Assignment 2

Software Project Management

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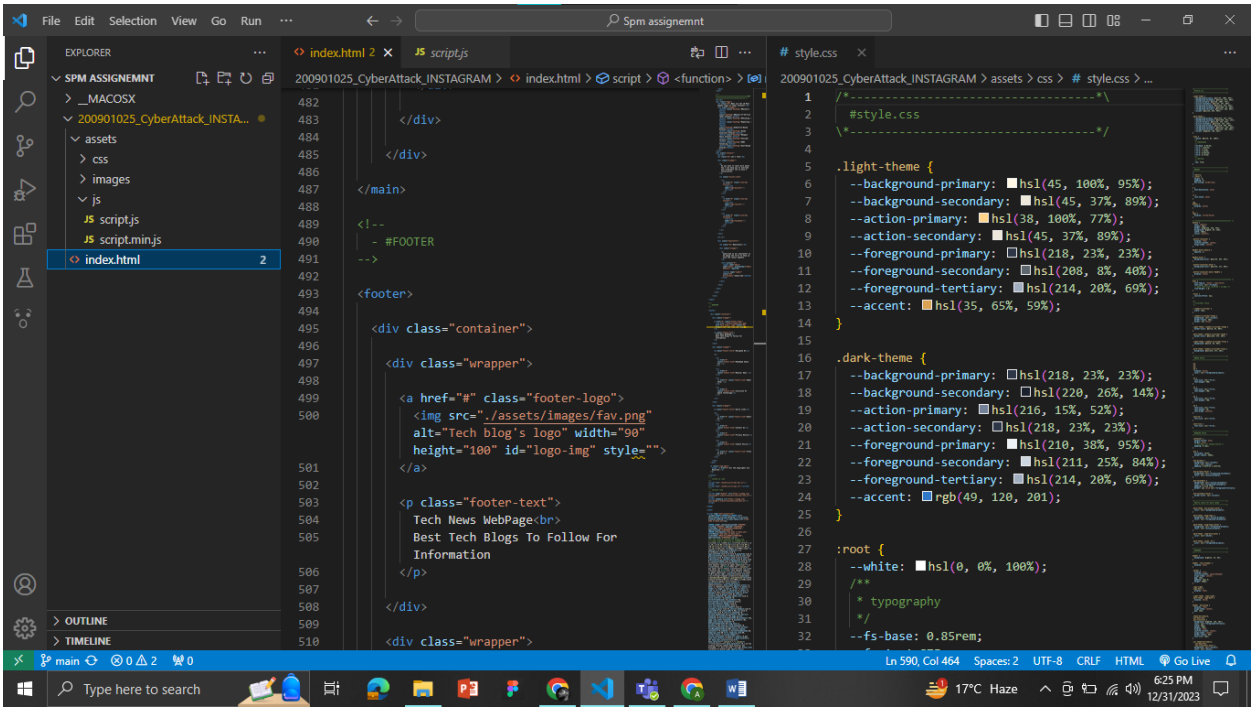
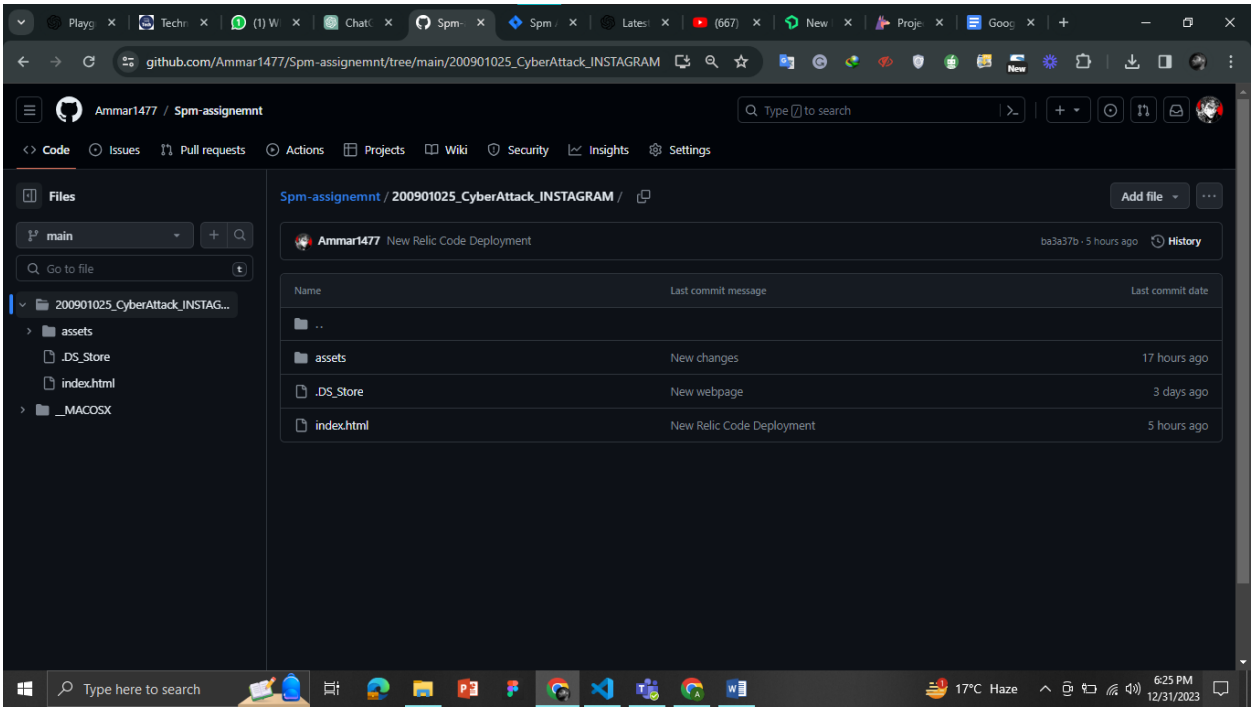
DevOps Implementation Report for Web Application Project

