

MindSpark: AI Psychiatric Assistant

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1 Landing Page / Home Page

- Users can **Login** or **Sign Up**.
- New users fill out the **Signup Form**, with data stored in **MongoDB Atlas**.
- Returning users log in with their **email and password**, verified through hashed passwords.
- A **JWT token** is generated for authentication.
- After authentication, users are redirected to the **Chat Page**.

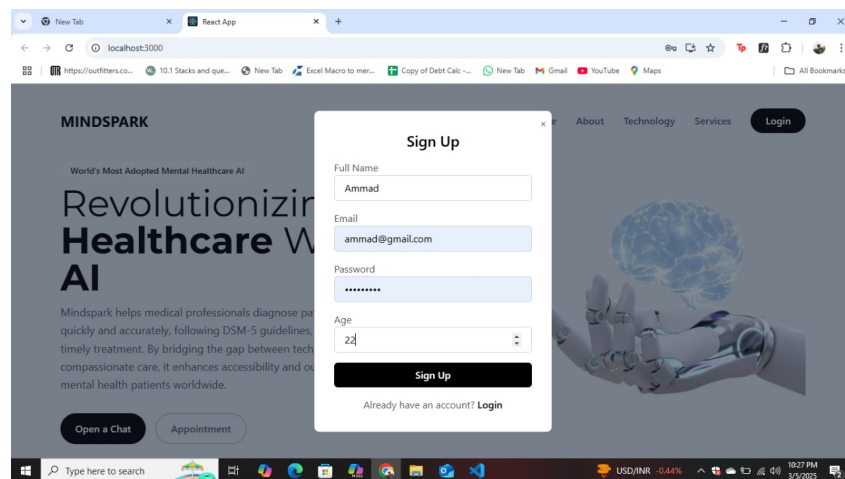


Figure 1: Landing Page

2 Chat Page / Main Interface

- Users start a session by clicking on **New Chat**.
- The system prompts for the **patient's name and age**.
- Default AI model: **DeepSeek Model**.
- Users interact with the chatbot in a conversational manner.

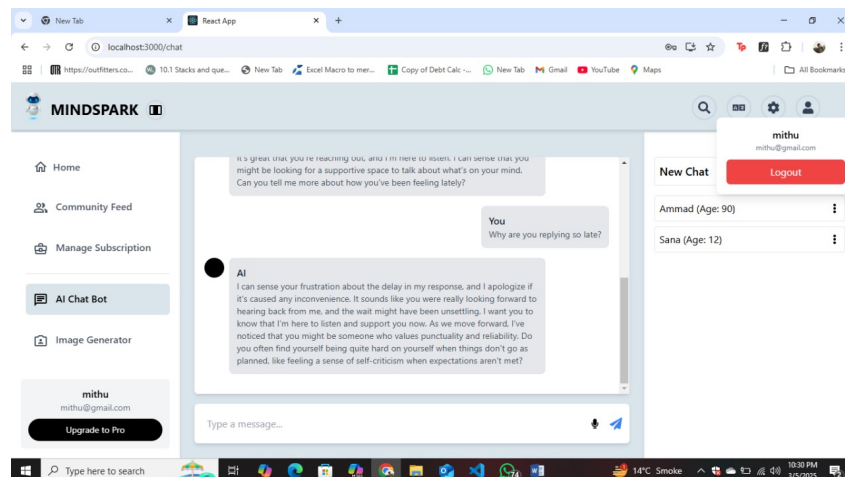


Figure 2: Chat Page

3 Model Selection and Subscription Management

- Users can modify their selected AI model via **Manage Subscriptions**.
- Subscription options:
 - **Premium Plan** - Uses the **Hybrid RAG Model**.
 - **Economical Plan** - Uses the **Simple RAG Model**.
- Model preferences are stored in **localStorage** and MongoDB.

