

Week 4: FastAPI + REST API

Full Stack RAG with Local LLM

Semester 2/2568

Agenda

- 1 REST API
- 2 FastAPI
- 3 Quiz 1 + Lab 3

Method	Action	Example
GET	Read	Get documents
POST	Create	Create document
PUT	Update	Update document
DELETE	Delete	Delete document

Why FastAPI?

- **Fast** - High performance
- **Easy** - Intuitive syntax
- **Auto Docs** - Swagger UI
- **Type Hints** - Pydantic validation
- **Async** - Native support

FastAPI Example

```
from fastapi import FastAPI
from pydantic import BaseModel

app = FastAPI(title="RAG API")

class SearchRequest(BaseModel):
    query: str
    top_k: int = 5

@app.get("/health")
def health():
    return {"status": "healthy"}

@app.post("/search")
def search(request: SearchRequest):
    return {"results": []}
```

Quiz 1 (5%)

Topics:

- Git commands
- Python fundamentals
- Docker basics
- HTTP methods

Format: 20 questions, 15 minutes

Lab 3: FastAPI (3.75%)

Tasks:

- 1 Study api.py from Generic-RAG
- 2 Run FastAPI server
- 3 Test endpoints
- 4 Add new endpoint

Questions? Good luck on Quiz 1!