

DocGen – Automatic Documentation Generator

AI-driven agent that analyzes Python codebases and produces structured, readable Markdown documentation. Presented by Uplakshya Tiwari.





Problem: Documentation Lags Behind Code

Time-consuming upkeep

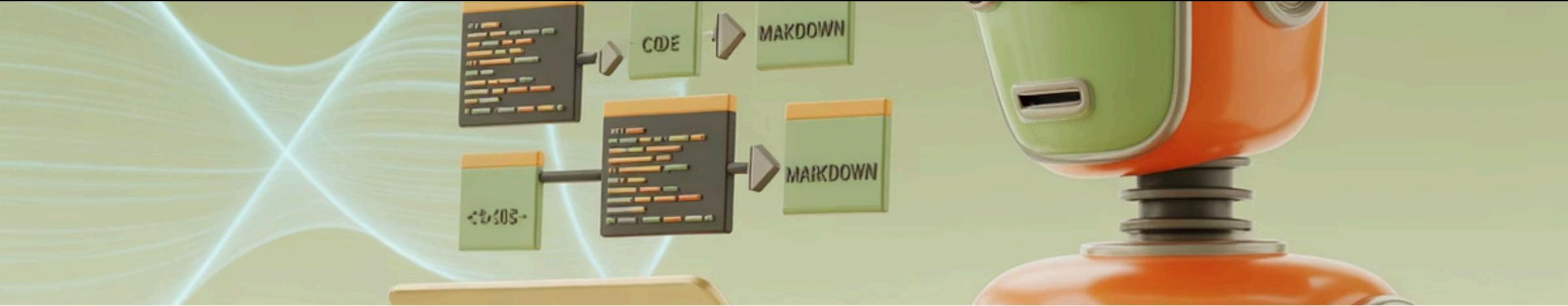
Maintaining docs requires manual effort that teams rarely prioritize.

Docs drift stale

Documentation often becomes inaccurate as code evolves.

Human error

Manual summaries miss edge cases and implementation details.



Proposed Solution: DocGen

DocGen automatically scans a Python project, extracts functions and classes, and generates clean Markdown documentation with structured sections and examples.

Scan

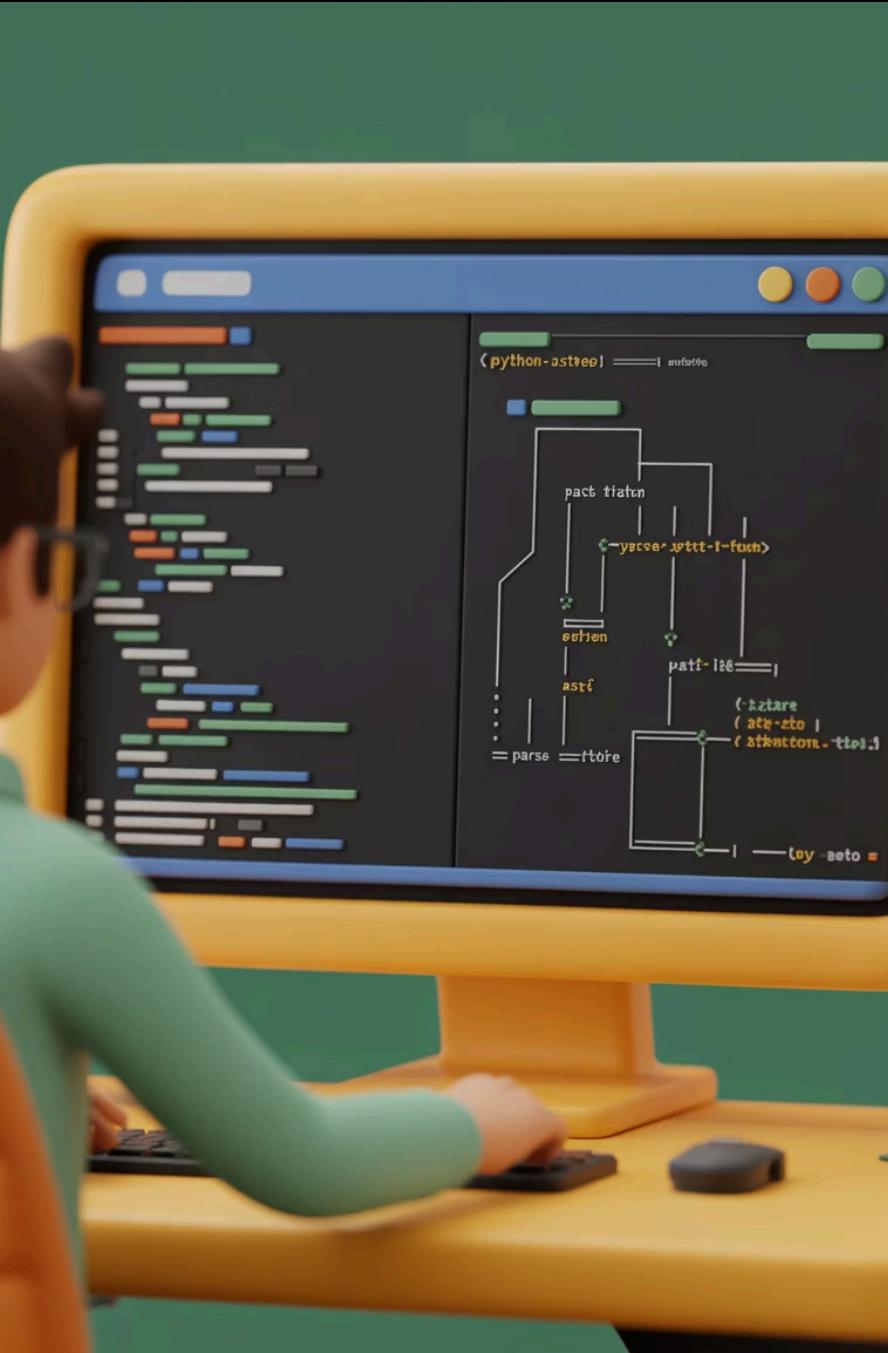
Traverse repository to locate source files and modules.

