Bounteous AI Hackathon

Ctrl-AI-Hack

ReviewGenie

June 2-6

bounteous × Accolite

Agenda

- Problem
  - Manual code reviews are time-consuming, inconsistent, and prone to missing security/code smells.
  - Post-release defects and delays due to missed issues in PRs.
- Impact
  - **Reduced Review Time:** Faster approvals and reduced wait times for developers.
  - **Consistency:** Ensures objective, standard-compliant reviews.
  - **Higher Quality:** Identifies security risks and code smells proactively.
  - **Fewer Post-Release Defects:** Reduces the risk of bugs and vulnerabilities reaching production.
- Solution
  - **AI-driven Tool:** Flags security issues, code smells, and enforces org-specific guidelines.
  - **Customizable:** Aligns with company-specific coding standards.
  - **Faster Approvals:** Automated suggestions for quick fixes and better code quality.

Problem / Impact

Problem

- Manual code reviews are slow, inconsistent, and prone to missing security vulnerabilities and code issues. This leads to delays in approvals, inconsistent code quality, and potential defects post-release.

Target Audience

- **Software Developers:** Looking to streamline time-consuming manual code reviews.
- **Engineering Teams:** Aiming to improve code quality, consistency, and reduce security risks.
- **DevOps Teams:** Interested in integrating automation into CI/CD pipelines for efficiency.
- **Tech Leads & Managers:** Focused on boosting productivity, reducing technical debt, and speeding up releases.
- **Security Experts:** Ensuring secure code and preventing vulnerabilities in production.

Impact

- **Cost Savings:** Reduces manual review time, improving developer productivity and lowering operational costs.
- **Faster Time to Market:** Speeds up PR approvals, enabling quicker feature deployment and better customer satisfaction.
- **Improved Quality:** Fewer defects and vulnerabilities, ensuring a more stable product.
- **Innovation:** AI-driven reviews offer a unique, scalable solution that differentiates the organization.

$100K

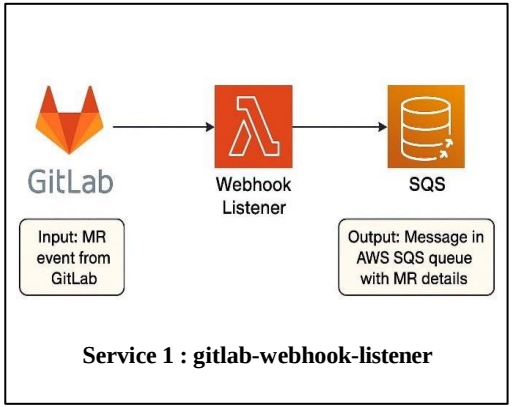
Saving / Revenue etc

Solution

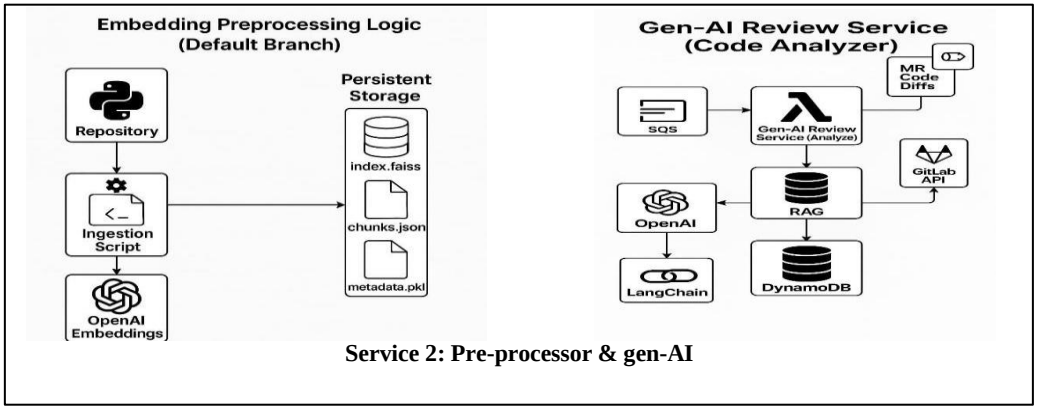
An LLM-based tool that integrates into your GitLab and triggers on Merge Request to:

