**Sequence Diagram: HealthMate AI User Interaction**

**Participants:**

* **User:** Represents the end-user interacting with the HealthMate AI system.
* **HealthMate AI:** Central system orchestrating interactions and providing various services.
* **Database:** Stores and retrieves user and health-related information.
* **AI Assistant:** Module within HealthMate AI processing user input and generating recommendations.
* **Hospital Staff:** External entity the user might interact with through HealthMate AI.

**Scenario: User Registration and Interaction**

1. **Initialize Application:**
   * User initiates the HealthMate AI application.
   * HealthMate AI activates to handle user interactions.
2. **User Registration:**
   * Depending on whether the user is registered or not:
     + If registered, the user logs in, and a successful login message is exchanged.
     + If not registered, the user goes through the registration process:
       - User provides registration details.
       - HealthMate AI saves user information in the database.
       - Confirmation is sent back to the user.
3. **Access Profile Dashboard:**
   * User accesses the profile dashboard within HealthMate AI.
4. **Input Health Metrics:**
   * User inputs health metrics, and HealthMate AI stores the data in the database.
5. **Communicate with AI:**
   * User communicates with the AI Assistant through natural language input.
   * AI Assistant processes user input to generate recommendations.
6. **Schedule Appointment:**
   * User schedules an appointment through HealthMate AI.
   * HealthMate AI checks the database for availability and confirms the appointment.
7. **Communicate with Hospital Staff:**
   * User communicates with hospital staff through HealthMate AI.
   * Hospital staff responds to the user's request.
8. **Conclude Interaction:**
   * User concludes the interaction with HealthMate AI.

**Additional Details:**

* The sequence diagram includes alternative paths for registered and non-registered users during the login and registration phase.
* The "alt" and "else" notations represent conditional logic in the sequence of interactions.