Extract

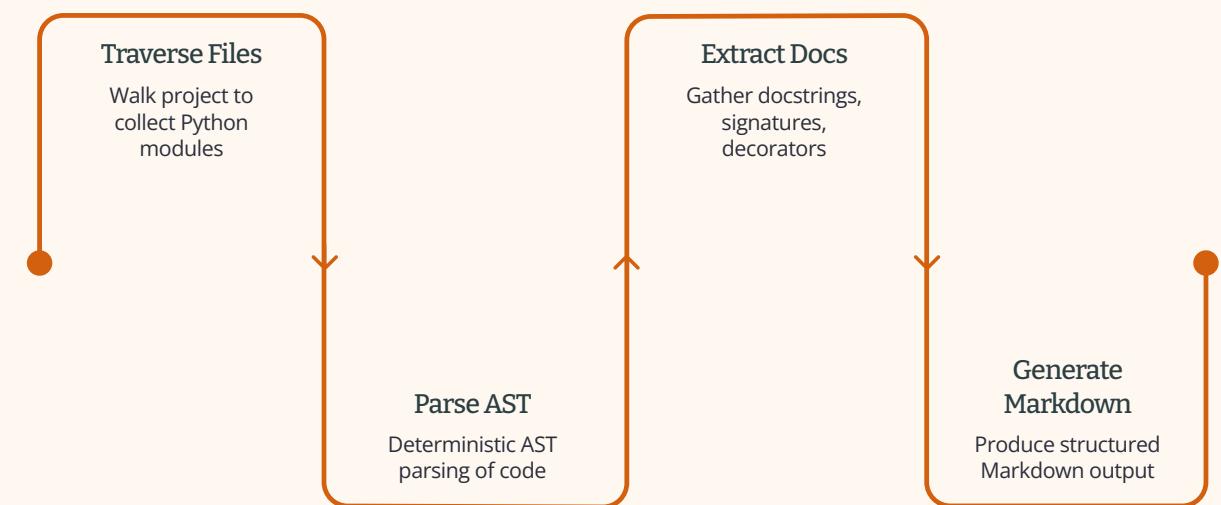
Parse AST to retrieve defs, signatures, and docstrings.

Emit

Render well-formatted Markdown (README, DOCUMENTATION.md, API sections).



How It Works – Technical Flow



DocGen performs deterministic AST parsing to avoid brittle regex parsing, preserving type hints, decorators, and nested scopes.



Agent Behavior

- Goal-driven: focuses on producing documentation artifacts, not conversational replies.
- Autonomous: executes pipeline end-to-end with minimal human supervision.
- Input: code folder (repo or local directory).
- Output: structured Markdown files and a DOCUMENTATION.md landing page.