In the rapidly evolving landscape of software development, the integration of DevOps practices has become essential. This assignment encapsulates our journey through the implementation of such practices in a comprehensive web application project. We navigated through the complexities of continuous integration and deployment, ensuring high standards of security, performance, and team coordination. The use of cutting-edge tools like GitHub, GitLab CI, GitHub Pages, Snyk, New Relic, and Jira has not only streamlined our development pipeline but also fortified the robustness of our final deliverable. Through this report, we reflect on the methodologies employed and the synergy between various DevOps tools that underpinned the successful execution of our project.

1. Project Environment: GitHub and Visual Studio Integration

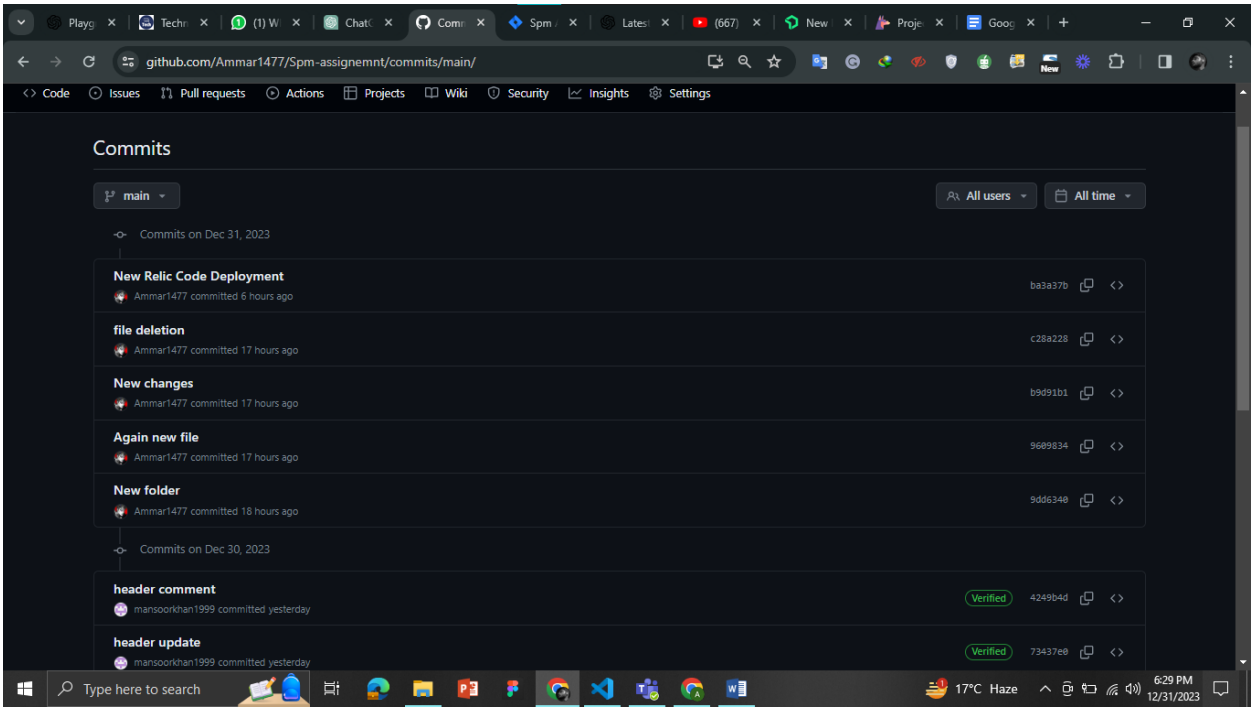




Explanation:

The project repository on GitHub serves as the central hub for our codebase, leveraging Git's version control capabilities. Integration with Visual Studio enabled seamless code synchronization and collaboration, streamlining the development workflow.

