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**Digital Newspaper Website
Software Development Plan (Small Project)
Version 2.0**

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Software Development Plan (Small Project)	Date: 16/07/2025
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Revision History

Date	Version	Description	Author
13/06/2025	1.0	Make first proposal for the project, and arrange the work, timeline management.	Thạch Ngọc Hân: Section 1 Lê Đình Minh Quân: Section 2 Nguyễn Tấn Lộc: Section 3 Trần Hữu Khang: Section 4
16/07/2025	2.0	Update management process At 4.1: Completing manging cost At 4.2: Revising based on consistency and drawing a Gantt Chart.	Lê Đình Minh Quân: Fill in 4.1 Trần Hữu Khang: Update Gantt Chart for 4.2

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Software Development Plan (Small Project)

1. Introduction

The **Digital Newspaper Website** project aims to design and develop a dynamic online platform for publishing, managing, and distributing news content in a modern, accessible, and responsive manner. This system will serve as a digital alternative to traditional print newspapers, providing timely updates, multimedia support, and user-friendly navigation across devices.

1.1 Purpose

The purpose of this Software Development Plan is to consolidate all necessary information required to manage and control the development of the **Digital Newspaper Website** project. It outlines the overall strategy for software development and serves as the top-level plan used by project managers to guide and oversee the development effort.

This plan is intended for use by the following roles:

- **Project Manager:** to establish the project timeline, allocate resources effectively, and monitor progress against planned milestones.
- **Project Team Members:** to understand their responsibilities, task timelines, and dependencies with other team activities.

1.2 Scope

The scope of this project includes:

- Development of a web-based platform for publishing articles, images, and videos.
- User roles and permissions: Admin, Editor, Journalist, and Reader.
- Support for categorization of news (e.g., Politics, Technology, Sports, Entertainment).
- Integration of basic analytics to monitor reader engagement.
- Mobile-responsive design to ensure accessibility on desktops, tablets, and smartphones.
- Deployment and initial maintenance of the system.

1.3 Overview

This **Software Development Plan** outlines the comprehensive approach to managing the development of the **Digital Newspaper Website** project. It provides essential guidance and structure to ensure that the project is executed efficiently and meets its intended goals. The key components of this plan include:

- **Project Overview:** Describes the project's purpose, scope, and objectives. It also outlines the key deliverables expected from the project, such as the completed digital newspaper platform, supporting documentation, and deployment materials.
- **Project Organization:** Details the structure of the project team, including roles and responsibilities of team members. It explains how the team is organized to facilitate communication, collaboration, and effective decision-making.
- **Management Process:** Defines the processes and development methodologies to be used throughout the project lifecycle. This includes planning, task assignment, progress tracking, risk management, and quality assurance practices.
- **Project Monitoring and Control:** Explains how the project's status will be tracked and reported. It describes the metrics and tools that will be used to monitor progress, evaluate performance, and implement corrective actions to ensure the project stays on schedule and within budget..

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2. Project Overview

2.1 Project Purpose, Scope, and Objectives

The Digital Newspaper Website project aims to develop a comprehensive online news platform that serves as a central hub for publishing, managing, and consuming news content. The system will support three distinct user roles (readers, writers, and editors) with role-specific functionalities.

Purpose:

- Create a modern, responsive web-based news platform that enables real-time content publishing and management
- Provide an intuitive interface for readers to discover, read, and interact with news articles
- Establish a streamlined workflow for content creation, review, and publication
- Support multimedia content including images and videos within articles

Scope: The project encompasses the development of:

- A responsive web application accessible across all devices and modern browsers
- User authentication and authorization system with three role types
- Content management system for article creation, editing, and publishing
- Reader engagement features including comments, ratings, and article sharing
- Search and filtering capabilities by keyword, author, and category
- User preference features including dark/light mode, reading history, and saved articles
- Administrative dashboard for content management and approval workflows

Objectives:

- Deliver a fully functional news website by August 16, 2025
- Implement all 17 key features as specified in the project requirements
- Ensure cross-platform compatibility (Windows, macOS, Android, iOS)
- Achieve responsive design that works seamlessly on desktop, tablet, and mobile devices
- Establish a secure, scalable architecture using modern web technologies
- Create comprehensive documentation for system maintenance and user guidance

2.2 Assumptions and Constraints

Assumptions:

- All 5 team members will be available full-time for the project duration (June 12-August 16, 2025)
- Team members possess the necessary skills in web development, database management, and UI/UX design
- Microsoft SQL Server Express 2022 is already installed and configured for development use
- Development and testing environments are readily available
- Stakeholders will be available for feedback during sprint reviews
- Internet connectivity and development tools are accessible to all team members

Constraints:

- **Timeline:** Fixed deadline of August 16, 2025, allowing 65 days for complete development
- **Technology:** Must use Microsoft SQL Server Express 2022 as the database system
- **Resources:** Limited to 5 team members with no option for additional resources
- **Scope:** All 17 features must be implemented within the timeline
- **Platform:** Must ensure compatibility with all major browsers and operating systems
- **Performance:** Microsoft SQL Server Express limitations (10GB max database size, 1GB RAM usage)
- **Budget:** No specific budget allocated for third-party tools or services

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2.3 Project Deliverables

The following artifacts will be delivered by the project completion date of June 30, 2025:

1. Software Deliverables:

- **Web Application** (August 16, 2025)
 - Fully functional Digital Newspaper Website with all 17 features implemented
 - Responsive design tested on desktop, tablet, and mobile devices
 - Cross-browser compatible (Chrome, Firefox, Safari, Edge)

2. Technical Documentation:

- **System Architecture Document** (August 16, 2025)
 - Technology stack details: React.js frontend, Node.js/Express.js backend, Microsoft SQL Server Express 2022
 - API documentation for all endpoints
 - Database schema and entity-relationship diagrams
- **Deployment Guide** (August 16, 2025)
 - Step-by-step installation instructions
 - Server configuration requirements
 - Environment setup procedures

3. User Documentation:

- **User Manual** (August 16, 2025)
 - Reader guide for browsing, searching, and interacting with content
 - Writer guide for article creation and submission
 - Editor guide for content management and approval workflows
- **Administrator Guide** (August 16, 2025)
 - User role management procedures
 - System configuration options
 - Backup and recovery procedures

4. Testing Artifacts:

- **Test Plan and Test Cases** (July 15, 2025)
- **Test Execution Report** (July 29, 2025)
- **User Acceptance Testing Results** (July 30, 2025)

5. Project Management Deliverables:

- **Project Plan** (June 12, 2025 - this document)
- **Sprint Reports** (June 19 and June 26, 2025)
- **Project Closure Report** (August 16, 2025)

6. Source Code and Database:

- **Complete source code repository** with version history (August 16, 2025)
- **Database creation scripts** and initial data setup (July 30, 2025)
- **Configuration files** for all environments (July 30, 2025)

3. Project Organization

3.1 Organizational Structure

This project is organized using a functional team model, with the project leader coordinating and overseeing all activities. The development team has two people who is responsible for implementing the core functionalities of the system. Additionally, two members oversee testing the quality of the final product. Among them, one member also takes on the role of a business analyst, supporting and clarifying user requirements.

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3.2 Roles and Responsibilities

Person	Role	Responsibilities
Trần Hữu Khang	Project manager	Plan the project, tasks, monitor progress, support team in solving technical issues and coordinate overall activities.
Nguyễn Tấn Lộc	Development (back-end)	Develop sever-side functionalities, manage database, APIs
Lê Đình Minh Quân	Development (front-end)	Design and develop the user interface, connect to APIs
Thạch Ngọc Hân	Tester	Design and execute test cases, perform functional testing, log and track software bugs.
Lê Thị Minh Thư	Tester + Business Analyst	Test software, gather and analyze user requirements, write business requirement documents.

