**FIN BOT - FINANCE CHATBOT USING GOOGLE GEMINI API**

**Problem Statement:** The financial sector generates vast amounts of data daily, making it challenging for investors and professionals to extract relevant insights efficiently. Traditional search engines require users to sift through multiple sources, whereas an AI-powered chatbot can provide direct, relevant, and contextual responses. This project aims to develop a finance chatbot named "Fin Bot" using Google's Gemini AI to assist users with financial queries, investment insights, and digital asset information.

**Aim of the Project:** The primary objective of this project is to create a chatbot application that:

1. Uses Google's Gemini AI to provide intelligent responses to finance-related queries.
2. Supports multiple AI models and allows users to select their preferred model.
3. Provides an interactive and user-friendly chat interface using Streamlit.
4. Enhances financial literacy by offering insights on investments, stock trends, and digital assets.

**Techniques Used in the Project:**

1. **Integration with Google Gemini API:**
   * The chatbot leverages Gemini's Generative AI for finance-related question answering.
   * API key authentication is implemented for secure access.
2. **User Input and Chat Processing:**
   * The application collects user input via a text field and sends it to the AI model.
   * Responses are dynamically generated based on the selected AI model.
3. **Model Selection and Customization:**
   * The application fetches available Gemini AI models and allows users to choose one.
   * The selected model is used for generating responses.
4. **Error Handling and Optimization:**
   * Implements error handling for API connectivity, authentication, and quota limitations.
   * Ensures robust exception management to provide informative error messages.
5. **Visualization and User Interface:**
   * The chatbot interface is developed using Streamlit.
   * Custom CSS styling enhances readability and user experience.

**Explanation of the Code:**

1. **Importing Required Libraries:**
   * streamlit: Used for creating the web-based interface.
   * google.generativeai: Enables communication with Google Gemini API.
   * pandas and numpy: Provide efficient data handling and processing capabilities.
2. **API Key Configuration:**
   * The Gemini API key is set up to authenticate requests.
   * The application checks the validity of the API key before making requests.
3. **Fetching Available Models:**
   * The function get\_available\_models() retrieves a list of AI models supporting content generation.
   * Models that support "generateContent" are filtered and displayed.
4. **Generating Chatbot Responses:**
   * The function chatbot\_response() takes user input and the selected AI model as parameters.
   * It sends the input to the Gemini API and retrieves a response.
   * Error handling is implemented to catch API-related issues.
5. **User Interface with Streamlit:**
   * A user-friendly chat interface is developed where users can enter financial queries.
   * A sidebar allows model selection and displays project information.
   * Chat history is maintained in st.session\_state to improve the conversational experience.
6. **Styling and Customization:**
   * Custom CSS is applied to format the chatbot’s title, user messages, bot messages, and sidebar elements.
   * The chatbot uses different text colors for user and bot messages for readability.

**Use of Python in the Project:**

1. **Data Processing:** Uses Pandas and NumPy for efficient data handling.
2. **API Integration:** Implements Google Gemini API for AI-powered responses.
3. **Web Development:** Uses Streamlit to create an interactive chatbot interface.
4. **Exception Handling:** Implements robust error handling to prevent system failures.
5. **Session Management:** Stores chat history using Streamlit’s session state.

**Conclusion:** The Fin Bot project successfully integrates Google Gemini AI into a finance-focused chatbot, providing users with real-time financial insights in an interactive manner. The model selection feature enhances flexibility, allowing users to choose the best-suited AI model for their queries. While the chatbot effectively answers finance-related questions, future enhancements could include integrating stock market data, incorporating sentiment analysis on financial news, and expanding multilingual support to cater to a broader audience.