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Report for
July Revolution Digital Gallery Development

Project name: **July Gallery**

Submitted by:

Group: 8
Md. Sarwar Uddin (2111709642)
Tanvir Mehtab (1812079642)
Md. Rafid Hasan (2013013642)

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Introduction

This project report which outlines the development of a historical website focused on documenting the July Revolution and history behind it. The website aims to serve as a comprehensive digital archive of the historical events showcasing photographs, and other media that reflect the spirit of July Revolution. It will provide an accessible and secure platform for users to explore and contribute to the historical narrative.

Background and Product Context

The **July Revolution Gallery** project was conceptualized as a digital platform to showcase the artistic and photographic works that emerged during the July Revolution. The inspiration for this project stemmed from the growing need to document and preserve historically significant moments through visual media, while simultaneously providing a space for artists, activists, and enthusiasts to share their creations with a broader audience.

The **product context** revolves around the creation of a responsive, user-friendly web application designed to collect, categorize, and display images in a visually appealing manner. By integrating modern web technologies, the project offers features such as:

- **Categorized Gallery**: Organizing images into categories like *Protest Images*, *Police Brutality*, *Resistance*, and *Martyrs*, ensuring intuitive navigation.
- **Dynamic Content Management**: Role-based access for admins, moderators, and members, enabling the management of uploaded content through features like image approval, user moderation, and tagging.
- **Advanced Features**: Support for tagging images with metadata, optional NSFW warnings, user engagement features like comments and likes, and location-based mapping of images.

The gallery addresses technical and user challenges such as optimizing performance for mobile devices, enhancing image responsiveness, and improving loading times through features like automatic thumbnail generation. Additionally, it integrates an aesthetic and functional approach to showcasing the artwork, using responsive layouts and modern design principles.

This platform not only serves as a repository of revolutionary art and photography but also creates a collaborative and interactive space for users to engage with the content and its creators. It is envisioned as a lasting digital monument to the July Revolution, preserving its visual history for future generations.

User Story

Use Case 1:

Actor: Ahmed (Journalist)
Goal: Upload an image about the July Revolution.

Ahmed logs into the website and submits photos he took during the revolution. The system sends the submission to the moderation team for review. After approval, the images are published with content warnings for sensitive material.

Use Case 2:

Actor: Sara (Student)
Goal: Find information about a specific event.

Sara uses the website's search feature to find information about a key event in the July Revolution. The system displays results, and Sara clicks on an image to read. Content warnings appear before sensitive material.

Use Case 3:

Actor: Tanvir (Moderator)
Goal: Approve or reject submitted content.

Tanvir reviews newly submitted media. He checks for accuracy and adherence to guidelines. If the content is appropriate, he approves it for publication; if not, he sends feedback to the contributor.

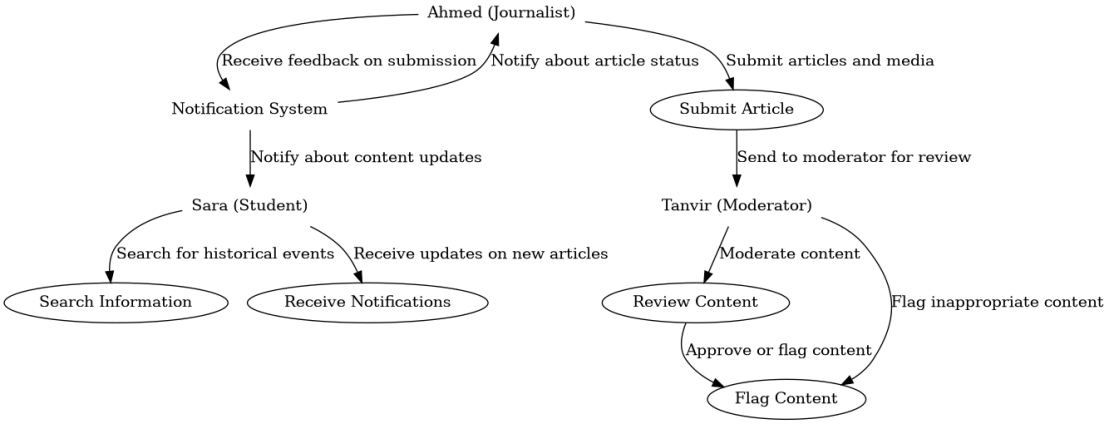


Figure: Use Case Diagram

Solution Description

Architecture

The project is designed as a monolithic web application using a three-tier architecture. It incorporates structured separation of concerns across the presentation, application, and data tiers, ensuring scalability, maintainability, and responsiveness.

