

Vahan AI- AI Intern Enhanced Interactive Learning Assistant - Project Report

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Project Overview

The **Enhanced Interactive Learning Assistant** is an AI-powered educational tool that utilizes Streamlit for the user interface and Gemini AI for generating personalized learning content. The application aims to personalize learning experiences by interacting with users to understand their goals and preferences. The assistant generates tailored educational content, including citations, visual aids, and follow-up learning paths, ensuring a comprehensive learning experience. The project can be deployed locally or via Docker for easier setup and scalability.

Tech Stack

- **Frontend:** Streamlit
- **Backend:** Gemini AI (for generating content)
- **Programming Language:** Python
- **Libraries:** Streamlit, OpenAI, Docker, Python-dotenv
- **Docker:** For containerized deployment of the application
- **Version Control:** GitHub for code management and version control

Features

- **Interactive Q&A:** Collect user preferences and goals to customize the learning experience.
- **Personalized Educational Content:** Tailored to the user's needs, complete with citations and visual aids.
- **Structured Reports:** Well-organized educational content, including citations and references for each learning session.
- **Follow-up Customization:** The system adapts and refines content based on user feedback and additional questions.
- **Docker Support:** The project can be run in a Docker container for easy deployment and scaling.

Setup Instructions

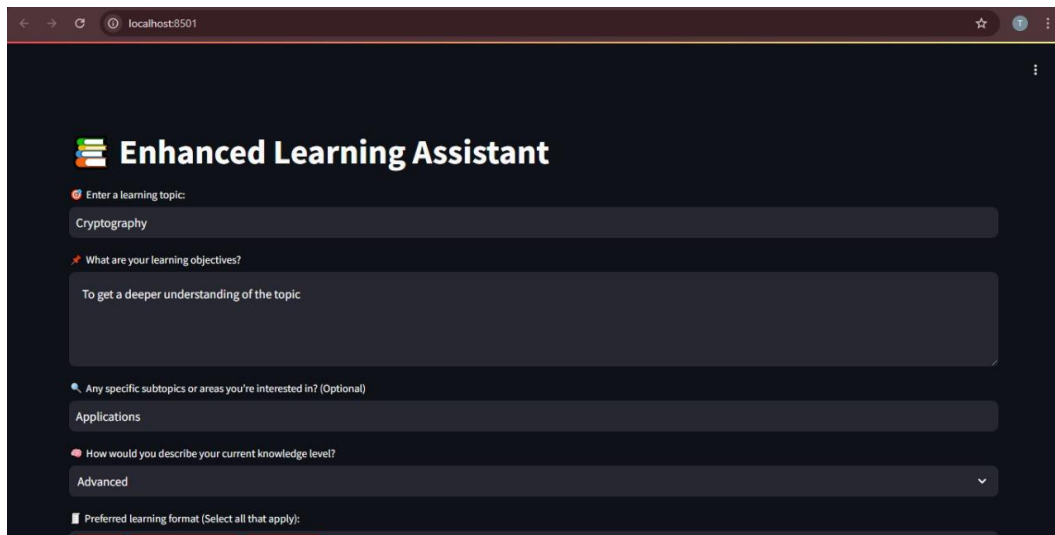
Please refer to the Readme file in the repository for this.

Sample Output

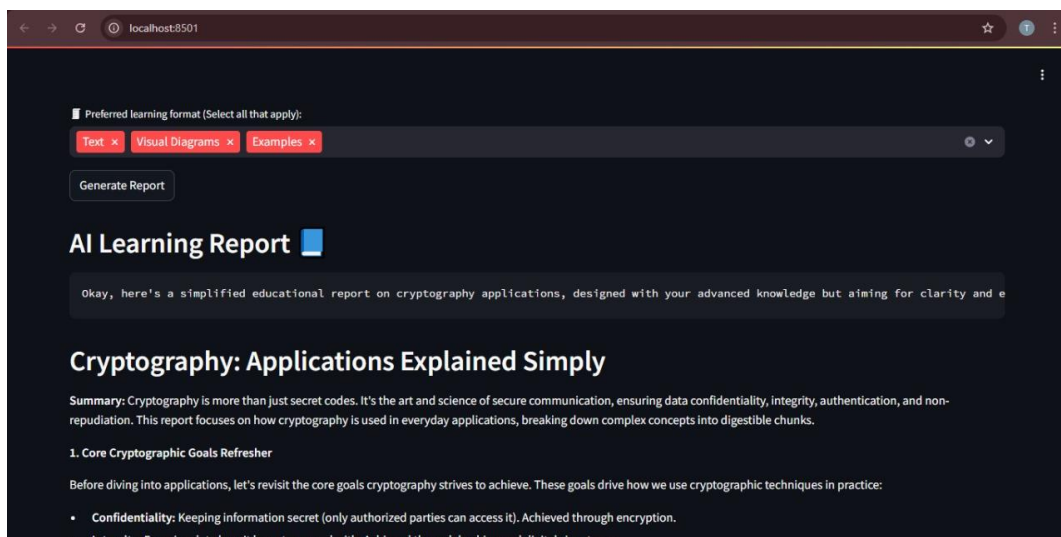
Below is a sample of the personalized learning report generated by the assistant:

Sample Input-Output 1:

Asking Instructor to regenerate the information as well based on feedback after it generates the first report.