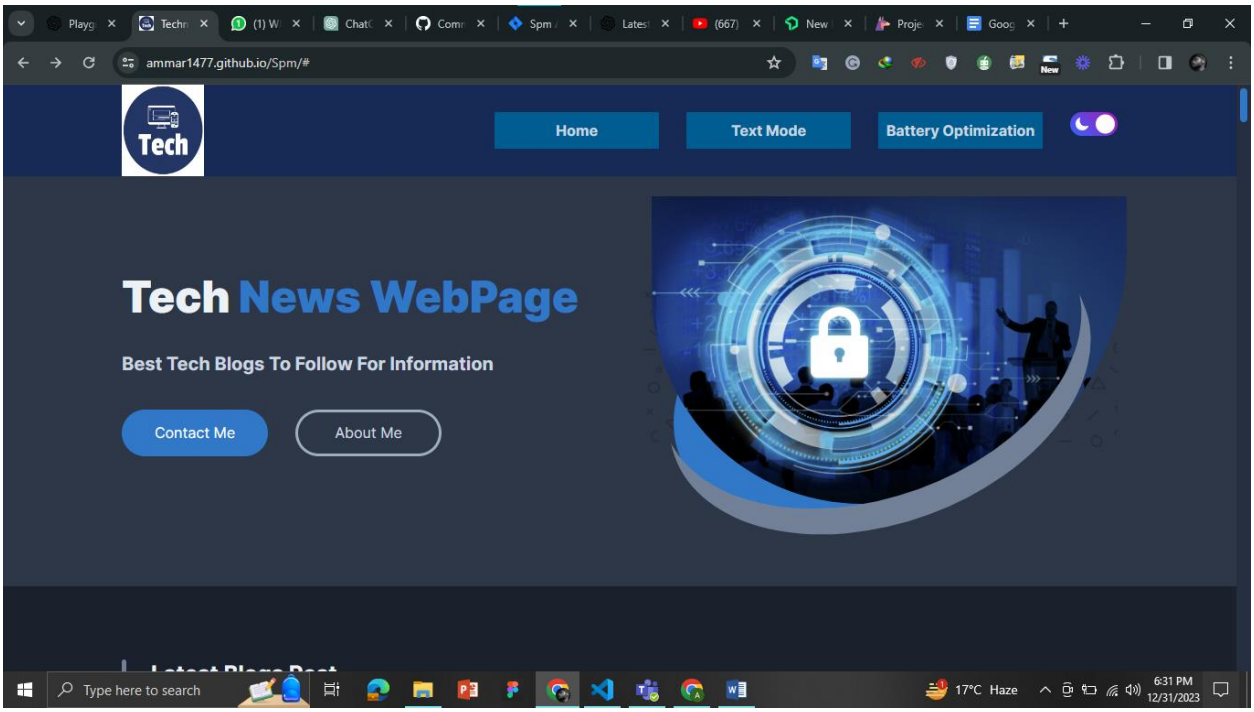
2. Continuous Integration: GitLab CI



Explanation:

Utilizing GitLab CI, we automated our build and testing processes, ensuring that every commit and merge request was verified, leading to a robust and error-resistant code integration practice.

