

FastAPI



Beginners Handnote

Initial project configuration

- Have a virtual environment
- Create a directory
- Initialize git (`git init`)
- Add `.gitignore` file (user gitignore.io)
- Create another directory named 'backend'
- Create a file named 'requirements.txt' inside backend
- Create a file named 'main.py' inside backend
- Create another folder inside backend named 'core'
- Create a file inside 'core' named 'config.py'
- requirements.txt file would contains (`fastapi==0.115.6 uvicorn==0.32.1`)
- Install dependencies.

Initial project configuration (cont'd)

├ .gitignore

└ backend/

├ core/

| └ config.py


└ main.py

└ requirements.txt

Hello World

Write some code inside 'core/config.py'

```
#core/config.py

class Settings:
    PROJECT_NAME:str = "Innovative "
    PROJECT_VERSION: str = "1.0.0"

settings = Settings()
```

Hello World (cont'd)

Write main.py file

```
#main.py

from fastapi import FastAPI
from core.config import settings

app = FastAPI(title=settings.PROJECT_NAME,version=settings.PROJECT_VERSION)

@app.get("/")
def hello_api():
    return {"msg":"Hello FastAPI"}
```

Hello World (cont'd)

Run the server!

```
uvicorn main:app --reload
```

Now in the browser. Goto this address : <http://127.0.0.1:8000/>

Or some documentation (swagger), go to this address: <http://127.0.0.1:8000/docs>

Connecting to Database

Update the requirements.txt

```
fastapi=0.95.1
uvicorn=0.22.0
#new
SQLAlchemy=2.0.13
psycopg2-binary=2.9.6    #windows user use: psycopg2=2.9.6
python-dotenv=1.0.0
```

Run `'pip install -r requirements.txt'`

Connecting to Database [Environment Variables]

Create a `.env` at the 'backend' directory. Paste the content below.

```
POSTGRES_USER=dummy
POSTGRES_PASSWORD=secret
POSTGRES_SERVER=localhost
POSTGRES_PORT=5432
POSTGRES_DB=blogdb
```


Connecting to Database [Add Configuration File]

```
# backend/config.py

import os

from dotenv import load_dotenv

from pathlib import Path

env_path = Path('.') / '.env'

load_dotenv(dotenv_path=env_path)
```

From the previous file, continues...

```
class Settings:
```

```
    PROJECT_NAME:str = "Blog Board"
```

```
    PROJECT_VERSION: str = "1.0.0"
```

```
    POSTGRES_USER : str = os.getenv("POSTGRES_USER")
```

```
    POSTGRES_PASSWORD = os.getenv("POSTGRES_PASSWORD")
```

```
    POSTGRES_SERVER : str = os.getenv("POSTGRES_SERVER","localhost")
```

```
    POSTGRES_PORT : str = os.getenv("POSTGRES_PORT",5432) # default postgres port is 5432
```

```
    POSTGRES_DB : str = os.getenv("POSTGRES_DB","tdd")
```

```
    DATABASE_URL = f"postgresql://{POSTGRES_USER}:{POSTGRES_PASSWORD}@{POSTGRES_SERVER}:{POSTGRES_PORT}/{POSTGRES_DB}"
```

```
settings = Settings()
```

Connecting to Database [Session File]

Create a new folder under backend named db. Here make a new file 'session.py'

```
#db/session.py
from sqlalchemy import create_engine
from sqlalchemy.orm import sessionmaker

from core.config import settings

SQLALCHEMY_DATABASE_URL = settings.DATABASE_URL
print("Database URL is ",SQLALCHEMY_DATABASE_URL)
engine = create_engine(SQLALCHEMY_DATABASE_URL)

SessionLocal = sessionmaker(autocommit=False,autoflush=False,bind=engine)
```

Connecting to Database [Base Class]

```
#db/base.py

from typing import Any

from sqlalchemy.ext.declarative import declared_attr

from sqlalchemy.orm import as_declarative

@as_declarative()

class Base:

    id: Any

    __name__: str

    #to generate tablename from classname

    @declared_attr
    def __tablename__(cls) → str:

        return cls.__name__.lower()
```

Connecting to Database [main file update]

```
#main.py

from fastapi import FastAPI

from core.config import settings

from db.session import engine

from db.base import Base

def create_tables():

    Base.metadata.create_all(bind=engine)

def start_application():

    app = FastAPI(title=settings.PROJECT_NAME,version=settings.PROJECT_VERSION)

    create_tables()

    return app

app = start_application()

@app.get("/")

def home():

    return {"msg":"Hello World"}
```