The application is built as a single unit where all components are tightly integrated and interact directly. Features such as user management, image gallery, and recent activity tracking are implemented within the same codebase. This simplifies deployment and reduces development complexity.

The application adopts a layered design with the following tiers:

- Presentation Tire(Front-end): HTML, CSS, Javascript, Bootstrap, JQuery
- Application Tire(Backend): PHP, Ajax
- Data Tire(Database): MySQL

Figure: Architecture Overview

Front-end plan

1. **Home Page**
    a. Overview of the site, main contents, and navigation.
2. **Search Result Page**
    a. Displays search results.
    b. Ajax on the index page.
3. **Image Details Page**
    a. Provides detailed view of a media item.
4. **Users Profile Details Page**
    a. Shows details about contributors and their contributions.
5. **Content Submission Page**
    a. Allows users to submit images.
6. **Register and Login Page**
    a. User registration and login forms with email verification.
7. **Profile Edit Page**
    a. Allows contributors to edit their profile information.

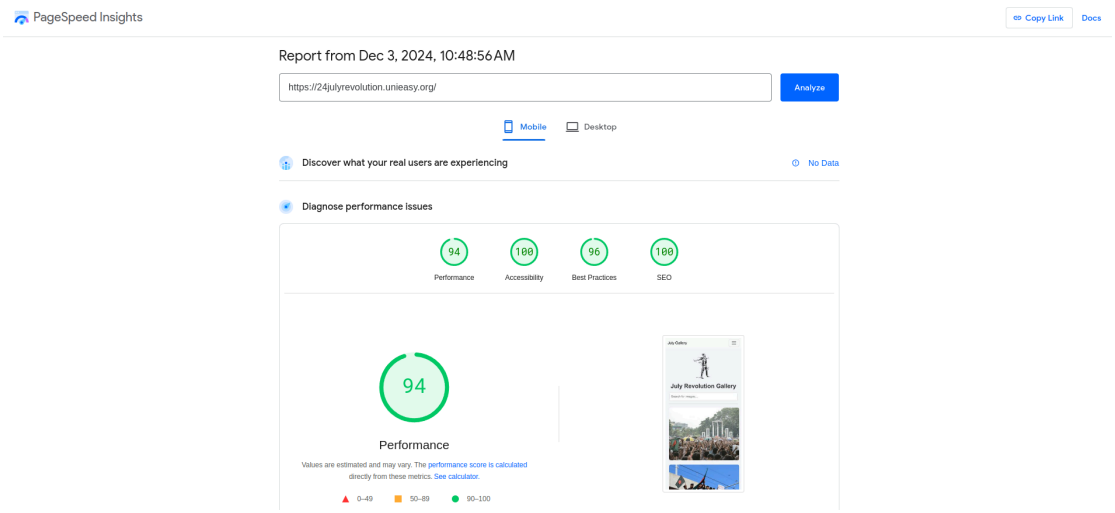
Back end development

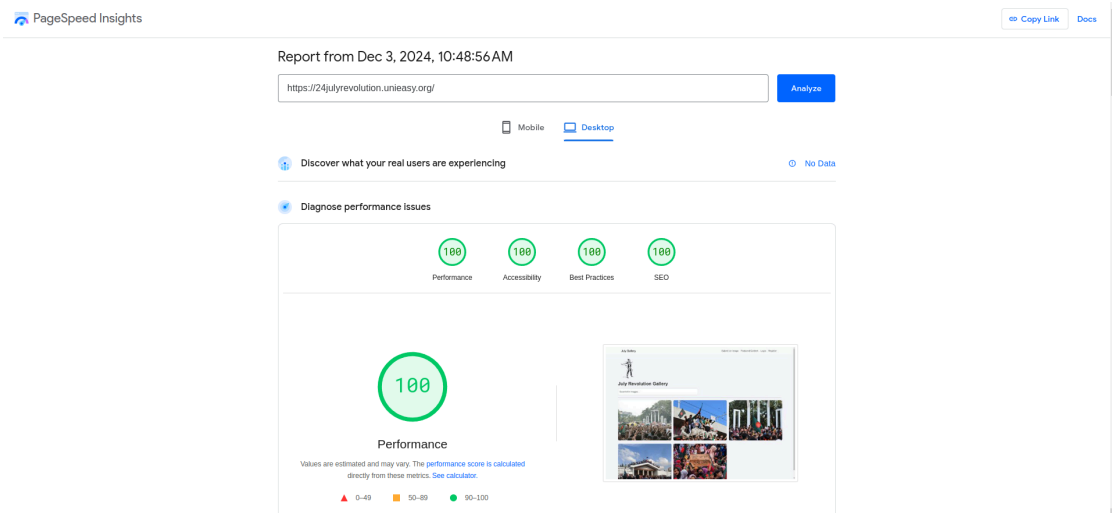
1. **Account Creation and Password Recovery:**
    a. **Sign-Up Form**: User registration with email verification.
    b. **Login**: Standard login functionality.
2. **Authentication:**
    a. **Email Login**: Primary login method.
3. **MySQL Database:**
    a. **Schema Design and Development**: Designed and managed the database schema to handle user accounts, posts, comments, likes etc.
4. **Profile Management:**
    a. **User Profiles**: Contributor profiles, including personal information and contribution history..
5. **Searching Facility:**
    a. **Content Search**: Search by title or description using Ajax.
6. **API Calling:**

a. **Payment Request:** Send an API request to SSLcomemerz to initiate the payment;
b. **Response and Validation:** SSLcommerz will sent response later on which will be sent forvalidation by API calling and return the payment status

Performance:

1. **Performance Testing using WebPageTest:**





2. **Security Performance:**
    a. **Prepare statement(Avoid SQL injection):** Avoid directly embedding user input into SQL queries. Always use prepared statements to safely execute SQL queries.

```
$stmt = $conn->prepare("SELECT * FROM users WHERE username =
?");

$stmt->bind_param("s", $username);

$stmt->execute();
```