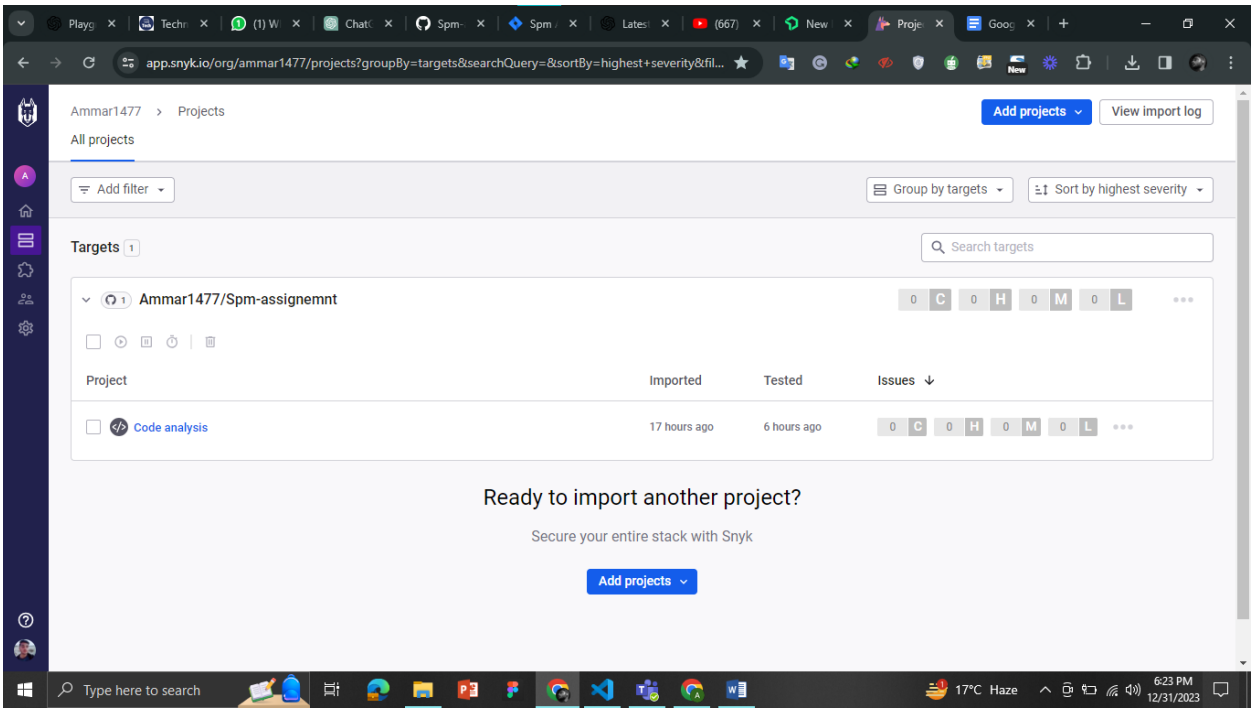
3. Continuous Deployment: GitHub Pages



Explanation:

GitHub Pages provided a platform for continuous deployment, where the latest version of the website was automatically published upon each commit to the repository, reflecting real-time updates and improvements.