❑ Designed for CI integration — run on push, PR, or scheduled jobs.

Tech Stack



Python

Core language for parsing, orchestration, and templates.



AST module

Reliable, structured parsing of functions, classes, and signatures.



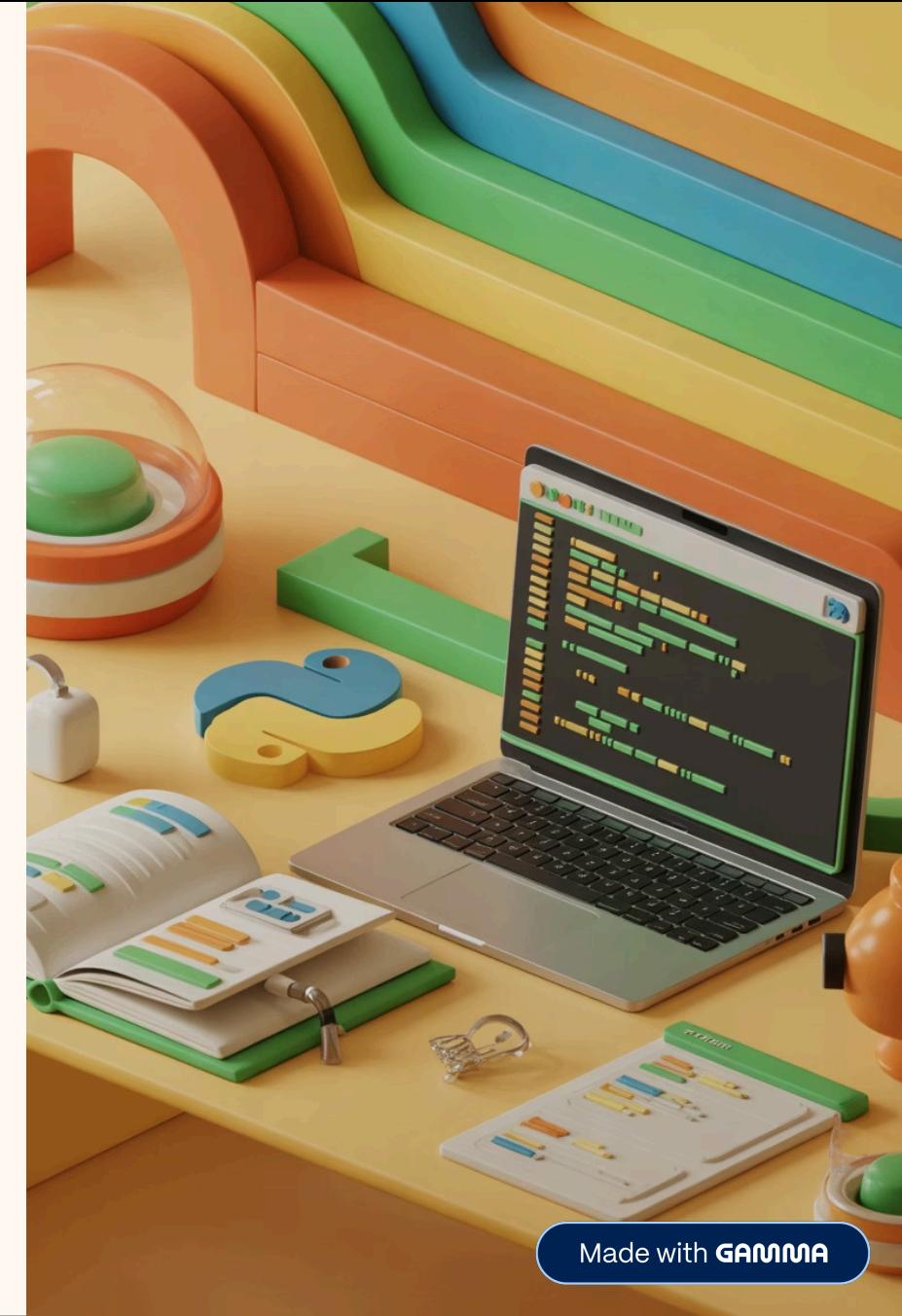
Markdown

Plain, portable output for READMEs, API docs, and examples.



GitHub

Repo integration, CI/CD pipelines, and hosting for generated docs.