4. Management Process

4.1 Project Estimates

Cost-and-Schedule Summary:

Item	Estimate
Calendar duration	11 weeks (12 Jun – 16 Aug 2025)
Team size	5 full-time members
Total effort	≈ 2 200 person-hours
Phase effort split	Inception 18 % · Elaboration 27 % · Construction 36 % · Transition 18 %
Average blended labour rate	10 USD / hour
Personnel cost	≈ 22 000 USD
Cloud & tool licences	300 USD
Contingency (10 %)	2 300 USD
Total budget	≈ 24 600 USD

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Basis of Estimates :

- **Scope anchoring** – 17 mandatory features defined in the Vision document and adopted unchanged in this plan.
- **Analogy** – effort pattern taken from prior FIT-HCMUS web projects of comparable size (≈ 400 h per RUP phase).
- **Delphi cross-check** – estimates converged in a two-round Delphi session with PM, dev, and QA on 14 Jun 2025.
- **Labour rate** – faculty-approved notional rate for student projects (no actual payroll).

Schedule Confidence: Critical-path analysis shows a 10-day float during Construction; overall we have $\approx 70\%$ **confidence** of delivering the Final Release by 16 Aug 2025 if no high-impact risks materialise.

Re-estimation Triggers :

Trigger event	What is re-estimated	Timing
End of each iteration (Weeks 6-10)	Remaining effort, cost burn-up, earned value	Iteration review (Fri 17:00)
Approved Change Request adding ≥ 8 story-points	Scope, effort, schedule	Within 2 working days
High-impact risk from § 4.3.3 becomes “actual”	Contingency reserve	Immediately
Velocity deviates $> 15\%$ from plan for two successive weeks	All of the above	At second deviation

All re-estimation results are recorded in the next status report and—where necessary—reflected in the project plan, budget, and risk register.

4.2 Project Plan

4.2.1 Phase Plan

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Digital Newspaper Website - Project Gantt Chart

11-week development timeline (May 17 - August 31, 2025)



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Phase	Start Week	End Week	Deliverables
Inception	Week 1	Week 2	Vision Document Stakeholder Analysis High-level Use-Cases Initial Risk Assessment
Elaboration	Week 3	Week 5	Detailed Requirements System Architecture Technical Design Risk-Mitigation Strategy
Construction	Week 6	Week 9	Front-end UI Back-end APIs DB Schema Unit & Integration Tests Alpha Internal Release (Week 9)
Transition	Week 10	Week 11	Beta External Release Final Production Release User-Feedback Collection Hyper-care & Warranty

Milestone	Achievement Criteria	Target Week
Finalization of project vision and scope	Reviewed and approved by project manager	Week 2
System architecture and design completed	Reviewed and approved by technical lead	Week 5
Minimum Viable Product (core features) completed	All user stories tested	Week 9
First version available to external users	Deployed to beta environment, feedback collected	Week 10
Full system deployed and launched	All bugs fixed, production deployment complete	Week 11

4.2.2 Iteration Objectives

Iteration	Objectives
Iteration 1	Build core user authentication and UI foundation
Iteration 2	Implement article display and search functionality
Iteration 3	Add social interaction and personalization features
Iteration 4	Develop content creation and management tools
Iteration 5	Enhance editorial control and polish UI/UX

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4.2.3 Releases

Release	Type	Planned Week
Alpha	Internal	Week 9
Beta	External	Week 10
Production	Public launch	Week 11

4.2.4 Project Schedule

Phase	Start Week	End Week
Inception	Week 1	Week 2
Elaboration	Week 3	Week 5
Construction	Week 6	Week 9
Iteration 1	Week 6	Week 6
Iteration 2	Week 7	Week 7
Iteration 3	Week 8	Week 8
Iteration 4	Week 9	Week 9
Transition	Week 10	Week 11
Iteration 5	Week 10	Week 10
Final Release	Week 11	Week 11

4.2.5 Project Resourcing

Role	Responsibilities	Skills	Phase Allocation
Project Manager	Oversee project timeline, budget, communication	Leadership, Agile	All
Business Analyst	Gather and document requirements	Communication, UML, Use Case Modeling	Inception, Elaboration
Frontend Developer	Build responsive UI components	React.js	Elaboration, Construction
Backend Developer	Develop APIs, database logic	Node.js	Elaboration, Construction
QA Engineer	Test features, write test cases	Manual and automated testing, Postman	Construction, Transition

