

Assignment 10.4

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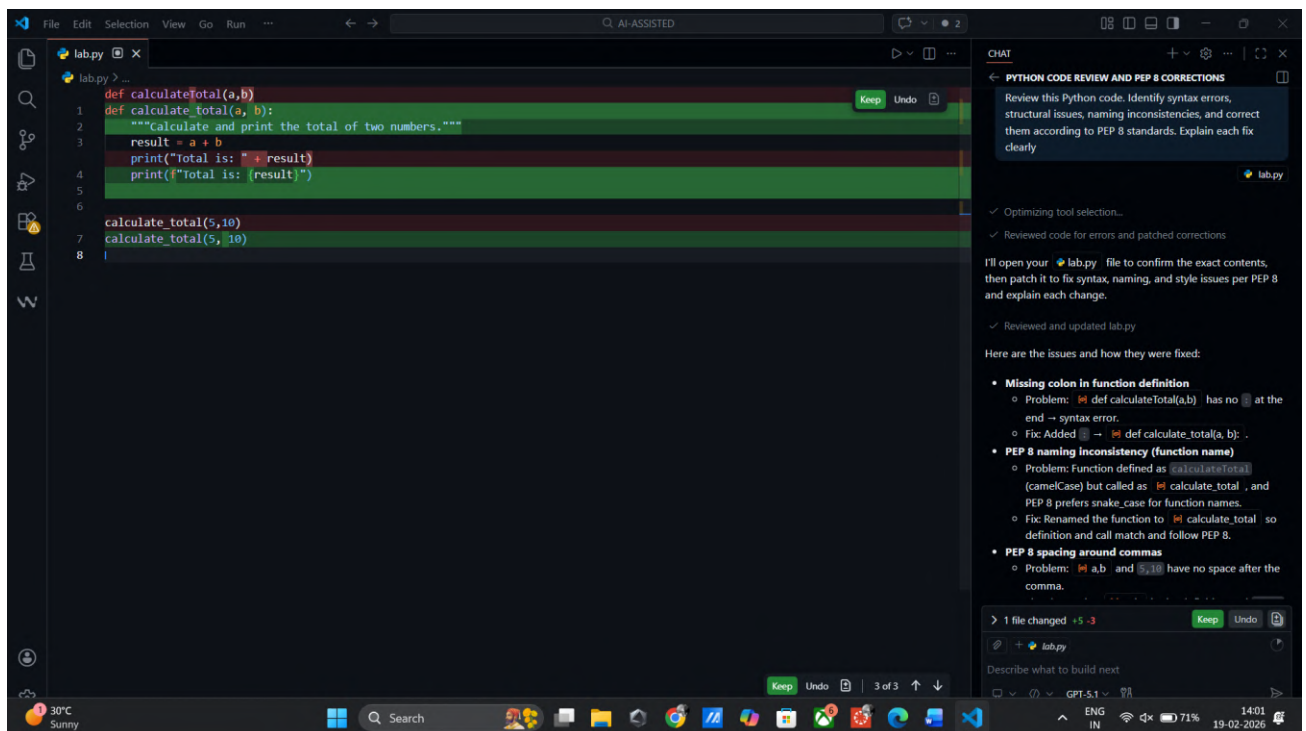
BATCH-16

Task 1: AI-Assisted Syntax and Code Quality Review :

Task Description

You are given a Python script containing:

- Syntax errors
- Indentation issues
- Incorrect variable names
- Faulty function calls



