



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**

```
0     page = requests.get(url)           # load from the website
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    i = 0
16    for image in images:
17        image.download()
18
19    # saving images
20    for image in images:
21        image.save(f"post_{i}.jpg")
22
23    # displaying images
24    for image in images:
25        image.show()
```

COURSE HIGHLIGHTS (PROJECT 2 – ADVANCED AI)

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

WHAT I BUILT:

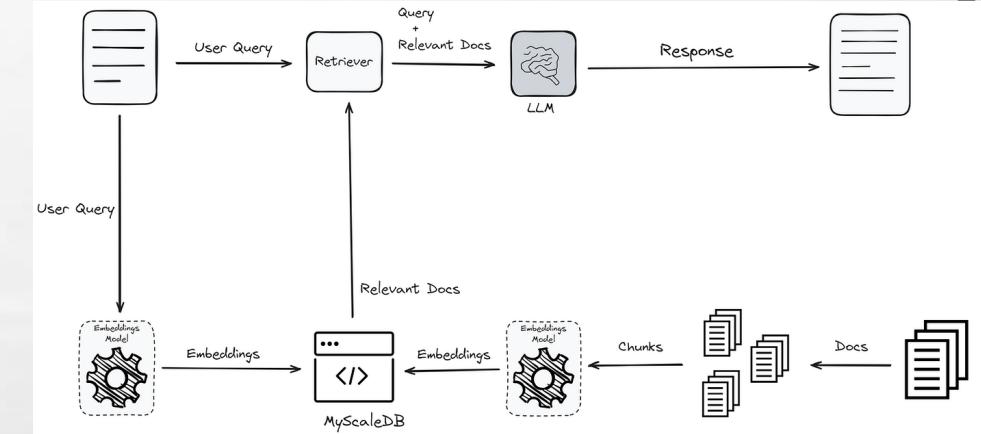
- **RAG ASSISTANT USING SENTENCE-TRANSFORMERS + FAISS**

- **GPT-4 GENERATION WITH CITATION PROMPTS**

- **GRADIO UI FOR COURSE QUESTION ANSWERING**

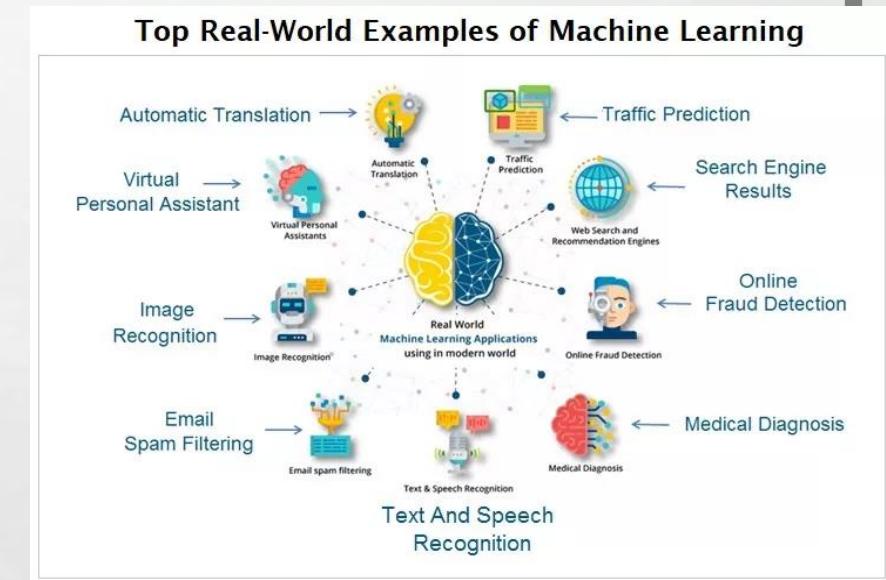
CONCEPTS MASTERED:

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](#)
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- **ADDITIONAL SKILLS:**
PYTHON, RAG SYSTEMS, DATA ANALYSIS, OPENAI API, GRADIO UI, GIT/GITHUB, ML PIPELINES