



EXPENSE TRACKER

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A decorative graphic on the left side of the slide, composed of several overlapping geometric shapes and patterns. It includes a blue triangle with white concentric circles, a purple triangle with white concentric circles, a pink square with white concentric circles, and a grey square with white concentric circles. A small blue circle is positioned at the intersection of the blue and purple triangles.

PROJECT OVERVIEW

- Developed a 2-tier microservices-based expense tracker
- Used Python (FastAPI) and MariaDB
- Managed via Git and Docker
- Automated CI/CD with GitHub Actions
- Application monitoring via a /metrics endpoint

SYSTEM ARCHITECTURE

- Frontend (API): FastAPI – CRUD for expenses
- Backend (Database): MariaDB – category & expense storage
- Diagram: 2-tier architecture with API ↔ DB



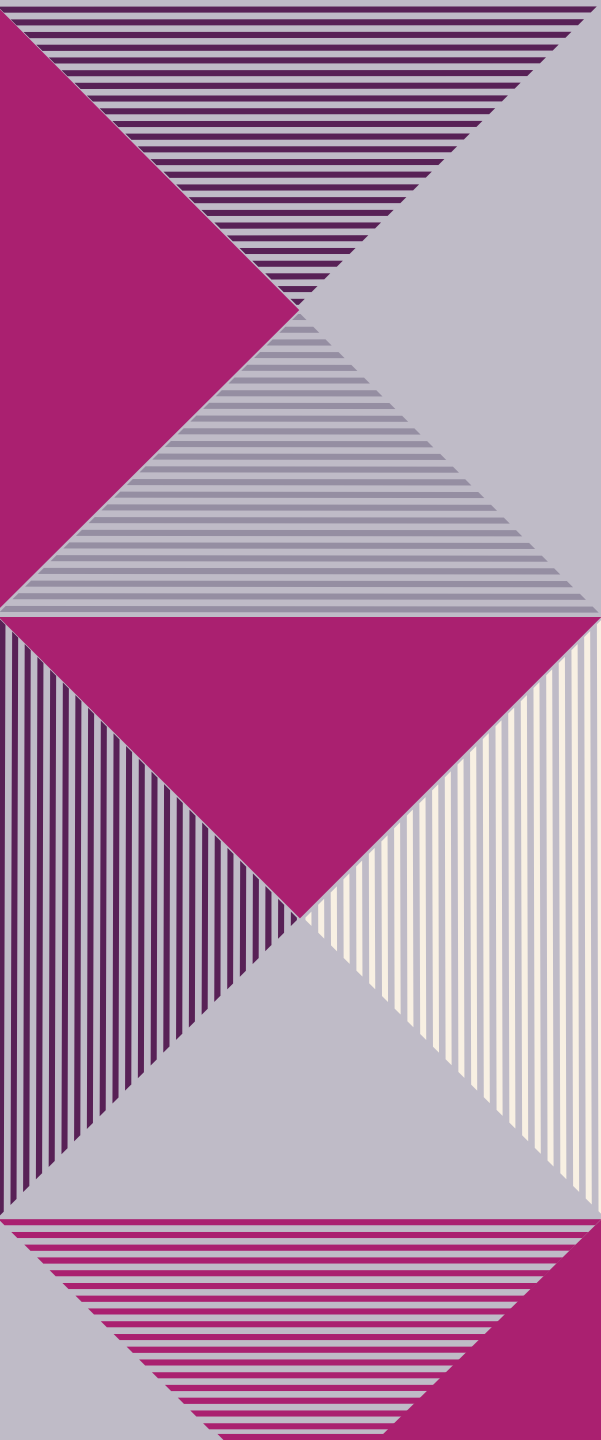


GIT & REPOSITORY STRUCTURE

- GitHub repository with clear structure:
 - app/, database/, docker/, tests/
- Branching model: Git Flow
 - main, dev
- Commit history shows incremental development

DATABASE SCHEMA

- Single table: expenses
- Fields: id, amount, description, category, date, timestamps
- Schema stored in SQL (init.sql)



CONTAINERIZATION STRATEGY

- Dockerized FastAPI and MariaDB services
- docker-compose.yml used for orchestration
- Enables easy setup and deployment



CI/CD IMPLEMENTATION

- GitHub Actions used for automation
- CI: Code checkout, dependency install, pytest
- CD: Docker build and image testing
- Triggers: push, PRs, manual



TESTING STRATEGY

- Unit Tests: Using pytest
- Integration Tests: API and DB behavior
- API Tests: Validate endpoint behavior
- Tests included in CI workflow



MONITORING & OBSERVABILITY

- Exposed /metrics endpoint
- Request/response times, DB query counts, CPU/memory
- Helps track performance and health

KEY ACHIEVEMENTS

- Built a clean microservices app
- Git-based dev workflow with feature branching
- Full CI/CD automation with GitHub Actions
- Dockerized deployment
- Robust testing + monitoring

An abstract geometric design on the left side of the slide. It features a dark blue background with various geometric shapes and patterns. A white circle is positioned near the top left. Below it, a light blue semi-circle is visible. To the right of the semi-circle, there is a pink triangle with diagonal lines. Further down, there is a pink square with a pattern of concentric lines. At the bottom, there is a pink triangle with a pattern of concentric lines. The overall design is modern and minimalist.

THANK YOU

Anastasia Tsatsou