Project Structure (Example)



src/

- └ docgen.py — core pipeline and CLI
- sample_project/ — targets for parsing and test coverage
- requirements.txt — reproducible environment
- README.md — repo overview and usage

- docgen.py exposes a CLI and a library API for integration into tests or CI.

Results

- **Generated DOCUMENTATION.md**

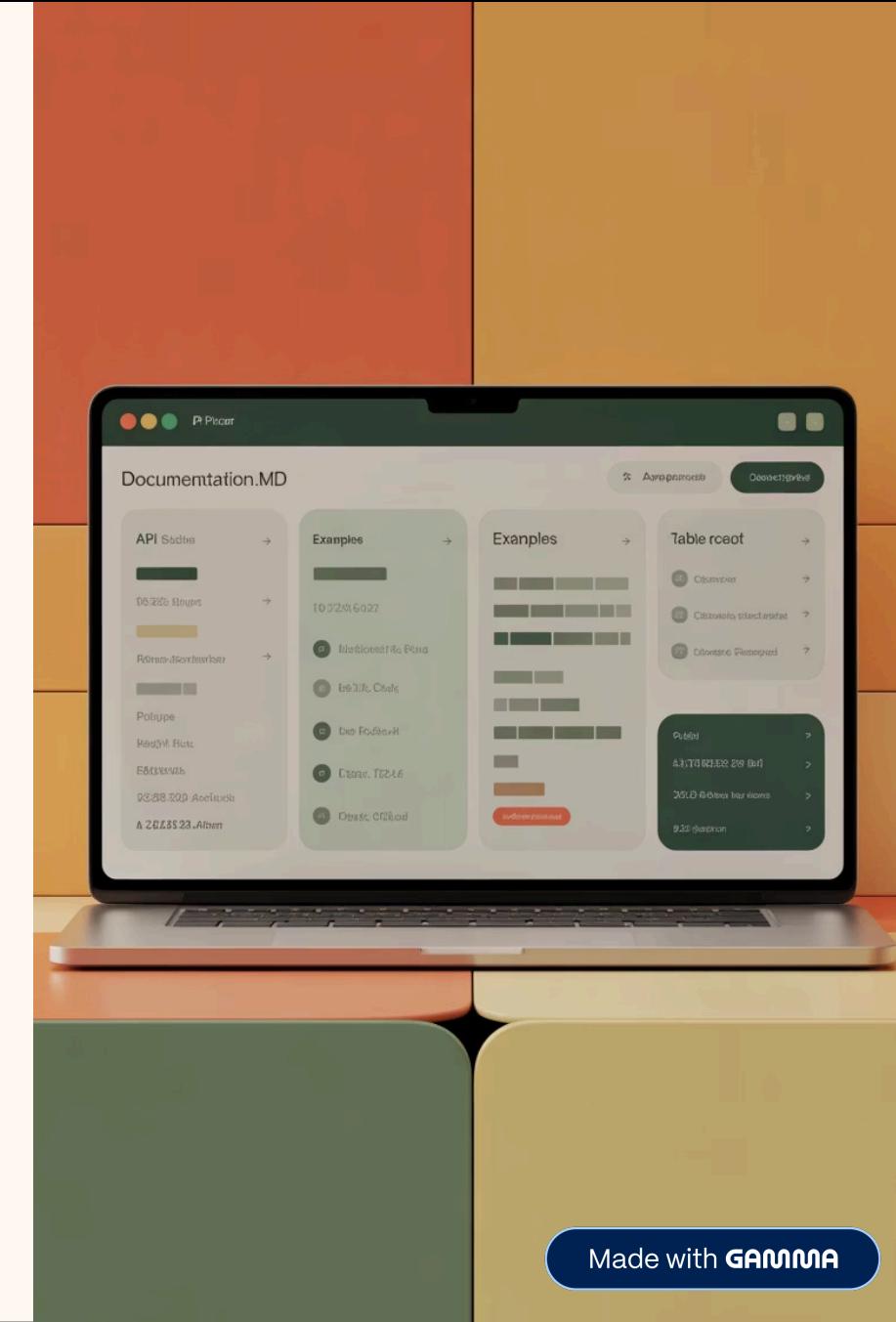
Comprehensive landing doc with Table of Contents, module summaries, and examples.

- **Reduced manual effort**

Teams save time on routine updates and focus on higher-value tasks.

- **Hackathon-ready**

Lightweight, reliable tool suitable for student projects and prototypes.