4. Security Scanning: Snyk



Explanation:

Snyk played a crucial role in preemptively identifying and addressing security vulnerabilities, integrating with our CI pipeline to ensure a secure codebase before deployment.

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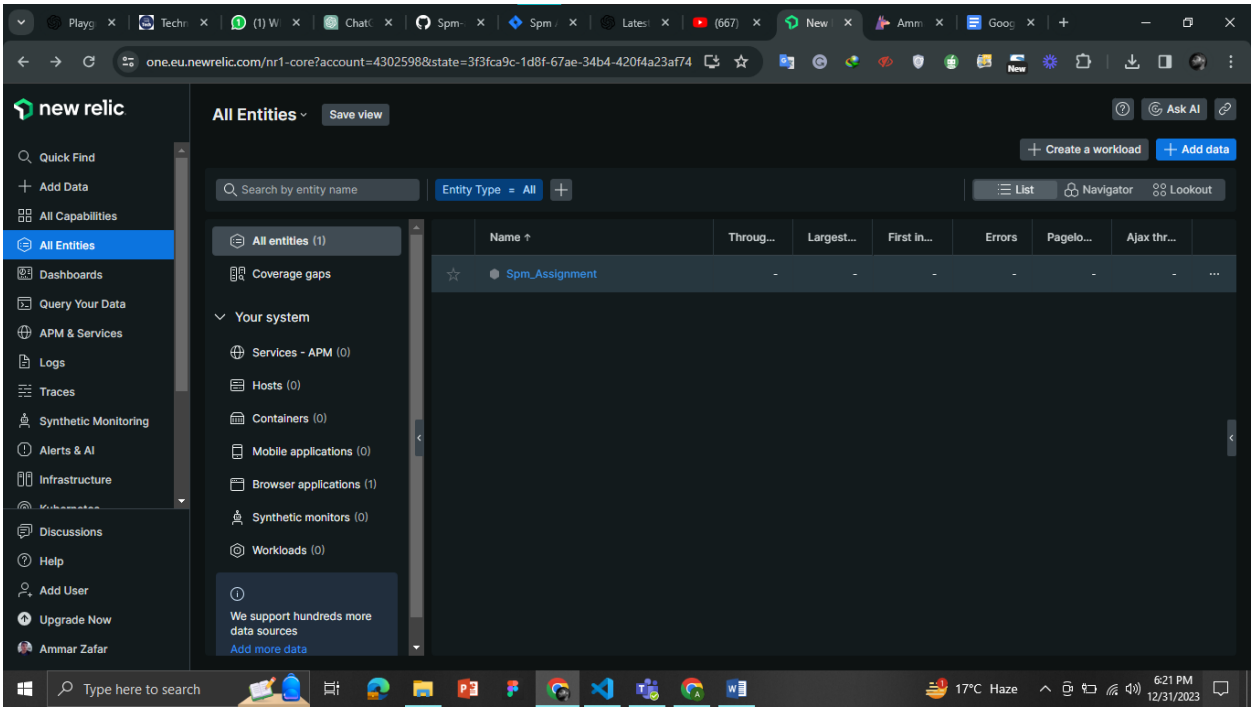
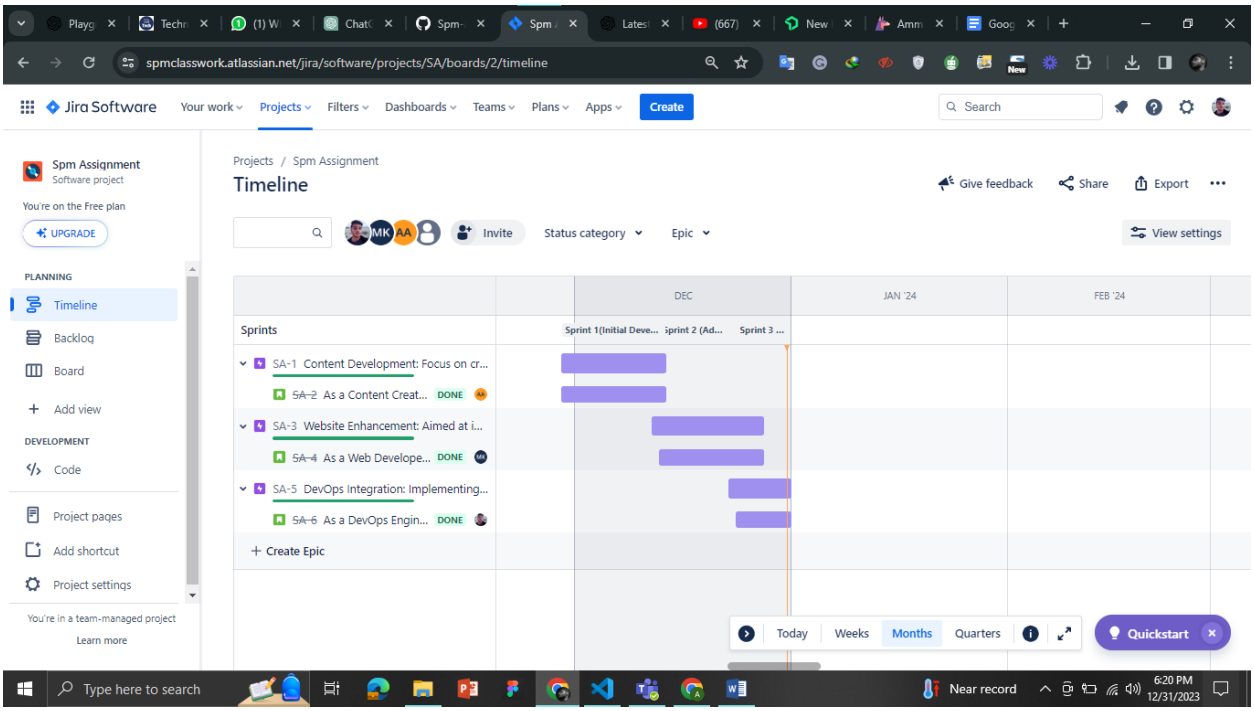
5. Monitoring and Logging: New Relic & Github Actions



Explanation:

For monitoring and logging within our project, New Relic and GitHub Actions played a pivotal role. New Relic was instrumental in providing real-time insights into our application's performance, enabling us to identify and troubleshoot issues promptly. It offered comprehensive visibility into the system's health through various metrics such as response times, error rates, and throughput. On the other hand, GitHub Actions complemented these capabilities by automating our workflows, including performance tests and logs consolidation. This combination ensured our team had a robust, responsive, and automated way to maintain high application quality and reliability.

6. Project Management: Jira



Explanation:

Jira supported our agile project management approach, enabling effective sprint planning, task tracking, and team collaboration, which was pivotal for maintaining project timelines and quality.

Conclusion

In conclusion, this project exemplifies the successful integration of DevOps practices in web application development. Through the utilization of GitHub for SCM, GitLab CI for continuous integration, GitHub Pages for continuous deployment, Snyk for security scanning, New Relic for monitoring and logging, and Jira for agile project management, we established a streamlined, collaborative, and efficient workflow. This has not only optimized our deployment cycle but also enhanced the security and performance of the application, ensuring a reliable and user-friendly

product. The application of these tools and practices represents a significant step towards the adoption of best practices in software development and operations.