Machine Test: Intelligent Prediction System with Persistent User Memory

Objective:

Build a conversational system that provides users with personalized predictions based on predefined knowledge in an Excel file. The system must remember user inputs permanently using a database, so users aren't asked the same questions in future sessions - even if they return after months or years.

Problem Statement:

Develop a system that:

1. Captures User Information

- Ask users for key details like date of birth, profession, relationship status, etc.

- Only ask for information that is not already saved for the user.

- Once a user provides data, it should be stored permanently in a relational database (e.g., SQLite, PostgreSQL, MySQL).

2. Predicts Based on Knowledge Bank

- Use a provided Excel file as a structured knowledge base. Each row maps to prediction conditions (e.g., zodiac, profession).

- Based on user data (DOB, profession, etc.), look up the matching prediction(s) and return the result.

- Excel format will be provided during the test.

3. Handles User Questions

Users can ask questions like:

- "What's ahead for me in my career?"

- "How's my love life?"

The system must:

- Identify what type of prediction is being asked (e.g., career, love).

- Check if all required user data is present.

  - If yes: return prediction from the Excel-based knowledge bank.

  - If not: only ask missing questions, update the database, then return the prediction.

4. Persistent Session Memory

Store user data in a user profile table with fields such as:

- User ID (email or phone)

- Date of Birth

- Zodiac Sign (can be computed)

- Profession

- Relationship Status

- [Other attributes if needed]

The system should not re-ask the same questions on future visits.

Sample Interaction Flow:

First Visit (new user)

User: "Will I succeed in life?"

System: "Can you share your date of birth?"

User: "August 2, 1992"

System: "What's your profession?"

User: "Software Engineer"

System: [Saves info, reads Excel, returns career prediction.]

Second Visit (after 1 year)

User: "How's my career looking now?"

System: [Fetches stored data, avoids asking DOB/profession again, returns updated prediction.]