- **Automated Code Reviews:** Automatically scans every pull request to flag security vulnerabilities, code smells, and deviations from organizational coding guidelines.
- **Customizable Guidelines:** Tailor the tool's review process to align with your organization's specific coding practices and standards, ensuring it enforces best practices that matter most to your team.
- **Security Vulnerability Detection:** Flag potential security risks in the code (such as SQL injections, XSS vulnerabilities, etc.) based on predefined rules and patterns.
- **Code Smell Detection:** Identify suboptimal code structures, such as duplicate code, unused variables, and overly complex functions, that could lead to future maintenance challenges.
- **Suggested Improvements:** Provide suggestions for code improvements, such as refactoring opportunities, performance enhancements, and more concise code alternatives.
- **Faster Approvals:** By automatically flagging and suggesting fixes for common issues, PR reviews can be completed much faster, improving developer productivity and reducing friction in the review process.
- **Easy Integration:** Seamlessly integrates with common code hosting platforms (GitHub, GitLab, Bitbucket, etc.), requiring minimal setup to get started.

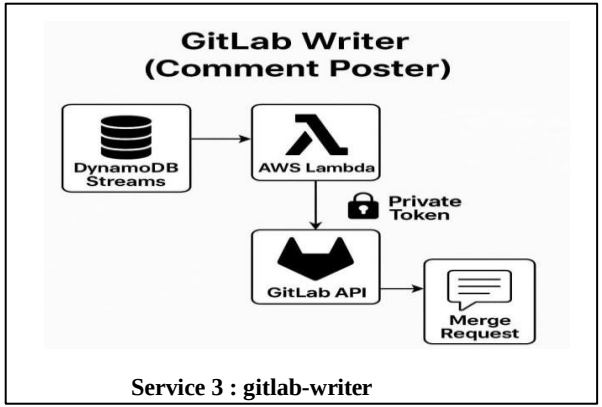
Technical Architecture



Service 1 : gitlab-webhook-listener

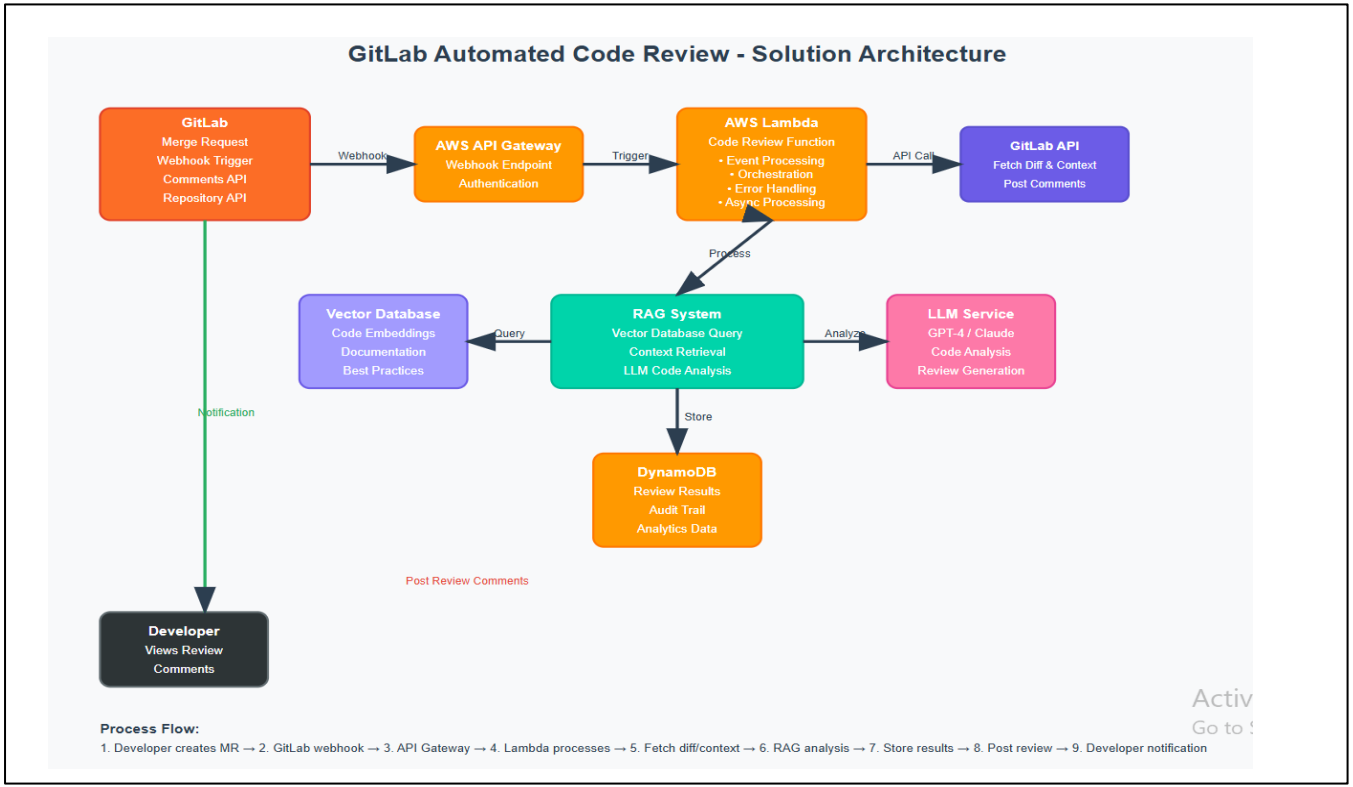


Service 2: Pre-processor & gen-AI



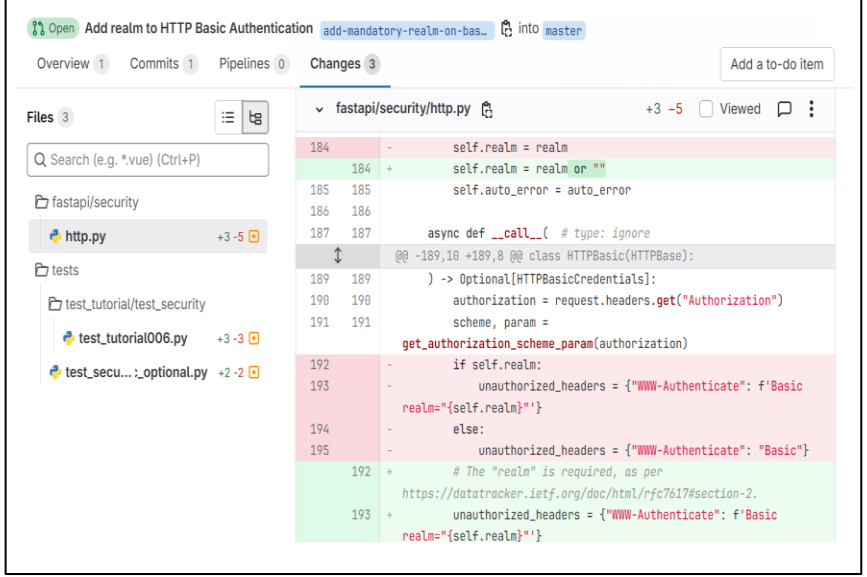
Service 3 : gitlab-writer

Solution Design

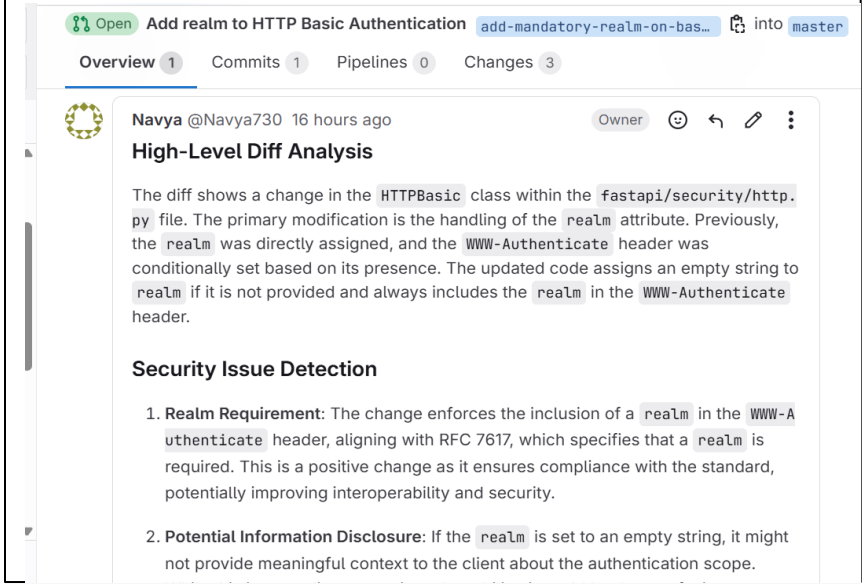


Screenshot of working solution

- **Merge Request Diff**



- **ReviewGenie Analysis on Merge Request**



Demo Link

- Please find the Demo of ReviewGenie below.

ReviewGenie Demo

Thanks