Post-Session Task: Apply the 12-Factor Principles to a FastAPI Project

Objective:
Using what you've learned, create a FastAPI-based microservice or utility that applies as many 12-Factor principles as possible. Focus on practicality, clarity, and demonstrating good development habits.

Your Project:

Build a small but meaningful FastAPI app — it can be anything from a basic health check service to a more interactive utility (e.g., a calculator, sentiment analyzer, or data processing microservice).

Guidelines (not strict requirements):

- Use **environment variables** for configuration via `pydantic` or similar
- Structure your project with a clear layout (cookiecutter or your own)
- Set up **Git** with a simple branching strategy
- Configure and use **pre-commit hooks**
- Add **at least one test case** using `pytest`
- Use **Docker** to containerize your application
- Optionally use **docker-compose** to add a second service (e.g., Redis or Postgres)
- Set up a **GitHub Actions workflow** (for linting, tests, Docker build, etc.)
- Add **basic documentation** with MkDocs or a simple README
- Include VSCode settings/extensions if helpful (optional)

Deliverables:

- A **GitHub repository** containing your project
- A **README.md** that explains:
  - What your project does
  - How to run it (locally or using Docker)
  - Any configuration or setup notes
- A short screen recording video of :

- ➢ Your app running
- ➢ CI workflow or tests passing

Optional Exploration Ideas:

- ❖ Deploy to a test environment or publish to Docker Hub
- ❖ Integrate a real API (e.g., weather, currency rates, public datasets)
- ❖ Use FastAPI features like dependencies, events, or background tasks
- ❖ Try out async database operations

What We'll Look For (Flexible):

- ❖ Clear application of 12-Factor principles
- ❖ Thoughtful project design
- ❖ Clean, well-documented code
- ❖ Effective use of modern tools (Docker, GitHub Actions, etc.)
- ❖ Simplicity and clarity over complexity

Note: Don’t worry about building something big, just demonstrate what you've learned in a clean, practical way. Be creative, explore, and have fun!