Clean Code Principles

What is Clean Code?

- ▶ Clean code is easy to read, understand, and modify.
- ▶ It is written for humans first, machines second.
- ▶ Prioritizes maintainability, clarity, and simplicity.

"Any fool can write code that a computer can understand. Good programmers write code that humans can understand" — Martin fowler

Issues with Untidy Code

- Hard-to-read code.
- Difficulty maintaining or extending code.
- Bugs and hidden side effects.

Why Clean Code Matters

- ▶ Long-term maintainability.
- ▶ Easier collaboration with others.
- ▶ Makes code more predictable and reliable
- ▶ *Prevents technical debt.*

Tech Debt

Shipping first time code is like going into debt. A little debt speeds development so long as it is paid back promptly with a rewrite . . . The danger occurs when the debt is not repaid. Every minute spent on not-quite-right code counts as interest on that debt."— Ward Cunningham

Story Time

Software Has Two Values

Behavior Value vs Structure Value

Refactoring

Restructuring existing code without changing its external behavior. Improve code structure, readability, and maintainability. Stop tech debt before it starts

The Boy Scout Rule

- ▶ Leave the code better than you found it.
- ▶ Make small, incremental improvements regularly.

Don't Be Afraid to Refactor

- Refactoring is an ongoing process.
- Keeps the system clean and maintainable.

Conclusion: The Clean Code Mindset

▶ Clean code is about adopting a mindset of clarity, simplicity, and maintainability.
▶ Aim to write code that your future self and others will thank you for.