Project Proposal: A Solution to Software Management

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Introduction

In my experience, companies often lack well-constructed documentation for their software projects, regardless of their scale. When the original developers leave or the software is handed over to another employee, it becomes extremely difficult to understand the existing code. This complexity results in time-consuming and costly updates or revamps.

Project Aim

The aim of my project is to create a software solution that facilitates the tracking and understanding of software development processes. This tool will enable new developers to quickly catch up with existing codebases, thereby reducing the time and cost associated with updates and revamps. We will only use existing resources to give solutions instead of creating. We will not go too deep about the theory of AI, but we will take advantage of AI, and create real application and solutions.

Objectives

The software will achieve the following objectives:

1. **Catch-Up:** Assist users in understanding the existing architecture and components of the software through generated reports, documentation, and scenarios.
2. **Move-On:** Help users foresee potential impacts of modified content.
3. **Development Suggestions:** Provide recommendations on possible further actions for the project.
4. **Cost Reduction and Code Protection:** Analyze code descriptions and information (such as variables, functions, classes, and libraries) rather than the actual code, ensuring that sensitive data remains secure.

Basic Idea

The core idea of the software is to generate reports and documentation, such as user diagrams, workflows, and the architecture of existing software, by using AI platforms like ChatGPT. However, instead of sending every line of code to the AI, which can be costly and insecure, the software will use a built-in database to store software metadata.

Database Structure

The database will store detailed information about the software, such as:

- **Functions:** Including the name, parameters, types, variables used, and the meaning of the return value.
- **Classes:** Details about classes with methods as foreign keys from the functions table.

and more.

Process

Instead of sending the actual code, the software will get information from the database,group them into a file like JSON. This file will be sent to the AI platform to perform the requested tasks.

Benefits

- **Reduced Token Usage:** By sending only essential information, the software minimizes the tokens required for AI processing, thereby saving costs.
- **Enhanced Security:** Sending metadata instead of actual code mitigates security concerns associated with exposing sensitive code.

Conclusion

This project aims to create a comprehensive software management solution that helps companies maintain and update their codebases efficiently. By leveraging AI and structured metadata, the software will provide valuable insights and recommendations while ensuring data security and cost-efficiency. The actually ways of fulfilling the objectives does not mentioned here, this will be discussed soon, but an example to "Move-On", is that when developers want to add something new to their project, they can express the idea to the AI through this software, and the AI could give advice on what function existed that developers can call, so that it reduce the code redundancy and improve read quality.