Capstone Project Update | App Submission

1 message

Visalakshi Prakash Iyer <visalakshiiyer@arizona.edu>   Thu, May 8, 2025 at 5:28 PM
To: laparra@arizona.edu, BLemos@pharmacy.arizona.edu
Cc: "Chism, Greg Thomas - (gchism)" <gchism@arizona.edu>, ratanga@arizona.edu, jfo@arizona.edu,
pranshurawat@arizona.edu, syedaslam@arizona.edu, vamsiv@arizona.edu

Hello Dr Laparra, Dr. Lemos,
I hope this email finds you well

As a member from the team of the capstone project *"Optimizing Genomics Research Workflows by Leveraging Curated Domain Expertise and RAG-enhanced Language Models—All Wrapped in a Delightful User Experience"* I want to write this email to officially send you the working application link deployed on this URL: **http://bioinfo-lab-agent.streamlit.app/**

This URL contains:

- The web application that serves our LLM model
- Vectorstore that provides the context using a retriever model
- A pipeline that takes any additional files through a file-uploader, to allow the user to upload required files to the session

The technical frameworks used in this implementation includes:

- <u>Streamlit</u>: Python-based framework to develop data-science use case applications
- <u>LangChain</u>: A wrapper that makes connectivity of FAISS vectorstore with LLM possible
- <u>SentenceTransformer</u>: HuggingFace SentenceTransformer that is responsible for sentence embedding of the text data
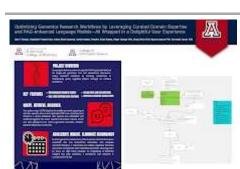
This implementation used the basic OpenAI GPT3.5 model to restrict any over-run of token limit and budget usage limit. But this application is built such that any model can be plugged-in to the app to extend the functionalities and capabilities of the LLM.

I have also attached the poster developed for our Capstone Project Presentation at the iShowCase held on 05/07/2025 with this email that gives a complete overview of the project.

The code for this application can be found at the official GitHub repository of the course: https://github.com/INFO-698-InfoSci-Capstone/self-hosted-bioinfo-ai under the *src/ui_app* folder

According to the proposal, we have made sure to implement the proposed features and functionalities. Please let us know if there is any feedback on the usage of this application. We are committed to complete any aspects that enhances the use case and contributes towards a successful research at the laboratory.

Regards,
Visalakshi Iyer

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