

INTELLIFIX: AI-POWERED PROGRAMMING ERROR ASSISTANT

Motivation

Syntax is one of the fundamental components of programming. However, each programming language will have different programming syntax and usually display vague error messages which might confuse new learners.

While the commercial AI tools are too costly and dependent on prompting which fresher have gotten the experience, we are introducing **IntelliFix** , a coding assistant which provide clear, educational explanations and practical fixes for programming errors by leveraging Large Language Model.

Supervisors

Dr. Phong Ngo

Dr. Anh Nguyen

Team Members

Nguyen Viet Quan

Tran Ngoc Minh

Dinh Ngoc Minh

Nguyen Quang Phu

Nguyen The Bao Ngoc

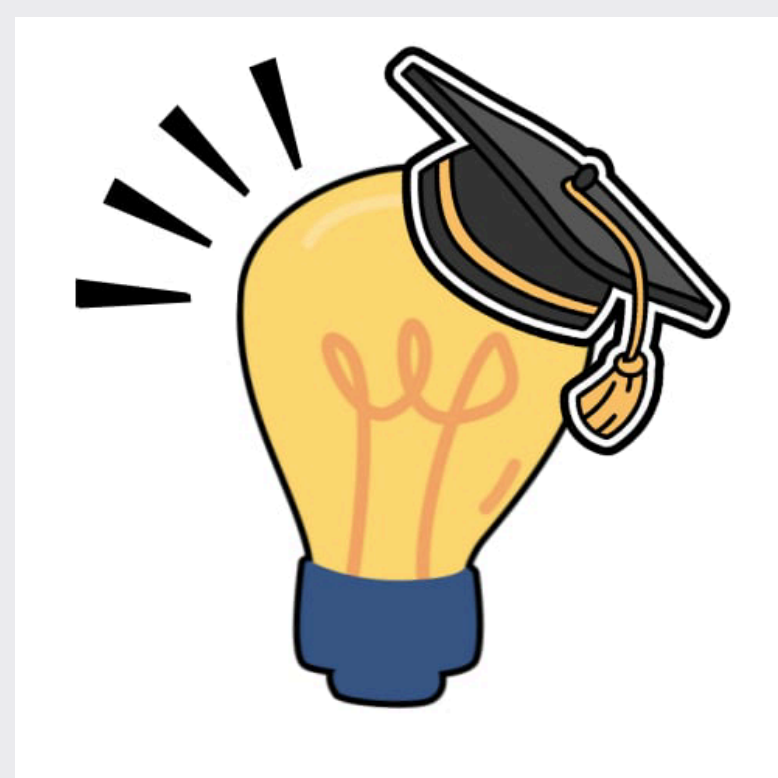


Scan for our
showcase

Key Deliverables

- SyntaxError dataset:** 160k records containing common syntax errors and fixes code snippet in **Python, JavaScript, C and C++** which can be used in other future researches.
- Intellifix model:** The IntelliFix model is a specialized version of **Qwen 2.5 7B**, finetuned with LoRa specifically for code error detection, explanation, and automated fixing tasks.
- IntelliFix extension:** Visual Studio Code extension providing quick, helpful, educational instruction directly in file editor. The extension contains 3 main features: **Fix The Code, Learn From Error and File Review**.