Issues Identified by AI

1. Missing colon after function definition
2. Function name mismatch (`calculateTotal` vs `calculate_total`)

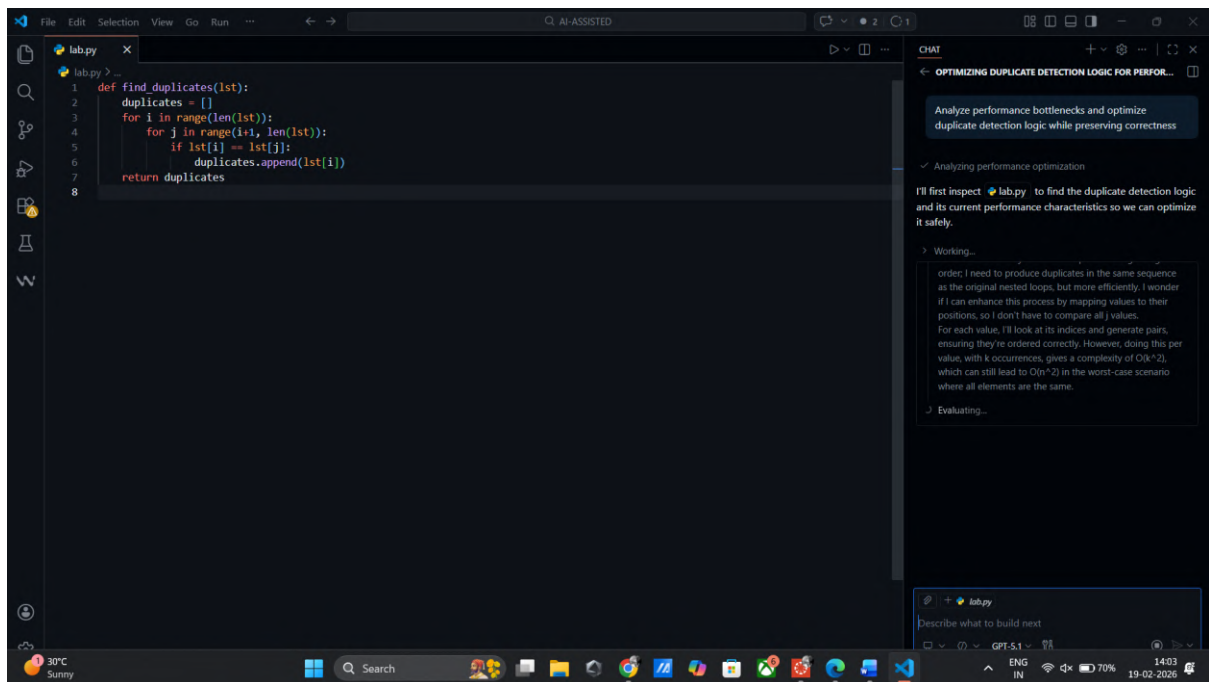
3. String concatenation with integer (TypeError)
4. Naming convention not following snake_case

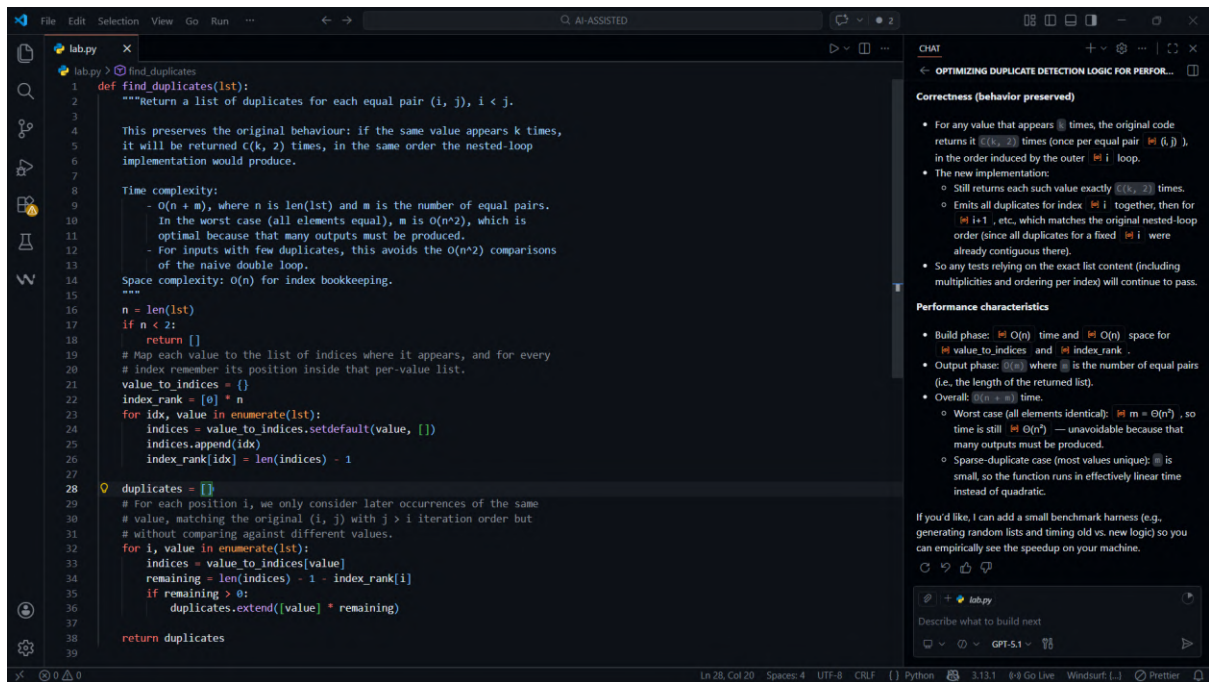
Task 2: Performance-Oriented Code Review

