

“Know How's of Bengal”

The Chatbot that unravels the essence of cultural enrichment

1. Cultural Renaissance & Relevance

****Know How's to Bengal**** embarks on a journey to unveil the cultural richness and literary heritage of Kolkata, the City of Joy, and the capital of West Bengal. Kolkata, steeped in history and adorned with vibrant cultural tapestry, stands as a beacon of enlightenment and artistic expression. From the literary luminaries of the Bengal Renaissance to the soul-stirring melodies of Rabindra Sangeet, Kolkata embodies a unique blend of tradition and modernity. The resurgence of Kolkata's cultural landscape has sparked a renewed interest, drawing visitors from far and wide to immerse themselves in its captivating aura. An app featuring a chatbot interface serves as a gateway to this cultural treasury, offering insights into literature, art, music, and more.

2. Methodology & Approach

Know How's to Bengal embraces a multi-faceted approach, integrating cutting-edge technologies with the timeless essence of Bengal's cultural heritage:

Streamlit Interface: We chose Streamlit to create an interactive and user-friendly web-based interface for the chatbot. Streamlit's simplicity and flexibility allowed us to design an intuitive interface that facilitates seamless user interaction.

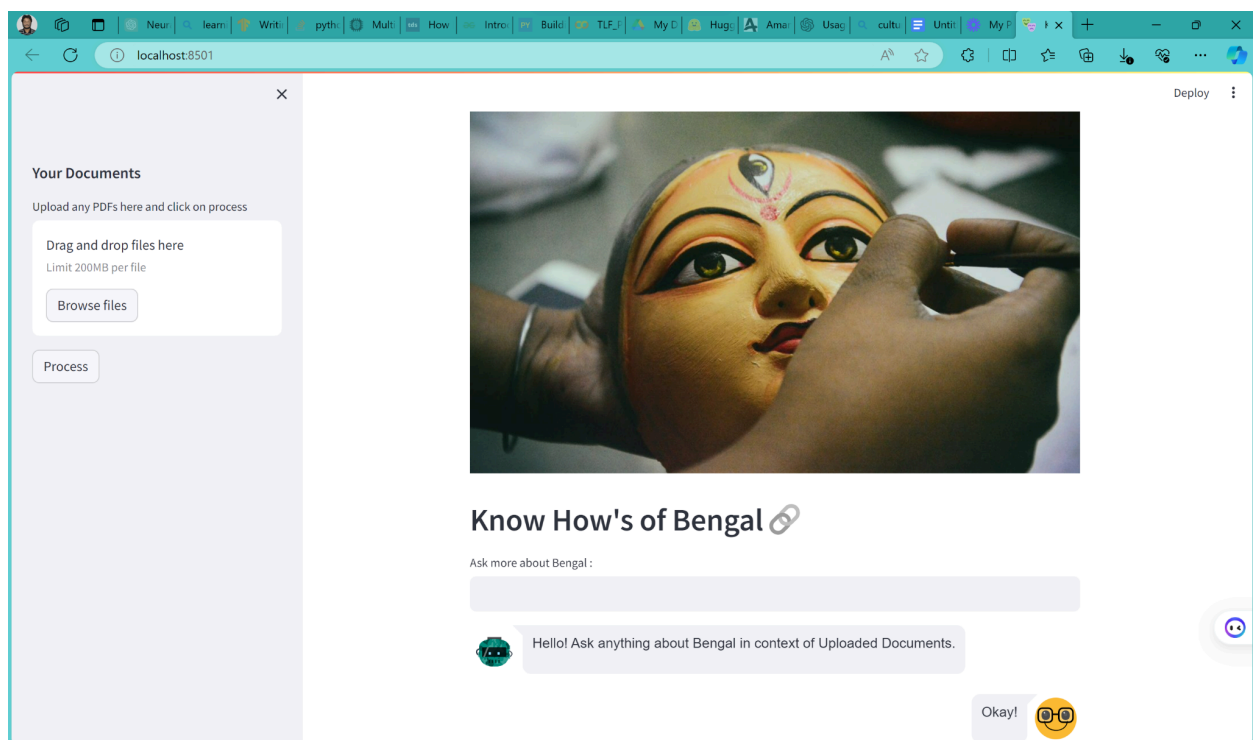
- *NLP Techniques:* We employed various Natural Language Processing (NLP) techniques to process and analyze textual data related to Bengal. This included text splitting, embeddings, and semantic similarity calculations using advanced NLP libraries.
- *Vector Store Creation:* Text chunks extracted from PDF documents, blogs, articles, and reputable sources were used to create a vector store using FAISS (Facebook AI Similarity Search). This vector store facilitated efficient retrieval of relevant information during user interactions.
- *Chat Model Implementation:* We implemented a chat-based language model using ChatOpenAI, enabling the chatbot to generate contextually relevant responses to user queries. The chat model was fine-tuned to ensure accurate and engaging conversations.

