

STUDY BOT – AI STUDY ASSISTANT WITH MEMORY

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1. PROJECT OVERVIEW

Study Bot is an AI-powered chatbot designed to assist students with academic questions. The chatbot accepts user queries related to study topics and generates intelligent responses using a Large Language Model (LLM). The system stores conversation history in a MongoDB database and retrieves previous messages to provide contextual responses. This enables the chatbot to simulate real-world AI assistants that remember interactions and provide meaningful replies.

2. IMPLEMENTATION STEPS

Step 1 - Environment Setup

Installed required packages such as FastAPI, Uvicorn, LangChain, and MongoDB drivers. Environment variables were configured for API keys and database URI.

Step 2 - Basic Chatbot Creation

Connected backend to LLM API. The chatbot accepts user input and returns generated responses.

Step 3 - Database Memory Integration

Connected MongoDB database. Stored user messages and chatbot responses.

Retrieved past messages to maintain conversation context.

Step 4 - Study Bot Logic

Added system prompt to restrict chatbot responses to academic and study-related topics.

Step 5 - Deployment

Deployed the chatbot API using Render platform and configured environment variables for secure execution.

3. MEMORY IMPLEMENTATION

The chatbot stores conversation history inside MongoDB database. Each interaction is stored as a record containing:

- User message
- Bot response
- Timestamp

When a new query is received, the system retrieves previous conversations and appends them to the prompt before sending it to the LLM. This allows the chatbot to generate context-aware responses.

Importance of Memory:

Without memory → responses are isolated

With memory → responses are contextual and intelligent

4. GITHUB REPOSITORY

Project Source Code Link:

https://github.com/mohammed-tousif/AI_chatBot.git

5. HOSTED API LINK

Live API URL:

<https://ai-chatbot-gnmt.onrender.com>

API Documentation:

<https://ai-chatbot-gnmt.onrender.com/docs>

The chatbot API has been successfully deployed on the Render cloud platform. The live endpoint accepts user queries and returns AI-generated responses in real time. The Swagger documentation endpoint provides interactive testing of API routes.

Sample API test screenshot:

https://ai-chatbot-gnmt.onrender.com/docs#/default/chat_chat_post

ai-chatbot-gnmt.onrender.com/docs#/default/chat_chat_post

curl -X 'POST' \

```
'https://ai-chatbot-gnmt.onrender.com/chat' \
```

-H 'accept: application/json' \

-H 'Content-Type: application/json' \

-d '{

```
"user_id": "user123",
```

```
"question": "what kind of ChatBot are you"
```

```
}'
```

Request URL

<https://ai-chatbot-gnmt.onrender.com/chat>

Server response

Code Details

200

Response body

```
{
```

```
  "response": "I'm **StudyBot** - a friendly, teacher-style chatbot built to help you learn, study, and grow academically. Here's what that means:\n\nFeature | What It Looks Like in Practice |\n\n-----\n\n**Subject-focused** | I'm ready to tackle math, science, history, language arts, coding, and more. |\n\n**Level-adaptable** | Beginner, intermediate, or advanced? Just tell me, and I'll tailor explanations and examples. |\n\n**Step-by-step** | For problems, I walk you through each calculation or concept, not just hand you the answer. |\n\n**Critical-thinking coach** | I'll ask probing questions, challenge assumptions, and help you build your own reasoning. |\n\n**Study-tool builder** | Need a revision plan, flashcards, summaries, or practice quizzes? I can create those for you. |\n\n**Positive, supportive tone** | I'll motivate you, correct gently, and celebrate your progress. |\n\n**Academic-only focus** | I stay on the path of learning - no off-topic gossip or harmful content. |\n\nSo, in short: I'm a "learning assistant" who explains concepts, solves problems together, and helps you become a better student. If you've got a specific topic or homework question, just let me know!"
```

Response headers

```
access-control-allow-credentials: true
```

```
access-control-allow-origin: *
```

```
alt-svc: h3=443; ma=86400
```

```
cf-cache-status: DYNAMIC
```

```
cf-ray: 8d15d1a25fe8937a-MAA
```

```
content-encoding: br
```

```
content-length: 789
```

```
content-type: application/json
```

```
date: Sat, 21 Feb 2026 11:14:15 GMT
```

```
priority: u=1,i
```

```
rndr-id: 7c931f00-7a0f-45d5
```

```
server: cloudflare
```

```
server-timing: cfExtPri
```

```
vary: Accept-Encoding
```

```
x-render-origin-server: uvicorn
```