You are provided with a function that identifies duplicate values in a list using inefficient nested loops.

Using AI-assisted code review:

- Analyze the logic for performance bottlenecks
- Refactor the code for better time complexity
- Preserve the correctness of the output



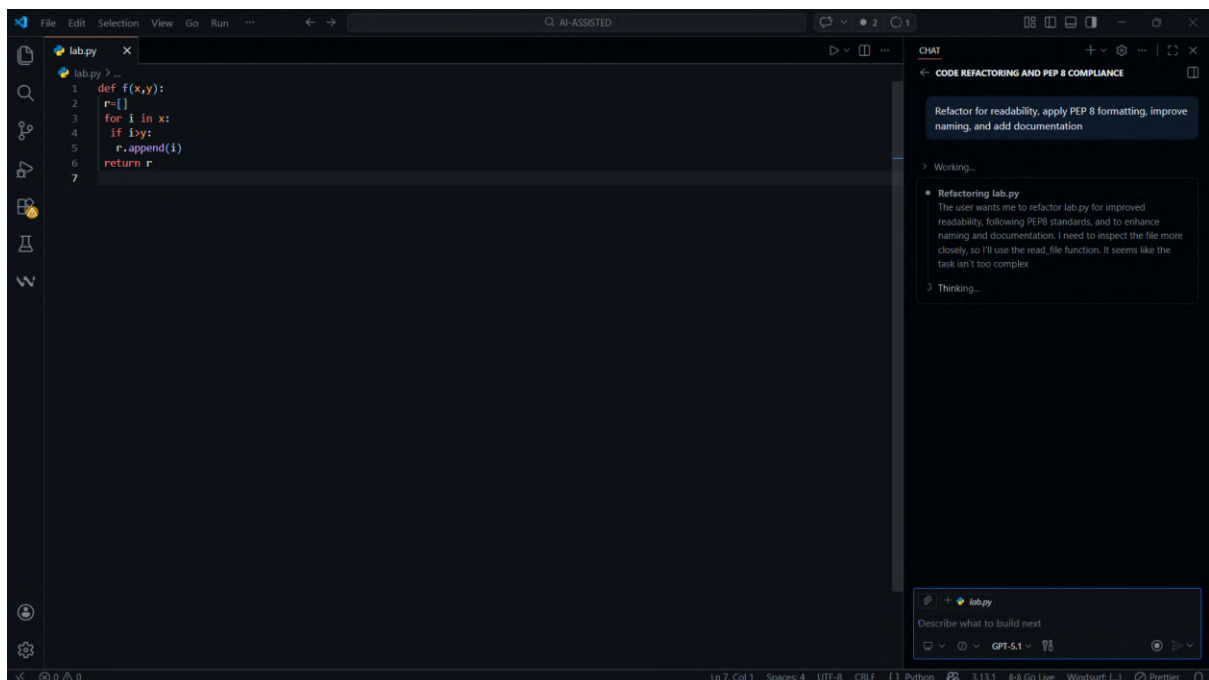


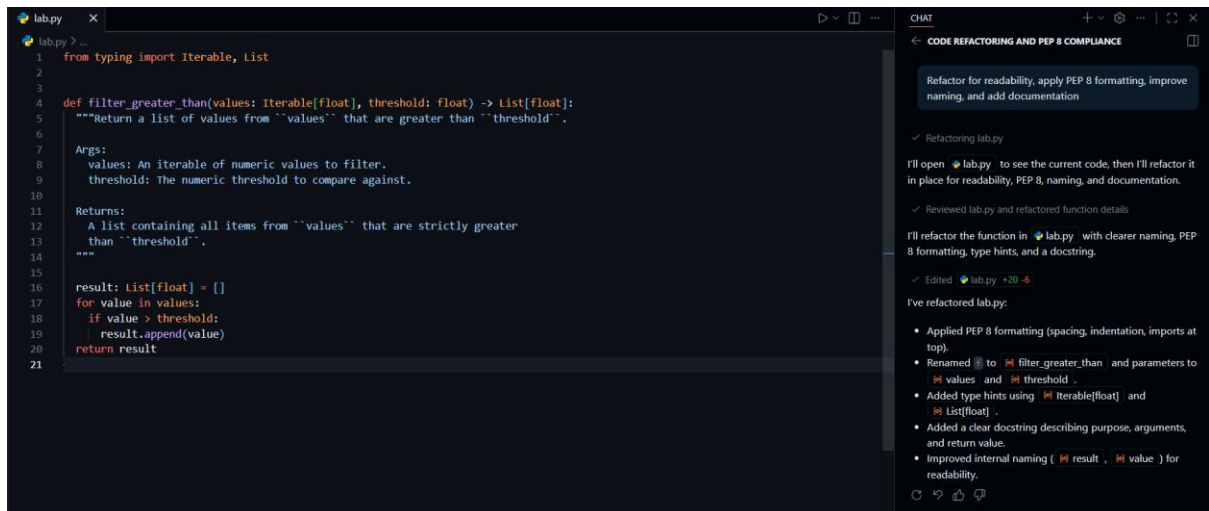
Task 3: Readability & Maintainability Refactoring

Task Description

You are given a poorly structured Python function with:

- Cryptic function names
- Poor indentation
- Unclear variable naming
- No documentation





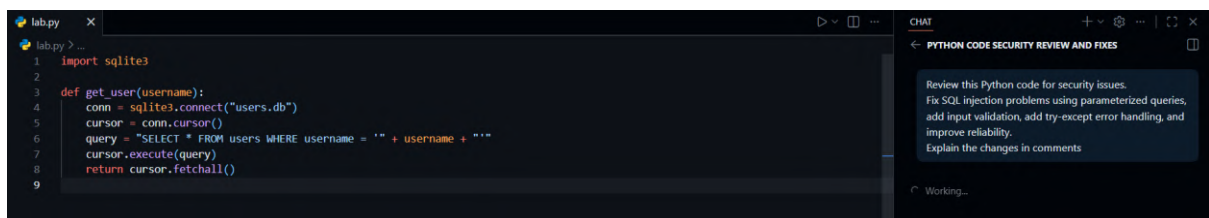
Improvements Made : Descriptive function name ,Clear variable naming, Proper indentation ,Docstring added ,Type hints included.

