AI APPLICATIONS PORTFOLIO

BY JUDITH BARRIOS

AI/ML Developer | Python Specialist
Experienced in building real-world AI applications, including RAG systems, data pipelines, and intelligent interfaces.

COURSE HIGHLIGHTS (PROJECT 1 – FOUNDATIONS)

- PYTHON PROGRAMMING FOUNDATIONS – MODULE 02

- FILE I/O: READ/WRITE CITY DATA, VERIFY FILES

- STRINGS: PERSONALIZED MESSAGES WITH F-STRINGS

- ASYNC PROGRAMMING: CONCURRENT TASKS WITH `ASYNCIO`

- API INTEGRATION: GET REQUESTS + JSON PROCESSING

- DATABASES: IN-MEMORY SQLITE WITH CRUD OPS

- DATA ANALYSIS: NUMPY ARRAYS, PANDAS DATAFRAMES

- TOOLS: PYTHON, NUMPY, PANDAS, ASYNCIO, SQLITE, HTTP REQUESTS

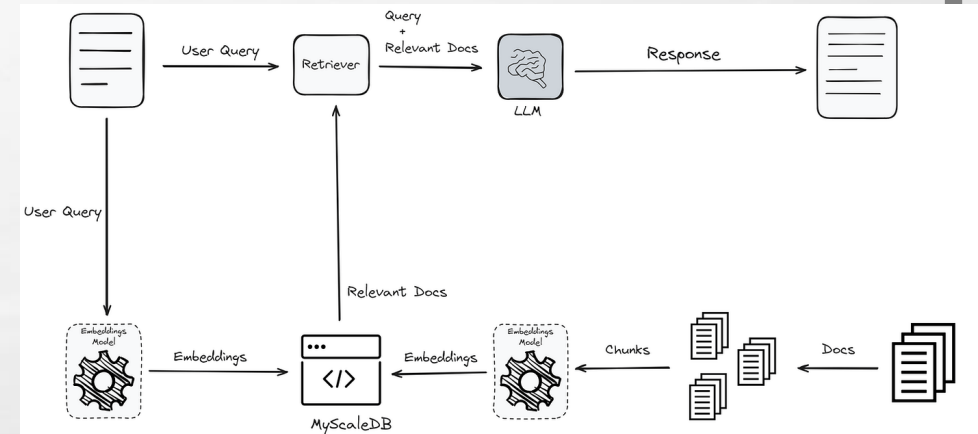# COURSE HIGHLIGHTS (PROJECT 2 – ADVANCED AI)

- **AI COURSE COPILOT – RAG SYSTEM (TEAM PROJECT)**
  WHAT I BUILT:

- **RAG ASSISTANT USING SENTENCE-TRANSFORMERS + FAISS**

- **GPT-4 GENERATION WITH CITATION PROMPTS**
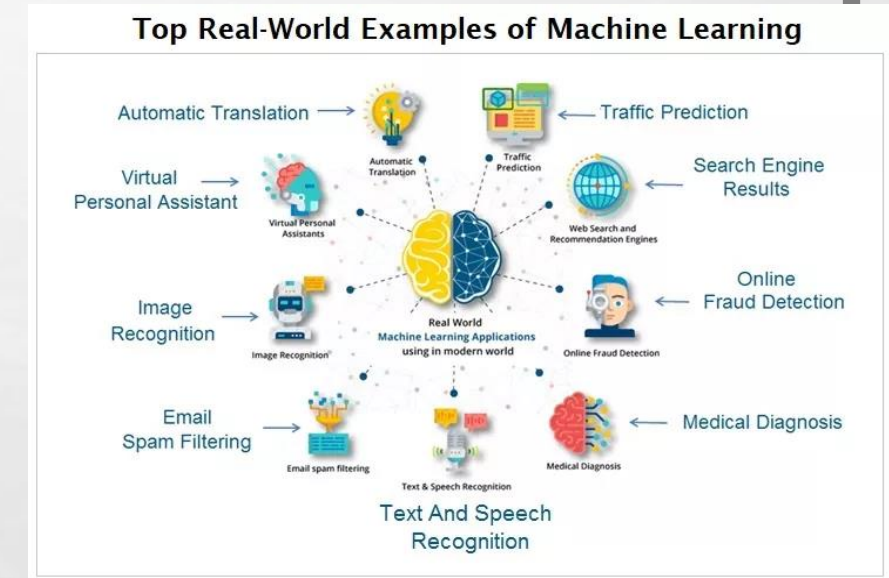
- **GRADIO UI FOR COURSE QUESTION ANSWERING**
  CONCEPTS MASTERED:
  RAG PIPELINE, EMBEDDINGS, VECTOR SEARCH, PROMPT ENGINEERING, ML DEPLOYMENT

REAL-WORLD APPLICATIONS

- HOW I CAN APPLY MY SKILLS:

- EDTECH: AI TUTORS, AUTOMATED COURSE ASSISTANTS

- KNOWLEDGE MANAGEMENT: INTERNAL SEARCH & POLICY Q&A

- CUSTOMER SUPPORT: ACCURATE, CITATION-BASED AI AGENTS

- HEALTHCARE: SAFE RETRIEVAL SYSTEMS FOR CLINICAL INFORMATION

- PROBLEMS I CAN TACKLE:

INFORMATION RETRIEVAL, AUTOMATION, DATA PROCESSING, AI-DRIVEN SUPPORT TOOLS

Top Real-World Examples of Machine Learning

WRAP-UP

- GITHUB: **JUDITHBARRIOS/AI_APPLICATIONS_PORTFOLIO_JUDITHBARRIOS2277**

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- ADDITIONAL SKILLS:
PYTHON, RAG SYSTEMS, DATA ANALYSIS, OPENAI API, GRADIO UI, GIT/GITHUB, ML PIPELINES