4.3 Project Monitoring and Control

4.3.1 Requirements Management

As the project progresses, it is expected that some requirements may evolve due to new insights, feedback, or technical constraints. Changes to requirements are formally managed through the following process:

- 1. **Change Request Submission**

Any proposed change to the requirements must be submitted using a Change Request Form , which includes:

- Description of the requested change
- Reason/purpose for the change
- Impact on scope, schedule, and resources
- Priority level

- 2. **Impact Assessment**

The Project Manager and Business Analyst evaluate the impact of the change on:

- Development effort

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- Testing strategy
- User experience
- Integration dependencies
- Timeline and resource allocation

• 3. Approval by Configuration Management Process

Once assessed, the change request is presented to the Project Review Board (comprising the client sponsor, lead developer, and business analyst) for approval. Approved changes are incorporated into the project plan and associated documentation.

• 4. Implementation and Tracking

Approved changes are scheduled into upcoming iterations and tracked using tools such as Jira or Trello . The implementation status is updated regularly and linked back to the original requirement.

• 5. Verification and Closure

After implementation, the change is verified through testing and reviewed with stakeholders to ensure alignment with expectations before closing the change request.

4.3.2 Reporting and Measurement

Updated cost and schedule estimates, and metrics summary reports, will be generated at the end of each iteration.

The Minimal Set of Metrics, as described in the RUP [Guidelines: Metrics](#), will be gathered on a weekly basis. These include:

Earned value for completed tasks. This is used to re-estimate the schedule and budget for the remainder of the project, and/or to identify need for scope changes.

Total defects open and closed – shown as a trend graph. This is used to help estimate the effort remaining to correct defects.

Acceptance test cases passing – shown as a trend graph. This is used to demonstrate progress to stakeholders.

In addition, overall costs will be monitored against the project budget.

4.3.3 Risk Management

Risk Ranking (High, Medium, Low)	Risk Description and Impact	Mitigation Strategy and/or Contingency Plan
High	Unauthorized access to user data could lead to loss of trust, legal penalties, and reputational damage.	<ul style="list-style-type: none"> - Implement robust security measures (e.g., HTTPS, encryption, two-factor authentication). - Conduct regular penetration testing and vulnerability assessments. - Train developers on secure coding practices.
High	Users find the website difficult to use or unappealing.	<ul style="list-style-type: none"> - Conduct usability testing with real users during development. - Gather feedback through surveys and A/B testing. - Ensure responsive design and fast load times.
Medium	The project has a lack of timely updates.	<ul style="list-style-type: none"> - Establish a content management workflow with deadlines. - Use automated reminders and notifications for editors. - Have backup plans for sourcing content.
Medium	Technical Debt Accumulation, letting deadlines overdue.	<ul style="list-style-type: none"> - Enforce coding standards and best practices. - Regularly conduct code reviews and refactoring sessions.

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		- Prioritize technical debt reduction in sprints.
Low	Downtime due to server issues could temporarily disrupt service availability.	<ul style="list-style-type: none"> - Use cloud-based hosting with redundancy (e.g., AWS, Google Cloud). - Implement backups and disaster recovery plans. - Monitor server health and performance metrics.
Low	Uncontrolled expansion of features could lead to delays and budget overruns.	<ul style="list-style-type: none"> - Clearly define project scope and requirements upfront. - Use change control processes to manage new requests. - Prioritize features based on stakeholder value. - Regularly review and update the project scope with stakeholders.

4.3.4 Configuration Management

Appropriate tools will be selected which provide a database of Change Requests and a controlled versioned repository of project artifacts.

All source code, test scripts, and data files are included in baselines. Documentation related to the source code is also included in the baseline, such as design documentation. All customer deliverable artifacts are included in the final baseline of the iteration, including executables.