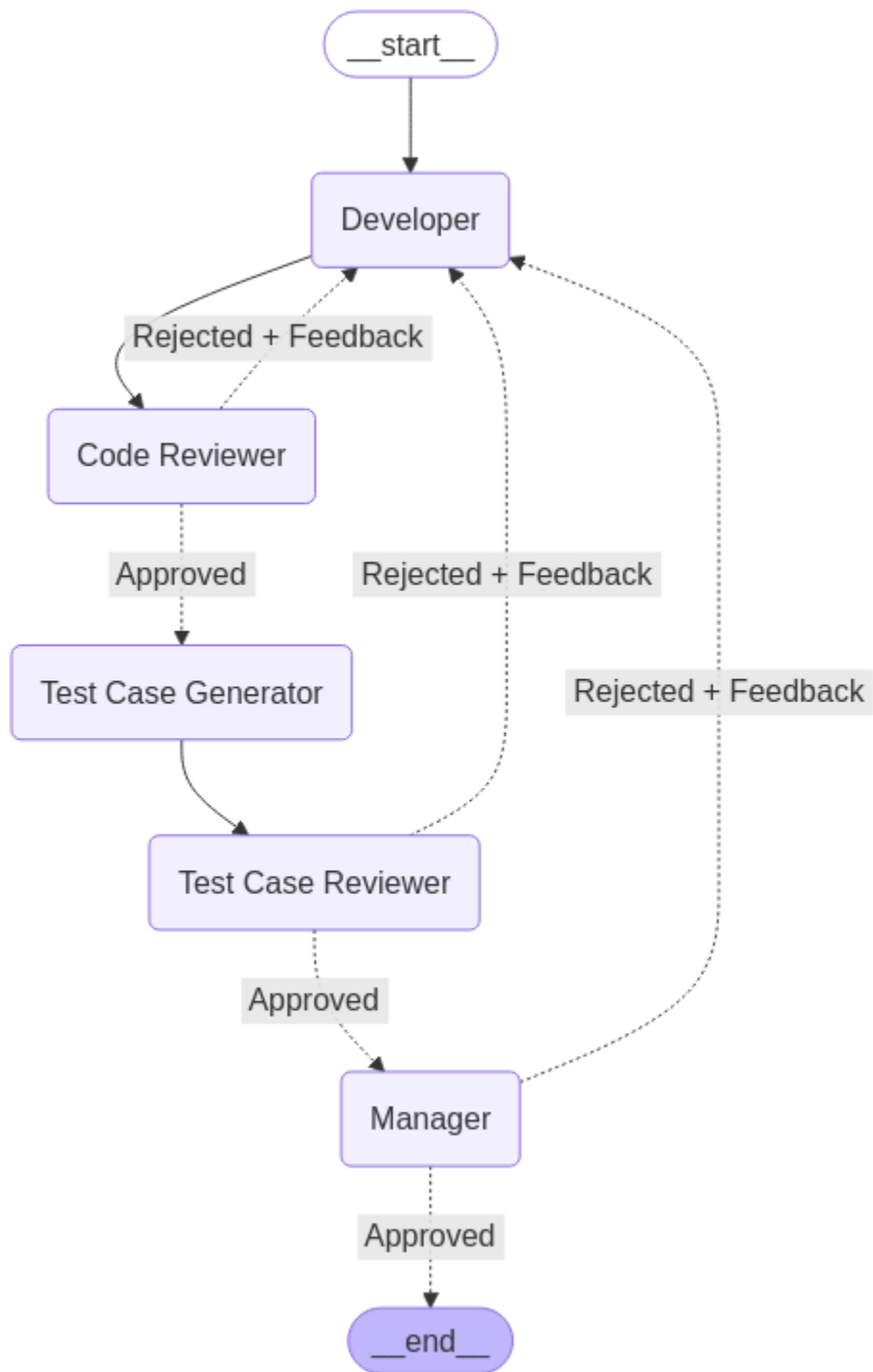


Code Review Automation with AI

Introduction

This document outlines the approach for automating code reviews using AI-powered tools. The system leverages Large Language Models (LLMs) to analyze source code, generate test cases, and validate them for correctness and efficiency.



Objective

The goal of this project is to:

- Automate the code review process
- Ensure adherence to coding standards
- Generate and validate test cases
- Provide constructive feedback for improvements

Key Features

1. Code Analysis

- Parses the provided source code
- Identifies potential errors and inefficiencies
- Checks for adherence to best practices

2. Test Case Generation

- Generates relevant test cases based on the given code
- Ensures edge case handling
- Validates input-output correctness

3. Test Case Validation

- Runs the generated test cases against the source code
- Identifies failed cases and potential fixes
- Provides a summary of test results

4. Review and Feedback

- Checks for code maintainability and readability
- Suggests optimizations and improvements
- Provides structured feedback for developers

Process Flow

1. **Input Code:** User provides source code for review
2. **Test Case Generation:** AI generates relevant test cases
3. **Validation:** Test cases are executed on the provided code
4. **Review:** AI reviews the results and gives feedback
5. **Output:** The final review report is generated

Integration with Oracle and Report Builder

- Supports reviewing **PL/SQL** and **Oracle-based** scripts
- Automates **report creation** using Oracle Report Builder
- Moves the RDF file to the server and registers it as a concurrent program
- Executes the report and provides output in the desired format

Expected Outcomes

- Faster and more efficient code review process
- Reduction in human errors
- Improved code quality and standardization

- Enhanced developer productivity

Conclusion

This AI-powered code review system aims to streamline the development process by automating validation, generating meaningful test cases, and providing insightful feedback. The integration with Oracle tools enhances its usability for enterprise applications.