A screenshot of a web browser showing the 'Enhanced Learning Assistant' interface. The browser's address bar shows 'localhost:8501'. The page has a dark theme. The title 'Enhanced Learning Assistant' is at the top. Below it, there are several input fields and a dropdown menu. The first field is labeled 'Enter a learning topic:' and contains the text 'Cryptography'. The second field is labeled 'What are your learning objectives?' and contains the text 'To get a deeper understanding of the topic'. The third field is labeled 'Any specific subtopics or areas you're interested in? (Optional)' and contains the text 'Applications'. The fourth field is labeled 'How would you describe your current knowledge level?' and has a dropdown menu showing 'Advanced'. The fifth field is labeled 'Preferred learning format (Select all that apply):' and is currently empty.



A screenshot of the 'AI Learning Report' generated by the assistant. The browser's address bar shows 'localhost:8501'. The page has a dark theme. The title 'AI Learning Report' is at the top. Below it, there is a text box containing the text 'Okay, here's a simplified educational report on cryptography applications, designed with your advanced knowledge but aiming for clarity and e'. Below this, there is a section titled 'Cryptography: Applications Explained Simply'. The section includes a 'Summary' paragraph and a list of 'Core Cryptographic Goals Refresher'.

Preferred learning format (Select all that apply):

Text x Visual Diagrams x Examples x

Generate Report

AI Learning Report

Okay, here's a simplified educational report on cryptography applications, designed with your advanced knowledge but aiming for clarity and e

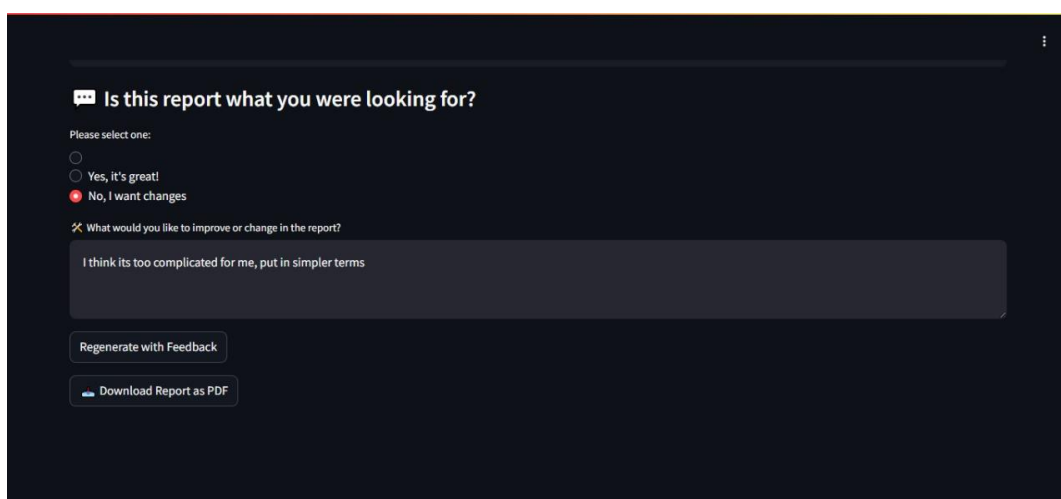
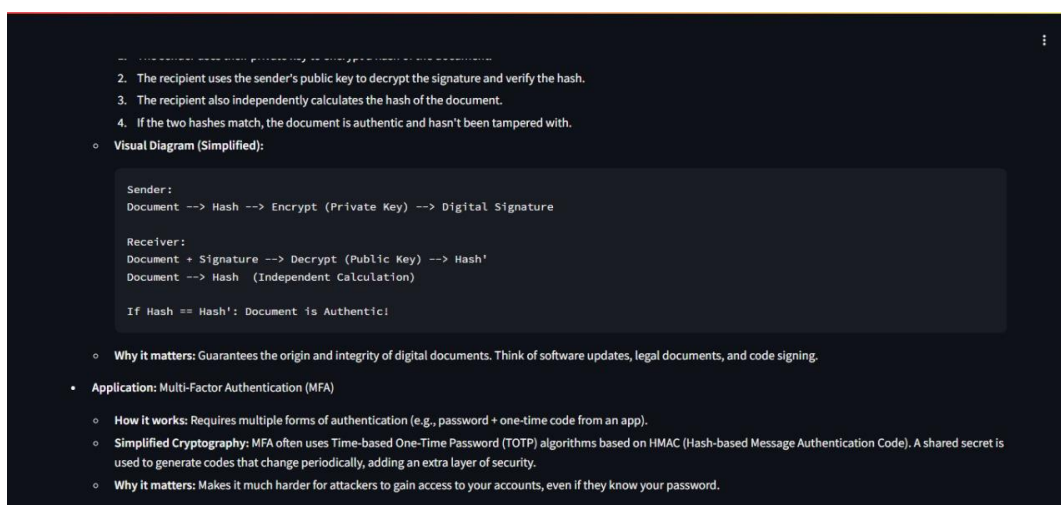
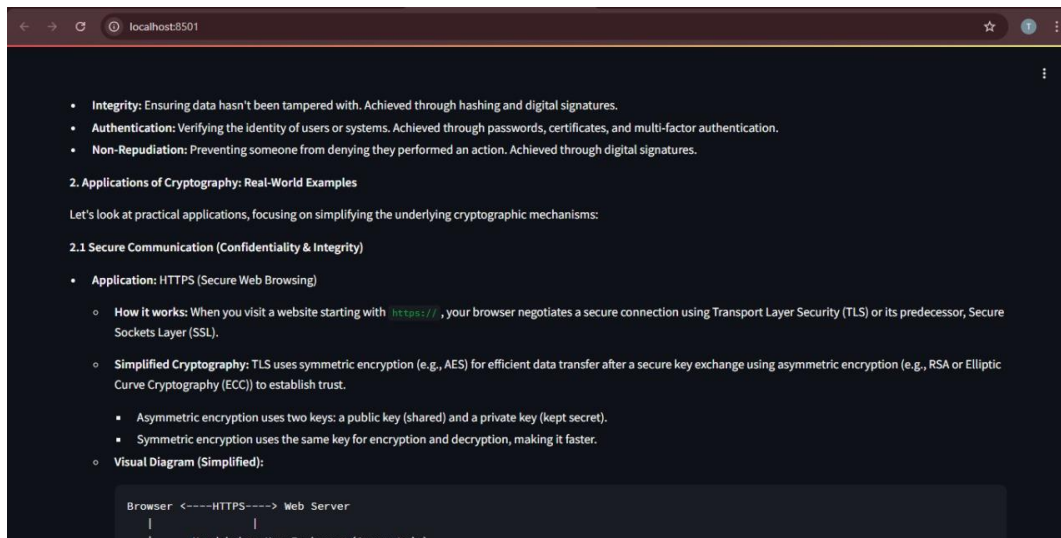
Cryptography: Applications Explained Simply

