INTRODUCTION TO FAST API

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CAVEAT EMPTOR

I don't consider myself an "expert" Python developer. There are likely things that I have wrong in this presentation and/or could be done in a more "pythonic way"

PRESENTATION OUTLINE

Big Picture

Terms and Definitions
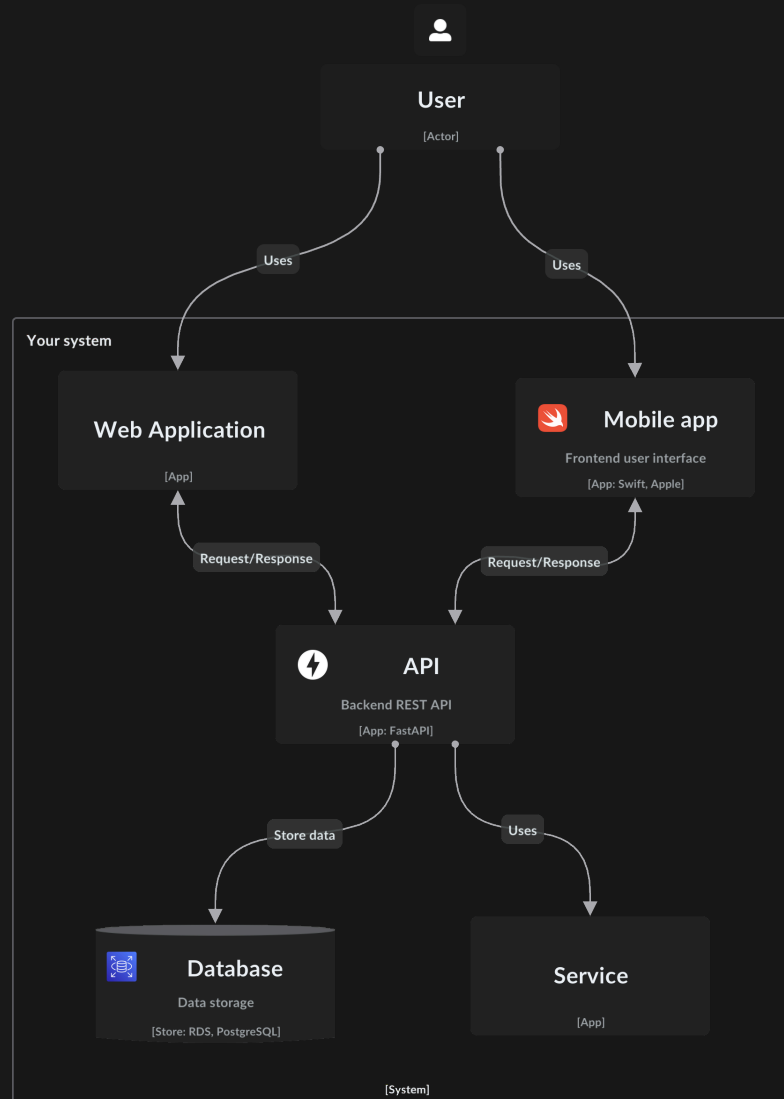
FastAPI Introduction

Demo

Pydantic

Dependency Injection

Q & A

Drinks and Food

WHERE DOES FASTAPI FIT?

WHAT DO I MEAN WHEN I TALK ABOUT AN "API"

- Application Programming Interface
- "Edge" of a product, service, component, application etc.
- "Contract" that specifies what the receiver expects from a caller. What format, what responses look like, errors etc.

WHAT DO I MEAN WHEN I TALK ABOUT AN "API"

- The 'official'/'supported' way of sending data to/getting data from, invoking a process on another "system"
- Often we think of third party systems as having APIs, but internal systems programs also have APIs
- Well-designed APIs are a source of happiness. Poorly designed ones; Much sadness.

REST STYLE API

REST -> Representational State Transfer

REST is an architectural style for designing networked applications.

- Stateless
- Client-server
- Cacheable communications protocol -- the HTTP protocol is the most common.

REST

What most folks mean when they talk about "WEB APIs"

JSON over HTTP

* JavaScript Object Notation over Hyper Text Transfer Protocol

API OPERATIONS

CRUD	REST	SQL
Create	POST	INSERT
Read	GET	SELECT
Update	PUT/PATCH	UPDATE
Delete	DELETE	DELETE

REST VERBS

POST: Create a new resource

GET: Retrieve a resource

PUT: Update an existing resource

DELETE: Remove a resource

PATCH: Partially update a resource

WHAT IS FASTAPI?

- **FastAPI** is a modern, fast (high-performance), web framework for building APIs with Python 3.6+ based on standard Python type hints.

https://fastapi.tiangolo.com

KEY ADVANTAGES:

- **Fast to code**
- **Fewer bugs**
- **Intuitive**: Great editor support. Completion everywhere.

It slices it dices it can be used as a floor wax

KEY ADVANTAGES CONT.:

- **Easy**: Designed to be easy to use and learn. Less time reading docs.
- **Short**: Minimize code duplication. Multiple features from each parameter declaration.
- **Robust**: Get production-ready code. With automatic interactive documentation.
- **Standards-based**: Based on (and fully compatible with) the open standards for APIs: OpenAPI and JSON Schema.

DEMO

HELLO WORLD

INTRODUCTION TO PYDANTIC

- A data validation and settings management library
- Uses Python type annotations
- Ensures data is valid before processing

KEY FEATURES

- Automatic data validation and parsing
- Easy to define complex data structure
- Integrates seamlessly with FastAPI

USER TYPE

```python
1 from pydantic import BaseModel
2
3 class User(BaseModel):
4     id: int
5     name: str
6     email: str
7
8 user = User(id=1,name='John Doe',email='john.doe@example.com
```

DEMO

FASTAPI WITH PYDANTIC TYPE

DEPENDENCY INJECTION IN FASTAPI

What is Dependency Injection?

- A design pattern that allows for the injection of dependencies into a function or class.
- Facilitates code reusability and testability.

WHY USE DEPENDENCY INJECTION IN FASTAPI?

- Simplifies code by separating concerns.
- Enhances modularity and maintainability.
- Allows for easy testing by injecting mock dependencies.

DEMO

USER SERVICE WITH DEPENDENCY INJECTION

RESOURCES

https://fastapi.tiangolo.com/

FastAPI Modern Python Web Development - Bill Lubanovic

Q&A