# AI 설계안 등록 통합 실습 (FastAPI + Streamlit + PostgreSQL)

## FastAPI 서버 (app.py)

from fastapi import FastAPI, HTTPException

from pydantic import BaseModel

from sentence\_transformers import SentenceTransformer

import psycopg2

app = FastAPI()

model = SentenceTransformer('all-MiniLM-L6-v2')

def get\_db\_conn():

    return psycopg2.connect(

        dbname="yourdb", user="youruser", password="yourpass", host="localhost"

    )

class DesignInput(BaseModel):

    title: str

    description: str

@app.post("/register\_design")

def register\_design(data: DesignInput):

    conn = get\_db\_conn()

    cur = conn.cursor()

    try:

        embedding = model.encode(data.description).tolist()

        cur.execute("BEGIN;")

        cur.execute("""

            INSERT INTO design (title, description, embedding)

            VALUES (%s, %s, %s);

        """, (data.title, data.description, embedding))

        conn.commit()

        return {"status": "success", "message": "등록 완료"}

    except Exception as e:

        conn.rollback()

        raise HTTPException(status\_code=500, detail=f"등록 실패: {str(e)}")

    finally:

        cur.close()

        conn.close()

## Streamlit 클라이언트 (streamlit\_client.py)

import streamlit as st

import requests

st.title("AI 설계안 등록")

title = st.text\_input("설계안 제목")

description = st.text\_area("설계안 설명")

if st.button("등록 요청"):

    response = requests.post("http://localhost:8000/register\_design", json={

        "title": title,

        "description": description

    })

    if response.status\_code == 200:

        st.success(response.json()["message"])

    else:

        st.error(response.json()["detail"])

## 실행 순서 요약

1. PostgreSQL에 `design` 테이블 생성

2. FastAPI 서버 실행: `uvicorn app:app --reload`

3. Streamlit 클라이언트 실행: `streamlit run streamlit\_client.py`

4. 입력 → POST → 등록 확인

## 테스트용 CSV & SQL 삽입 예제

- `sample\_designs\_500.csv`: 샘플 설계안 + 임베딩 포함

- `insert\_designs.sql`: INSERT 문 자동 생성

\*\*Tip\*\*: Python에서 `psycopg2`로 임베딩 포함 대량 INSERT 가능