

Automating Python Unit Test Documentation with AI

Using Generative AI for Automated Docstring Generation

Problem statement

- Manual documentation is time-consuming.
- Inconsistent documentation across large codebases.
- Reduced productivity and potential miscommunication.

Our solution

- Automates docstring generation using AI.
- Ensures consistency and saves time.
- Uses Python, Llama-3, AST, and JSON.

How it work

- **Configuration Setup:** Manages directories and files.
- **JSON Handling:** Loads and validates function descriptions.
- **Reading and Parsing:** Reads files and converts to AST.
- **Docstring Generation:** Uses OpenAI GPT for docstring creation.
- **AST Transformation:** Inserts docstrings into the AST.
- **Processing Files:** Processes files and saves docstrings.
- **Directory Iteration:** Collects relevant Python files.

Demo and user interaction

- Screen recording of the script in action.
- Steps: processing files, generating docstrings, saving outputs.

Prospect and Application

- Integration into CI/CD pipelines.
- Extending to other parts of the codebase.
- Valuable for large-scale projects.

Conclusion

- Standardizes documentation.
- Saves time and enhances maintainability.