- *Conversation Management*: Conversation history was managed using ConversationBufferMemory, allowing users to seamlessly continue conversations across sessions and providing personalized experiences.
- *Conversational Retrieval Chain*: A conversational retrieval chain was established to enhance the chatbot's interaction capabilities. This chain integrated the chat model with the vector store, enabling the chatbot to retrieve and present information in a conversational manner.

3. Knowledge Curation and Exploration

Know How's to Bengal embarks on a quest to curate and explore the vast repository of Bengal's cultural knowledge. Sourcing insights from revered literary works, historical archives, and cultural repositories, the chatbot offers users a glimpse into Bengal's literary giants, cultural icons, and artistic masterpieces. By compiling a curated dataset from reputable sources and authoritative text and by combining traditional research methods with modern technological tools, Know How's to Bengal curates a dynamic and comprehensive repository of Bengal's cultural knowledge, serving as a valuable resource for scholars, researchers, students, and enthusiasts alike.

4. Screenshots of Working Output/GUI



The user-friendly and clutter-free GUI of the web page is intentionally designed to provide a seamless experience for users. Through clear and concise visuals, including the picture showcasing Bengal's rich heritage and culture, the webpage effectively communicates its objective to users. The chatbot prompts users to inquire further about Bengal within the context provided, encouraging active engagement and exploration.

The efficient processing capabilities of the bot ensure swift creation of vector stores, minimizing processing time and enhancing user experience. With an upper memory limit of 200MB per file, the bot optimizes resource utilization while maintaining performance and stability. Additionally, the GUI's stability is demonstrated in the accompanying video, showcasing its ability to handle multiple files simultaneously and deliver accurate responses to user queries.

Overall, the integration of user-friendly design, efficient processing algorithms, and stable performance makes the chatbot a reliable and effective tool for users seeking information about Bengal's cultural heritage and traditions. Through seamless interaction and timely responses, the chatbot facilitates meaningful engagement and exploration, enriching users' understanding and appreciation of Bengal's diverse cultural landscape.

5. Details of GUI/Deployment/Hosting

****Know How's to Bengal**** invites users on an immersive cultural odyssey, where every interaction is infused with the spirit of Bengal's literary and artistic legacy. The Graphical User Interface (GUI), adorned with hues reminiscent of Bengal's vibrant palette, offers a seamless and intuitive platform for users to explore and engage with Bengal's cultural heritage. Through a combination of captivating visuals, immersive storytelling, and interactive features, ****Know How's to Bengal**** creates an unparalleled experience, inviting users to embark on a journey of cultural enlightenment and discovery.

Code Snippet

```
def handle_userinput(user_question):
    response = st.session_state.conversation({'question': user_question})
    st.session_state.chat_history = response['chat_history']

    for i, mess in enumerate(st.session_state.chat_history):
        if i % 2 == 0:
            message(mess.content, is_user = True, key=f'user_message_{i}')
        else:
```

```

        message(mess.content, key=f'bot_message_{i}')

def main():
    import os
    from dotenv import load_dotenv

    # Load environment variables from .env file
    load_dotenv(dotenv_path="D:\Courses and materials\TLP Plaksha\Term
4\Test code\key.env")

    # Now you can access your API key as an environment variable
    api_key = os.getenv('OPENAI_API_KEY')
    link='https://en.wikipedia.org/wiki/Culture_of_Bengal'
    st.set_page_config(page_title="Know Bengal", page_icon=":link:")

    st.image("Art-and-Culture-of-West-Bengal-1068x712.jpg",
use_column_width=True)

    if "conversation" not in st.session_state:
        st.session_state.conversation = None
    if "chat_history" not in st.session_state:
        st.session_state.chat_history = None

    st.header(" Know How's of Bengal:link:")
    user_question = st.text_input("Ask more about Bengal :")
    if user_question:
        handle_userinput(user_question)

```

References

Know How's to Bengal draws inspiration from a rich tapestry of literary works, historical narratives, and cultural repositories, including:

1. [\[Ananda Bazar Patrika - Leading Bengali Newspaper\]\(https://www.anandabazar.com/\)](https://www.anandabazar.com/)
2. [\[Sahitya Akademi - Literary Works and Publications\]\(https://sahitya-akademi.gov.in/\)](https://sahitya-akademi.gov.in/)
3. [\[Rabindra Bharati University - Cultural Repository\]\(https://rbu.ac.in/\)](https://rbu.ac.in/)
4. [\[Bengali Literature - Literary Portal\]\(https://www.bengali-literature.com/\)](https://www.bengali-literature.com/)
5. [\[Victoria Memorial - Cultural Heritage Site\]\(https://www.victoriameorial-cal.org/\)](https://www.victoriameorial-cal.org/)