IntelliFix Extensions Features



Fix The Code

Provide summary, the solution for the syntax error and justify the solution

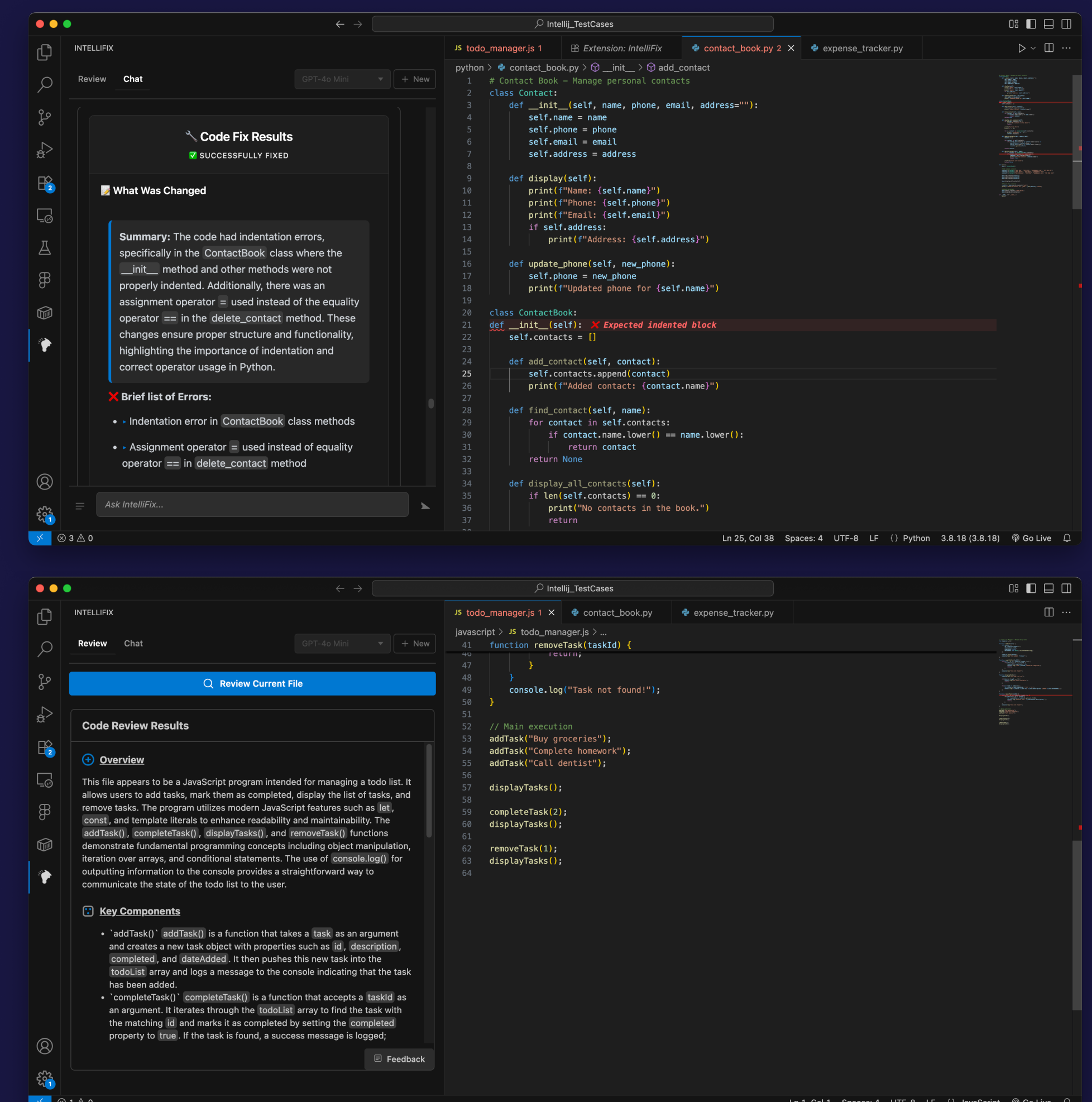
Learn From Error

Act as a teacher, provide the reason, educational guide in attempt to let user try to fix it before giving the correct solution.

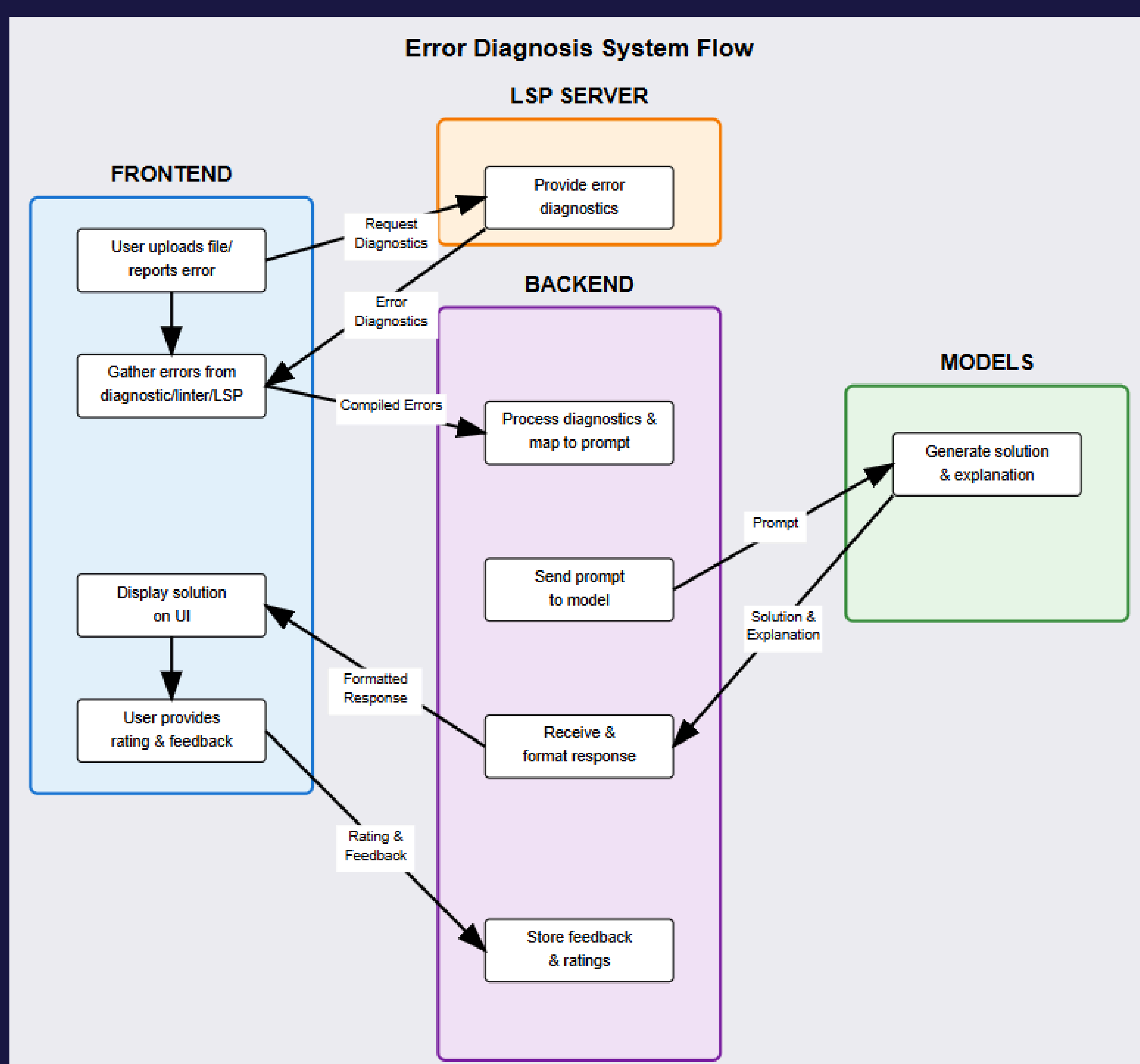
File Review

Giving review of a code file and analysis. Suggesting improvement for future works.

Snapshots



See us on VSC
Marketplace



Model Performance: Before vs After Fine-tuning

