

6. DevOps Implementation

Version Control Practices

Git Workflow

GitHub Integration

Continuous Integration/Continuous Deployment

GitHub Actions Configuration

Build Server Setup

Testing Pipeline

Containerization

Docker Implementation

Container Registry

Cloud Deployment

Google Cloud Setup

Netlify Frontend Deployment In our project, we utilize Netlify as the platform for hosting and deploying our frontend application. Netlify offers an automated and seamless deployment workflow by integrating directly with our GitHub repository. Every time changes are pushed to the main branch, Netlify automatically pulls the latest code, runs the specified build command (npm run build), and deploys the application to its globally distributed Content Delivery Network (CDN).

As part of this automated process, Netlify provides real-time feedback on the deployment status. If the npm run build command succeeds, the application is immediately deployed, and the live site is updated. If the build fails, Netlify generates detailed logs, making it easy to identify and resolve any issues. After deployment, Netlify confirms whether the site was successfully deployed, ensuring full transparency in the deployment process.

In addition, for every pull request, Netlify runs a Lighthouse audit to evaluate the performance, accessibility, best practices, and SEO of the site. This feature provides a clear score and actionable insights, helping us continuously optimize

the application before merging changes into the main branch. By catching potential issues at the pull request level, we ensure that only high-quality updates make it into production.

Netlify's integration with GitHub and automated workflows significantly streamline our deployment process. With features like automatic builds, deployment status notifications, and Lighthouse audits on pull requests, we are able to maintain a high-quality frontend application. Its global CDN ensures that the deployed site loads quickly for users worldwide, further enhancing the user experience. By leveraging Netlify, we have a reliable, efficient, and developer-friendly solution for managing our frontend deployment pipeline.

Monitoring and Maintenance