



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 `ASYNIO`**
- **API INTEGRATION: GET REQUESTS + JSON PROCESSING**
- **DATABASES: IN-MEMORY SQLITE WITH CRUD OPS**
- **DATA ANALYSIS: NUMPY ARRAYS, PANDAS DATAFRAMES**
- **TOOLS: PYTHON, NUMPY, PANDAS, ASYNIO, SQLITE, HTTP REQUESTS**

```
0 response = requests.get(url)
1
2 # checking response.status_code (if you get 502, try rerunning the code)
3 if response.status_code != 200:
4     print(f"Status: {response.status_code} - Try rerunning the code!")
5 else:
6     print(f"Status: {response.status_code}\n")
7
8 # using BeautifulSoup to parse the response object
9 soup = BeautifulSoup(response.content, "html.parser")
10
11 # finding Post images in the soup
12 images = soup.find_all("img", attrs={"alt": "Post image"})
13
14 # downloading images
15 for i, image in enumerate(images):
16     # ...
```

COURSE HIGHLIGHTS (PROJECT 2 – ADVANCED AI)

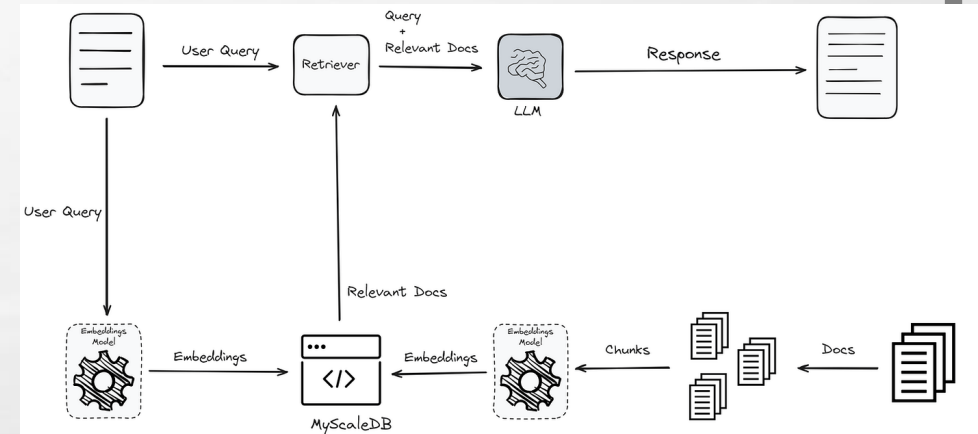
- **AI COURSE COPILOT – RAG SYSTEM (TEAM PROJECT)**

WHAT I BUILT:

- **RAG ASSISTANT USING SENTENCE-TRANSFORMERS + FAISS**
- **GPT-4 GENERATION WITH CITATION PROMPTS**
- **GRADIO UI FOR COURSE QUESTION ANSWERING**

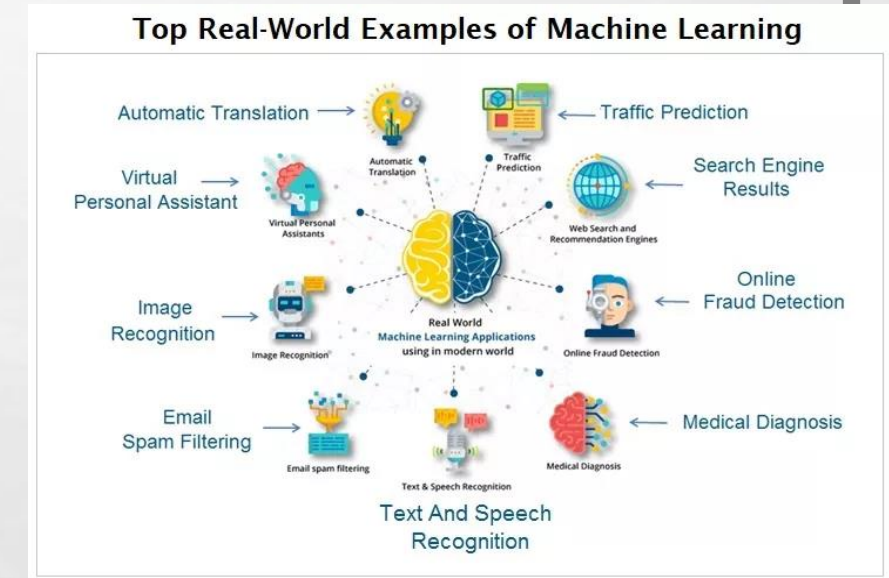
CONCEPTS MASTERED:

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



WRAP-UP

- **GITHUB:** [JUDITHBARRIOS/AI_APPLICATIONS_PORTFOLIO_JUDITHBARRIOS2277](https://github.com/JUDITHBARRIOS/AI_APPLICATIONS_PORTFOLIO_JUDITHBARRIOS2277)
- **EMAIL:** W215145433@STUDENT.HCCS.EDU
- **ADDITIONAL SKILLS:**
PYTHON, RAG SYSTEMS, DATA ANALYSIS, OPENAI API, GRADIO UI, GIT/GITHUB, ML PIPELINES