Summary: Cryptography is more than just secret codes. It's the art and science of secure communication, ensuring data confidentiality, integrity, authentication, and non-repudiation. This report focuses on how cryptography is used in everyday applications, breaking down complex concepts into digestible chunks.

1. Core Cryptographic Goals Refresher

Before diving into applications, let's revisit the core goals cryptography strives to achieve. These goals drive how we use cryptographic techniques in practice:

- **Confidentiality:** Keeping information secret (only authorized parties can access it). Achieved through encryption.
- **Integrity:** Ensuring data hasn't been tampered with. Achieved through hashing and digital signatures.



Sample Input-Output 2:

Downloading as PDF here as well

localhost:8501

Deploy

Enhanced Learning Assistant

Enter a learning topic:

Microbiology

What are your learning objectives?

My objective is to learn more about microbiology and get a overview about it

Any specific subtopics or areas you're interested in? (Optional)

Surgeries in Microbiology

How would you describe your current knowledge level?

Beginner

Preferred learning format (Select all that apply):

Text x Step-by-step exp... x

localhost:8501

Deploy

Generate Report

AI Learning Report

Okay, let's dive into the fascinating world of Microbiology with a focus on its surprising connection to surgeries! This overview is designed

Microbiology: An Overview

Summary: Microbiology is the study of microorganisms, tiny living things that are invisible to the naked eye. These include bacteria, archaea, fungi, protists, and viruses. Microbiology explores their structure, function, interactions, and impact on everything from human health to the environment.

1. What is Microbiology?

- Microbiology is a branch of biology that deals with microorganisms.
- Microorganisms are ubiquitous, meaning they're found everywhere - in soil, water, air, and even inside us!
- Microbiologists study various aspects of microorganisms, including their:
 - Morphology: Shape and structure.
 - Physiology: How they function.
 - Genetics: Their hereditary information (DNA/RNA).
 - Ecology: Their interactions with the environment and other organisms.
 - Pathogenicity: Their ability to cause disease.

localhost:8501

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7.5 KB • 2 hours ago

- If you're interested in learning more, I recommend starting with the basics of cell structure and function. Understanding the differ is fundamental.
- Then, delve into the different types of microorganisms and their characteristics.
- Finally, explore specific examples of how microbiology is applied in medicine, agriculture, and other fields. I hope this overview is helpful! Let me know if you have any specific questions or want to explore a particular topic in more detail.

Generated by Gemini AI

Is this report what you were looking for?

Please select one:
☐ Yes, it's great!
☐ No, I want changes

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