Future Scope

Multi-language support

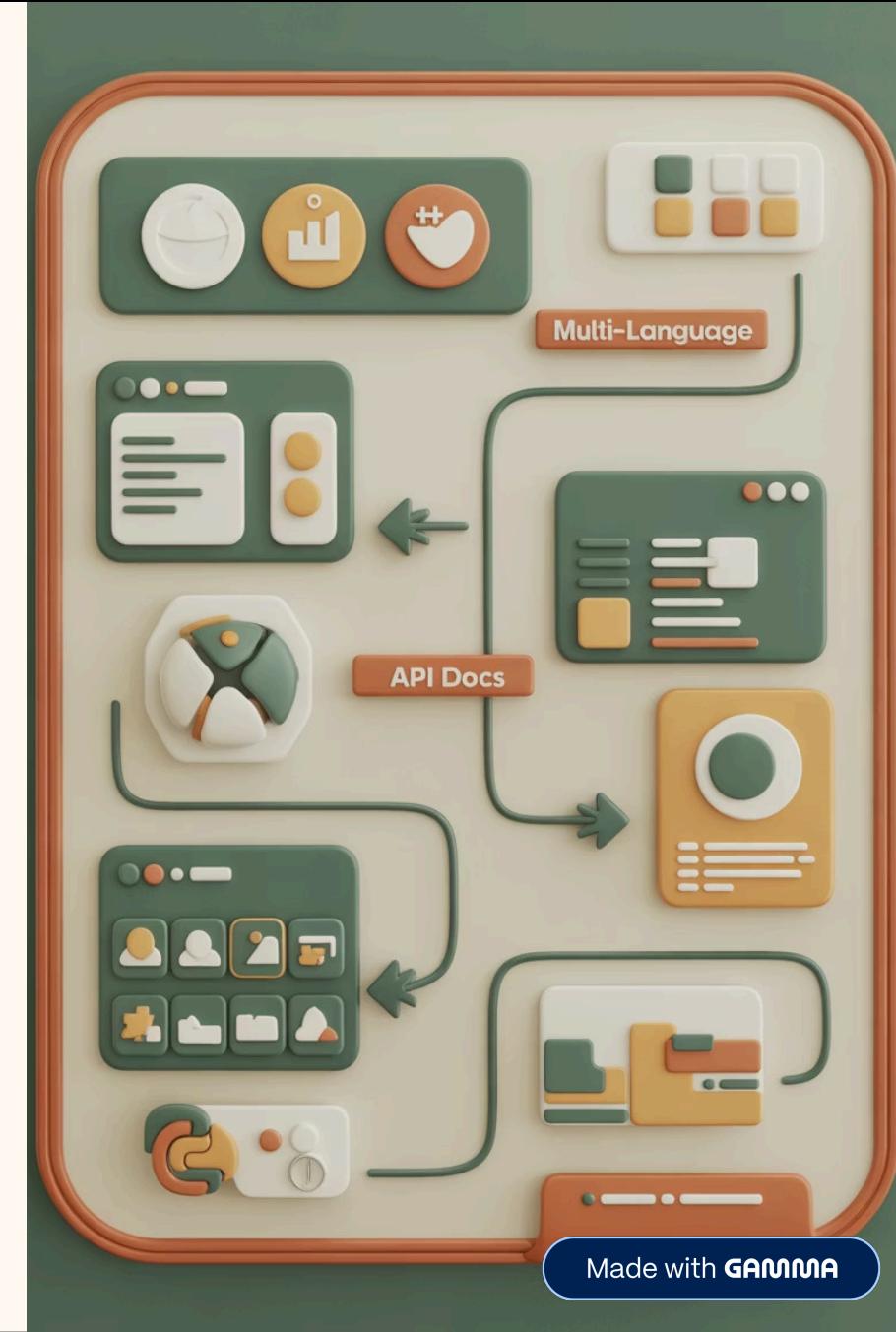
Extend parsers to JS/TS, Java, and Go with pluggable front-ends.

API documentation

Generate OpenAPI-compatible schemas and endpoint docs from code and decorators.

UI dashboard

Interactive viewer for docs with search, diffing, and live previews.



Thank You

Thank You

GitHub: Documentation-Generator-Agent

Open to feedback and collaboration — happy to demo the pipeline and walk through code samples.

REPO

FEEDBACK WELCOME