deployed, scaled, or migrated independently.

#### 4.1.1.2 Installation & Deployment View

- **Primary environment:** Containerised micro-services (Docker) orchestrated by AWS ECS/Fargate (or GCP Cloud Run) behind an application load balancer.
- **Staging environment:** Replica of production with smaller instance sizes; used for CI-driven automated

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testing and user-acceptance demos.

- **Local developer setup:** docker-compose up spins up Next.js, NestJS, PostgreSQL and MinIO (S3-compatible) for rapid development with parity to prod.

Key Interfaces Summary:

Interface	Protocol / Format	Frequency
Browser ⇌ Front End	HTTPS, HTML 5, WebSockets (live comments)	Continuous
Front End ⇌ API	REST/JSON + GraphQL, JWT auth	Continuous
API ⇌ Database	PostgreSQL, SQL	Continuous
API ⇌ Object Store	HTTPS (pre-signed PUT/GET)	Burst—on upload/view
API ⇌ Auth Provider	OAuth 2.0 flows	On login
Front End ⇌ Analytics	JS Beacon, Batched	Every page view
API ⇌ E-mail Gateway	SMTP / SendGrid REST	Event-driven

## 4.2 Assumptions and Dependencies

- The Newspaper Digital Website is assumed to be deployed on a modern cloud-based infrastructure and will remain stable and supported throughout the project lifecycle.
- The existing User Authentication and Role Management modules will continue to be supported and maintained until at least 2027.
- The system is expected to operate using a relational database (such as MySQL), and changes to a NoSQL database would require redesigning major parts of the system.
- It is assumed users will access the system using modern web browsers, and support for outdated browsers will not be provided.
- It is assumed that third-party sharing APIs (e.g., Facebook, Twitter) will remain stable and accessible.
- It is assumed that the organization will retain an active moderation team (editors and admin) to review inappropriate comments and approve content prior to publishing.
- Internet connectivity is required for full system functionality. Offline support is not planned in the initial version.

## 5. Product Features

No	Feature	Description	Priority
1	Read Articles	Users can read full-length article	High
2	Search	Search article by keywords, authors or categories	High

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3	Filter Articles	Filter articles by category, author, or keyword.	Medium
4	Commenting and Rating	Users can leave comments and rate articles.	High
5	Sharing Articles	Users can share articles via social media such as Facebooks, Zalo, Instagram,..	Medium
6	Save Favorite Articles	Users can save articles to a favorites list for quick access later.	Low
7	Article Tags	Articles include tags for better categorization and discoverability.	Medium
8	View Reading History	Users can view a history of articles that they have read.	Low
9	Priority Article Recommendations	System recommends articles based on user's interests or trending topics.	Medium
10	User Role Management	Different roles (reader, writer, editor) have specific access	High
11	Create and Submit Articles	Users can create and submit articles for review and approval.	High
12	Article Review and Approval	Editors can review and approve submitted articles before they are published	High
13	Article Management by Editors	Editors can create, edit, approve, or delete articles to maintain quality and accuracy.	High

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14	Responsive UI	Interface adapts across desktop, tablet, and mobile devices.	High
15	User Registration/ Login	Users can register and log in to access personalized features (rate, share, comment, create article,...)	High
16	Change Password/ Password Recovery	Users can change their password or recover it if they forgot.	High
17	Light/Dark Mode Interface	Users can switch between light and dark themes for better readability.	Medium
18	Comment Moderation	Comments containing inappropriate language are automatically flagged and sent to moderators for review before being shown publicly.	High
19	Reporting and Statistics	Generate reports and view statistics on articles, views, ratings, and user activity.	Medium
20	Multimedia Content Support	Allow articles to include images, videos, and audio to make content more engaging and interactive for users.	Medium
21	Logout	Allow users to securely log out of their current session to protect their account, especially when using shared or public devices.	High
22	Check Plagiarism	Allow admins to check the plagiarism of the articles, enables writers to verify if the content they submit contains any plagiarized material by comparing it against a database of existing sources.	High

## 6. Non-Functional Requirements

### 6.1 Applicable Standards

- ISO/IEC 25010 – Systems and Software Quality Requirements: Defines usability as the degree to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.
- Web Content Accessibility Guidelines (WCAG): Ensure web content is accessible to people with disabilities (visual, auditory, motor, cognitive).
- ISO/IEC 27001 – Information Security Management: Provides a framework for securing sensitive data like user credentials and personal information.
- Google Lighthouse Performance Score: Helps optimize the website for faster loading and smoother interactions, improving SEO and user retention.
- IEEE Std 1012-2012 – Software Verification and Validation: Guides testing strategy and ensures high-quality code delivery.

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## 6.2 Hardware and Platform Requirements

- Deployable on both Windows and Linux servers.
- Must support all major modern browsers (Chrome, Firefox, Edge, Safari).
- Fully responsive on mobile, tablet, and desktop devices.

## 6.3 Performance

- Average page load time must be under 3 seconds.
- Capable of handling at least 10,000 concurrent users.
- Server response time should be under 1 second for standard requests.
- Filtered results must be returned within 2 seconds.
- Article searches should complete in under 2 seconds.

## 6.4 Availability

- System uptime must be guaranteed 24/7, ensuring that users can access the website at any time.
- Scheduled maintenance or upgrades must occur no more than once every 3 months and should be announced in advance.
- Annual downtime must not exceed 1 hour in total.

## 6.5 Fault Tolerance

- If the user experiences a browser crash, internet disconnection, or sudden shutdown, the system should auto-save in-progress data (e.g., comments, draft articles).

## 6.6 Usability

- Ensure responsive design for tablets, smartphones, laptops.
- The system supports both light mode and dark mode

## 6.7 Security

- The system shall deactivate a user account for 30 minutes if the user enters the wrong password three times consecutively.
- If a user forgets their password, the password reset link must be sent only to the original registered email address.
- The OTP (One-Time Password) for resetting the password must expire after 30 seconds
- User passwords must be encrypted.
- MFA should be optionally enforced on sensitive operations (password change, password recovery, register)
- Sessions expire after a defined period of inactivity.

## 6.8 External Constraint and Dependencies

- Integration with social media platforms such as Facebook and Instagram for sharing news.
- Requires stable internet connectivity for real-time update

## 6.9 Documentation Requirements

- A User Manual will be provided in PDF and online format to guide readers on browsing, searching, and interacting with news articles.
- An Admin Manual will be created for journalists and editors on how to create, edit, and manage news

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content.

- A Quick Start Guide will be embedded on the homepage for first-time users.
- Online Help will be integrated into the website with tooltips and a help section.
- Installation Guide for developers to deploy the system locally or on a cloud serve

#### **6.10 Priority & Risk**

- High-priority features include real-time news updates, user interaction (comments, shares), and responsive web design
- Low-priority features include AI-powered recommendations.
- Medium-priority features include multimedia support (videos, audio), editor tools, and personalized content.

#### **6.11 Scalability**

- The system must support up to 10,000 concurrent users without significant performance degradation.

#### **6.12 Data Consistency**

- All actions like commenting, rating, and filtering must reflect immediately in the UI.