

Bonus Task – Innovation Challenge (Extra 10%)

Proposal: AI-Powered Code Review Assistant

Purpose

The AI-Powered Code Review Assistant is designed to automate and enhance the software code review process. Manual code reviews are time-consuming, inconsistent, and prone to human bias. This tool uses machine learning models to analyze code quality, detect anti-patterns, suggest improvements, and ensure coding standards are met before integration.

Workflow

1. Developer commits code to a version control system (e.g., GitHub).
2. The AI Code Review Assistant is triggered via a CI/CD pipeline.
3. It performs static code analysis, scans for common bugs, security issues, and style violations.
4. The tool generates a human-readable review report with suggestions and confidence levels.
5. Developer accepts or rejects suggestions and pushes updates.
6. Approved code is automatically flagged as ready for deployment or further manual review.

Impact

This tool will significantly reduce the time and effort needed for routine code reviews, allowing teams to focus on high-level logic and design. It promotes consistent code quality, reduces bugs in production, and accelerates release cycles. By learning from past review decisions, it continuously improves its recommendations, making it a smart long-term investment for software engineering teams.