Interview Question Generator from Job Description

<u>INDEX</u>

OBJECTIVE

The objective of this project is to develop an **AI-powered Interview Question Chatbot** that generates **interview questions and ideal answers** based on job descriptions. The chatbot aims to assist **recruiters, hiring managers**, and **learners** by providing **consistent**, **fair**, and **structured interviews** with dynamic conversational capabilities like *"Harder questions"*, *"Behavioral round"*, and *"Coding round"*.

Key Goals:

1. **Automated Question Generation:**

   o Generate technical, behavioral, and situational interview questions based on the provided job description.

2. **Dynamic Interaction:**

   o Allow users to request adjustments, such as **increasing question difficulty** or **switching to behavioral questions**.

3. **Unbiased and Consistent Evaluation:**

   o Ensure all candidates are asked the same relevant questions, reducing interviewer bias.

4. **Improved Efficiency:**

   o Save time for recruiters by automating the interview preparation process and providing ready-to-use interview questions.

5. **Scalability:**

   o Easily adaptable for different roles, industries, and languages, making it a versatile tool for hiring.

Problem Statement

Organizations often struggle to create standardized interview questions across teams.
Interviewers tend to:

- ask inconsistent questions

- repeat basic questions

- miss role-specific competency checks

This leads to:

- bias in evaluation

- poor candidate assessment

- lack of structure in interviews

There is a need for an AI-based conversational system that automatically understands the Job Description and generates relevant interview questions dynamically with expected answers.

<u>Proposed Solution</u>
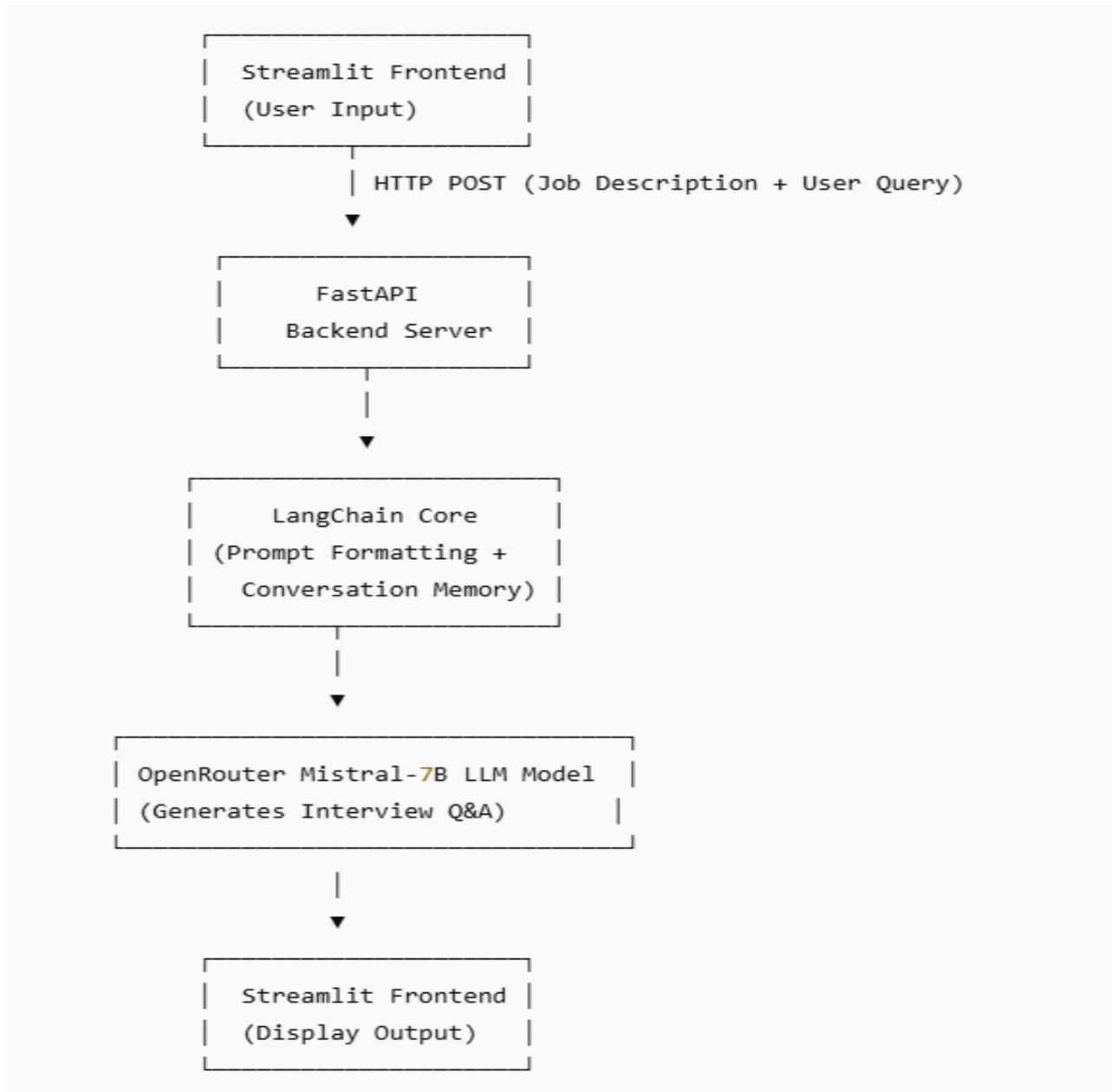
We build an **AI Interview Coach Chatbot** that:

- Takes Job Description as input
- Understands required skills & responsibilities
- Generates relevant **technical, behavioral, and problem-solving questions**
- Responds conversationally and adapts to user instructions
- Maintains memory of previous conversation context

This ensures:

- Interview consistency

- Fair assessment

- Reduced preparation time for recruiters

- Useful practice tool for candidates

System Architecture

```
┌───────────────────────┐
│  Streamlit Frontend   │
│  (User Input)         │
└───────────────────────┘
            │ HTTP POST (Job Description + User Query)
            ▼
┌───────────────────────┐
│      FastAPI          │
│   Backend Server      │
└───────────────────────┘
            │
            ▼
┌───────────────────────┐
│    LangChain Core     │
│ (Prompt Formatting +  │
│   Conversation Memory)│
└───────────────────────┘
            │
            ▼
┌────────────────────────────┐
│ OpenRouter Mistral-7B LLM Model │
│ (Generates Interview Q&A)       │
└────────────────────────────┘
            │
            ▼
┌───────────────────────┐
│  Streamlit Frontend   │
│  (Display Output)     │
└───────────────────────┘
```

Technology Stack

Layer	Technology	Purpose
Frontend UI	**Streamlit**	Chat interface
Backend API	**FastAPI**	Communication between UI & model
LLM Wrapper	**LangChain**	Prompt formatting + memory
Model Provider	**OpenRouter + Mistral 7B**	Generates questions & answers
Memory Store	**ConversationBufferMemory**	Maintains chat history
Environment Config	**python-dotenv**	Secures API key

Features

Feature	Description
Job Description	Tailors questions to the job role
Conversational	User can ask follow-up queries
Multi-Round Support	Technical → Harder → Behavioral → Coding
Memory-Based	Remembers context in the chat
AI-Generated Answers	Provides ideal expected responses for evaluation

CODE

Interview Question Generator