SENSEI-SEARCH: AI-POWERED MULTIMODAL SEARCH ENGINE

Leveraging IBM Granite Models & RAG Framework

Team Name: Binary Solvers

Members: Bhushan Sah
Roshan Kumar Sing
Shubham Kumar Jha

INTRODUCTION

- • Sensei-Search is an AI-driven multimodal search engine using IBM Granite models and RAG framework, enabling text, image, and voice queries.
- • Multimodal search is important because it enables users to interact with data in a more natural and flexible way

•Multimodal Search: Supports text, image, and voice-based queries.
•RAG Framework: Utilizes Retrieval-Augmented Generation for accurate results.
•Pre-trained AI Models: Leverages open-source AI models for improved performance.

PROBLEM STATEMENT

1. **Challenges in Traditional Search Engines**:
   - Text-only queries, limited context.
2. **Need for Multimodal Search**:
   - Combines text, image, and voice for better accuracy.
3. **Misinformation Detection & Fact Verification**:
   - Ensures trustworthy, fact-checked results.

SOLUTION OVERVIEW

1. **IBM Granite Models**:
   - Provide intelligent, context-aware responses.
2. **RAG (Retrieval-Augmented Generation)**:
   - Enhances contextual accuracy in responses.
3. **Seamless UI (Web via Streamlit)**:
   - Easy and intuitive user interface.

TECHNOLOGY STACK

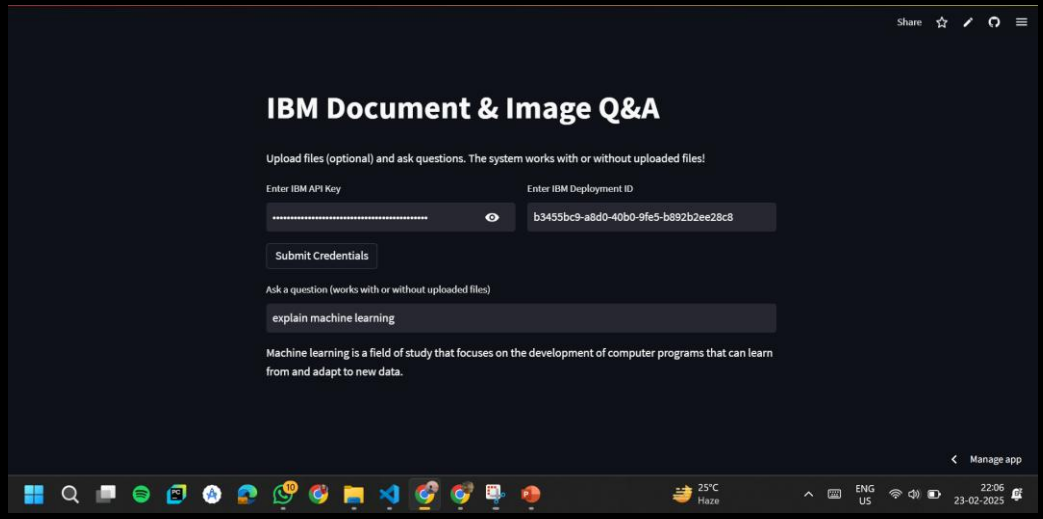
- • AI Models: IBM Granite (via Watsonx.ai)
- • Backend: Python
- • Frontend: Streamlit (Web),

SYSTEM ARCHITECTURE

- Flowchart: User input → AI processing → RAG → Knowledge Graph → Response

DEMO & RESULTS

- https://senseiibmgit-sy6ltck2d5gbmxl89bx9jy.streamlit.app/



FUTURE SCOPE

- • Expanding data sources
- • Improving AI model accuracy
- • Enterprise integration