b. **Escape User Input (XSS prevention):** Use `htmlspecialchars()` to encode special characters.

Additional Considerations

1. **Design and Accessibility:**
    a. **Mobile-First Design**: Optimized the design for mobile users as a priority.
2. **Functional Requirements:**
    a. **Responsive Front-End**: Ensured the site is fully responsive across devices.
    b. **Data Access Control**: Restrict bulk data downloads to anonymous users; allow access for paid, verified, or premium users.

Development Plan

Development Methodology:

The development of the gallery project followed the **Incremental Model**, which is a hybrid approach combining iterative and sequential development methodologies. This model was chosen to divide the system into manageable increments, allowing for gradual implementation and testing of functionalities while incorporating feedback at each stage. The methodology ensured faster delivery of working modules, enabled efficient resource management, and allowed adaptability to evolving requirements.

Phase 1

Duration: 6 weeks for development + 1 week for final deployment.

Objectives:

- Develop a Minimum Viable Product (MVP) with essential features and initial UX design.
- Establish middleware to support Service-Oriented Architecture (SOA).
- Implement the front-end plan as outlined.

Deliverables:

- **Functional Website**: A fully deployed, functional website with acceptable performance and user experience.
- **Performance**: Basic hosting optimized for performance and minimal latency.

- **User Experience**: Basic UX aligned with the initial design plan.

Tasks:

1. **Week 1-2:**
    - Set up project infrastructure and development environment.
    - Begin front-end and back-end development for MVP.
    - Develop basic middleware components.
2. **Week 3-4:**
    - Continue front-end and back-end development.
    - Implement initial UX design.
    - Integrate middleware with front-end and back-end.
3. **Week 5-6:**
    - Complete development of MVP features.
    - Conduct initial testing and debugging.
    - Prepare for deployment.
4. **Week 7:**
    - Finalize deployment setup.
    - Deploy MVP to production.
    - Conduct post-deployment testing and validation.

Phase 2

Objectives:

- Optimize the performance of the website based on the initial release and user feedback.
- Focus on performance improvements and meet detailed performance targets.

Deliverables:

- **Optimized Website**: A site with improved performance, meeting specified optimization and performance targets.

