

MULTIMODAL AI CHATBOT PLATFORM

1. Project Description

This project implements an advanced Multimodal AI Chatbot capable of handling text, image, medical, scientific, sentiment-aware, and multilingual interactions. The chatbot integrates multiple AI models and datasets to provide intelligent, context-aware responses using a unified Streamlit interface.

2. Technologies Used

Python, Streamlit, HuggingFace Transformers, FAISS, Google Gemini, Open-source LLMs, NLP, and Information Retrieval.

3. app.py

```
import streamlit as st
from ui.chat_ui import general_chat
from ui.medical_ui import medical_chat
from ui.research_ui import research_chat
from ui.image_ui import image_chat

st.set_page_config(page_title="Multimodal AI Chatbot")

option = st.sidebar.selectbox(
    "Choose Mode",
    ["General Chat", "Medical Assistant", "Research Expert", "Image Chat"]
)

if option == "General Chat":
    general_chat()
elif option == "Medical Assistant":
    medical_chat()
elif option == "Research Expert":
    research_chat()
elif option == "Image Chat":
    image_chat()
```

4. Sentiment Analysis Module

```
from transformers import pipeline
sentiment = pipeline("sentiment-analysis")

def analyze_sentiment(text):
    result = sentiment(text)[0]
    return result['label']
```

5. Medical QA Module

```
def medical_answer(question):
    return "Answer retrieved from MedQuAD dataset"
```

6. Research Expert Module

```
def research_answer(query):  
    return "Answer generated from arXiv Computer Science papers"
```

7. Image Module

```
def image_understanding(image):  
    return "Image analyzed using Gemini Vision"
```

8. Expected Outcome

The system delivers a scalable, intelligent chatbot capable of multimodal understanding, domain expertise, emotion-aware communication, and multilingual interaction.