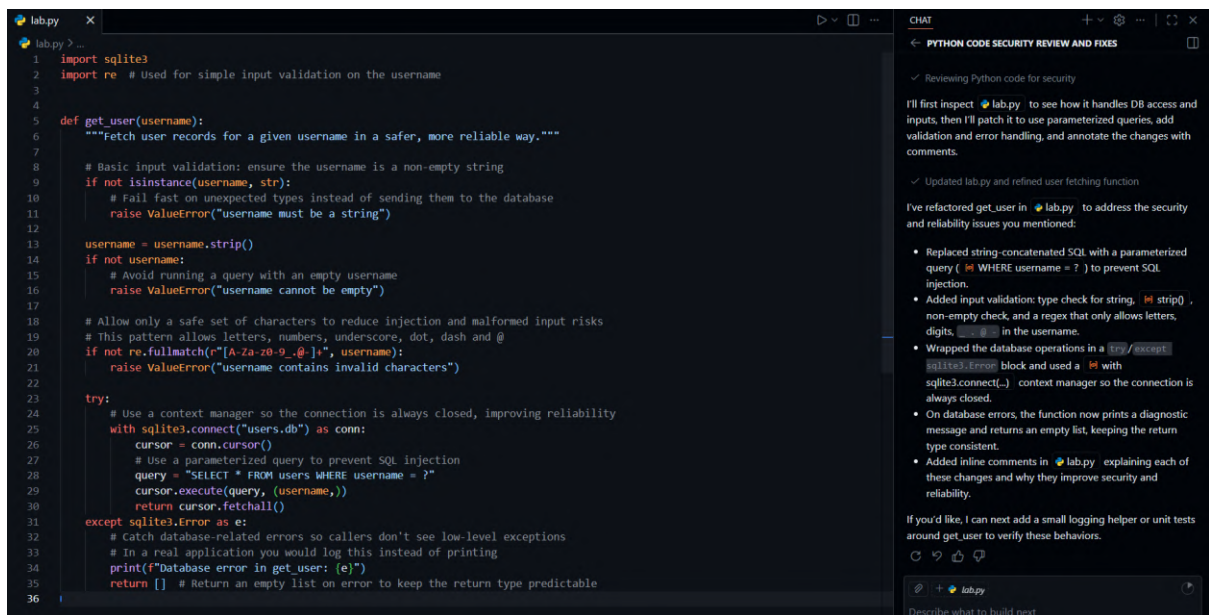
Task 4: Secure Coding and Reliability Review

Task Description

You are given a Python script that:

- Uses unsafe SQL query construction
- Has no input validation
- Lacks exception handling





Security Improvements

Parameterized query (prevents SQL injection)

Input validation

Try-except for safety

Proper resource cleanup

Task 5: AI-Based Automated Code Review Report

Task Description

You are provided with a poorly written Python script.

Using AI-assisted review:

- Generate a structured code review report that evaluates:

Code readability

Naming conventions

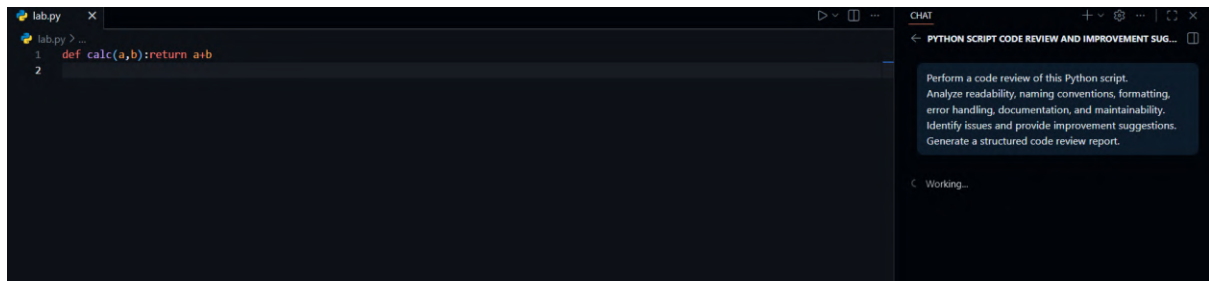
Formatting and style consistency

Error handling

Documentation quality

Maintainability

The task is not just to fix the code, but to analyze and report on quality issues



◆ AI-Generated Code Review Report

1 Readability

- Poor formatting
- No indentation
- One-line implementation reduces clarity

2 Naming Issues

- `calc` is unclear
- Variables `a` and `b` not descriptive

3 Documentation

- No docstring
- No explanation of purpose

4 Maintainability Risk

- Hard to scale
- Difficult for team collaboration

Actionable Recommendations

- Rename `calc` to something more descriptive (e.g., `add_numbers`).
- Reformat the function to a multi-line definition with proper spaces around operators and after commas.
- Add a clear docstring describing purpose, parameters, and return value.
- Add type hints for parameters and return type.

- (Optional, depending on context) Add basic type validation to guard against incorrect usage.
- (Optional) If this module is to grow, add a module-level docstring and consider adding simple unit tests in a separate test file