Tasks:

1. **Week 8-9:**
    - Analyze performance metrics and identify areas for improvement.
    - Implement performance optimizations (e.g., image compression, caching, CDN usage).
    - Refine UX based on feedback from MVP phase.
2. **Week 10:**
    - Final performance testing and tuning.
    - Prepare documentation and deployment for optimized site.
    - Release the optimized version.

Phase N

Objectives:

- Define goals and expectations for future phases based on insights gained from Phase 1 and Phase 2.
- Plan for additional features and improvements, such as mobile versions or advanced functionalities.

Tasks:

1. **Planning Session:**
    - Conduct a detailed planning session to outline goals for future phases.
    - Gather and analyze user stories and feedback from previous phases.
    - Define new features and improvements based on user needs and project objectives.
2. **Future Development:**
    - Plan and implement new features, such as mobile versions and push notifications.
    - Continue iterative development and refinement based on ongoing feedback.

Hardware/Hosting Plan

Here is a detailed cost cloud plan. We have to choose one that fits best and is also economical.

- Domain & Hosting: hostinger.com
- Transacted Amount: 4500 BDT
- Time Duration: 28-04-2024 to 27-4-2025

Collaboration Plan

Communication:

- **Platform:** Messenger Group
- **Purpose:** The messenger group will be used for real-time communication among team members. It will facilitate quick discussions, updates, and informal interactions.

Project Schedule

The Week-Based Gantt Chart below shows an estimated schedule for our project.

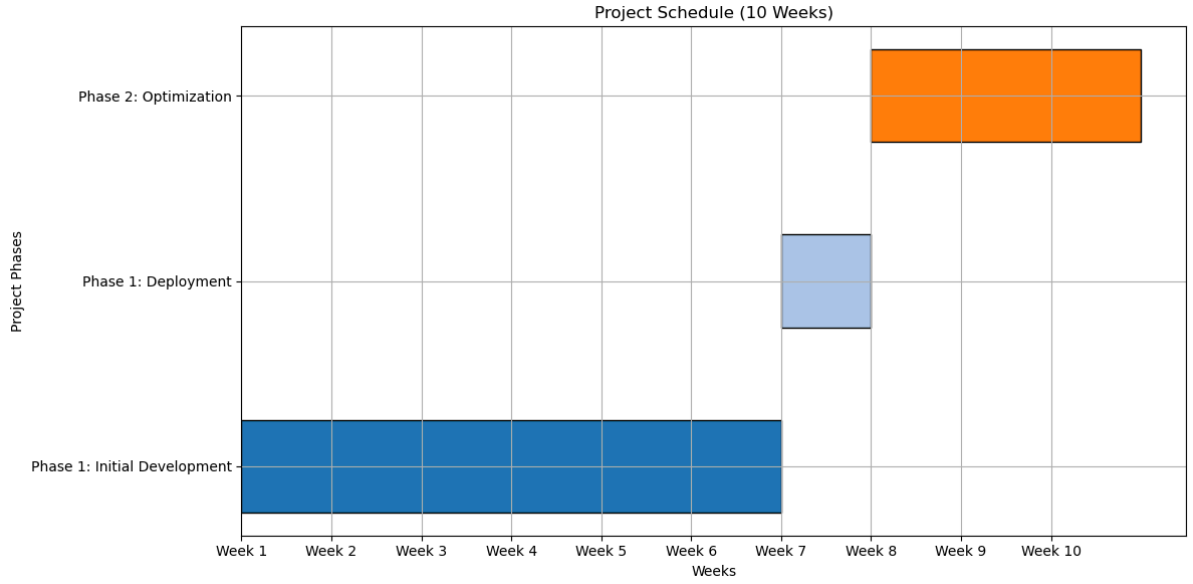


Figure: Gantt Chart

Budgetary Price

Excluding front-end development, the total project duration is 6 weeks. We will extensively use free and open source tools to keep the cost minimum. Additionally, based on requirements revealed

during project development, we will select the appropriate cloud hosting. That expense is not estimated yet.

Appendix

Contact Information

Md. Sarwar Uddin
Email: sarwar.uddin@northsouth.edu

Tanvir Mehtab
Email: tanvir.mehtab@northsouth.edu

Md. Rafid Hasan
Email: rafid.hasan01@northsouth.edu

Md.Sahib Khan Chowdhury
Email: sahib.khan@northsouth.edu