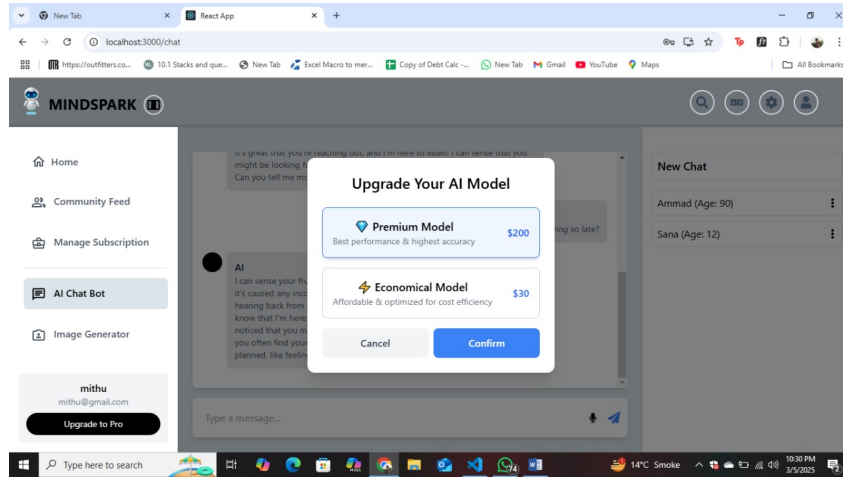


Figure 3: Subscription Management Page

4 Model Functionalities

Feature	Simple RAG	Hybrid RAG	DeepSeek RAG
Question Generation	Retrieves top 3 closest questions.	Retrieves best-matching question and rephrases using Groq.	Uses DeepSeek's generative model.
Source	FAISS index (predefined questions).	FAISS + Groq API.	DeepSeek model trained with symptom-based prompting.
Chat Summarization	Uses Long-T5 for summarization.	Uses Long-T5 for summarization.	Uses DeepSeek for context-aware summarization.
Diagnosis	FAISS retrieves top 3 closest disorders.	FAISS retrieves top 3 closest disorders.	DeepSeek generates disorder predictions.
Treatment Recommendation	Retrieves treatments based on FAISS.	Retrieves treatments based on FAISS.	DeepSeek generates personalized recommendations.

Table 1: Comparison of the Three AI Models

5 Chat Completion and Report Generation

- A Notes PDF is automatically generated at the end of the chat.
- When the user enters **quit**, the PDF is downloaded.

PDF includes:

- Diagnosis
- Treatment Recommendations
- Conversation Summary

The image shows a screenshot of a PDF report titled "MINDSPARK Patient's Medical Report". The report is structured with several sections: "Patient Demographics" (Name: Ammad Aslam, Age: 21), "Clinical Summary" (a paragraph of text about dangerous behavior and thoughts), "Detected Disorders" (a list of three disorders: Depressive Disorder, Anxiety Disorder, and Mental Disorder (Catatonia Specifier)), "Recommended Treatments" (a list of three treatment categories: Mental Disorder (Catatonia Specifier), Depressive Disorder, and Anxiety Disorder, each with a list of specific treatments). The report is formatted with a blue header, green highlights for the treatment sections, and a black footer.

MINDSPARK
Patient's Medical Report

Patient Demographics
Name: Ammad Aslam
Age: 21

Clinical Summary
i have dangerous behaviour these days Do you have thoughts of harming yourself or others?, Do you feel like you might lose control and hurt someone?, Do you experience urges to engage in violent behavior?, Do you feel like you're a danger to yourself or others?, Do you have difficulty controlling aggressive impulses?, Do you feel like you might act on harmful thoughts?, Do you feel like you're at risk of causing harm unintentionally?, Do you feel like you're being driven to harm yourself or others?, Do you feel like you're losing control over your actions?, Do you feel like you're in danger of acting on violent urges?

Detected Disorders
1. Depressive Disorder
2. Anxiety Disorder
3. Mental Disorder (Catatonia Specifier)

Recommended Treatments

Mental Disorder (Catatonia Specifier)
No specific treatment found.

Depressive Disorder
SSRIs (e.g., Fluoxetine), Psychotherapy, Exercise, Lifestyle changes

Anxiety Disorder
Cognitive Behavioral Therapy (CBT), SSRIs (e.g., Sertraline), Relaxation techniques

Figure 4: Generated PDF Summary

6 Database and Storage

All data is securely stored in MongoDB Atlas, including:

- **User Authentication Data:** Hashed passwords, JWT tokens.
- **Chat History:** Conversations and diagnostic summaries.
- **Model Preferences:** Subscription and AI model selection.
- **Patient Information:** Name, age, and session details.

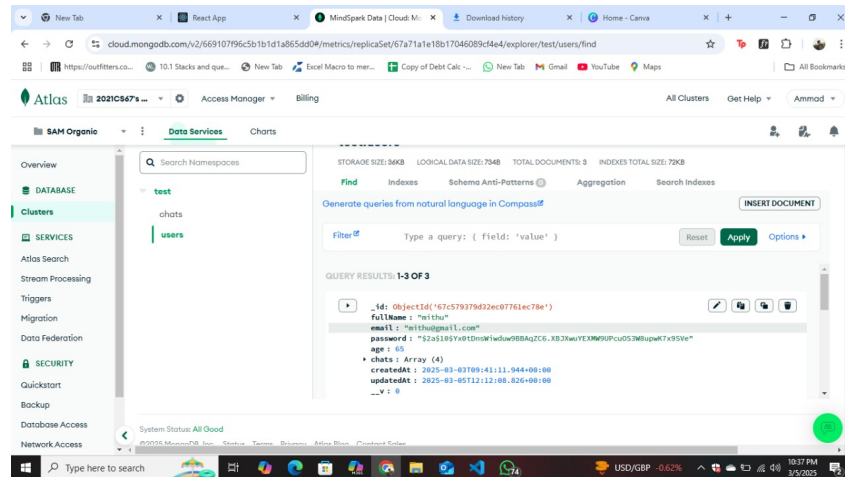


Figure 5: MongoDB Atlas Data Storage