Building a Microservice for Property Alert Notifications

Background:

Your company, which operates in the real estate sector, wants to engage users by sending personalized notifications about property listings and offers based on their preferences.

Task:

Create a simple Python-based microservice that sends property alert notifications. Focus on email and SMS notifications.

Requirements:

1. **Architecture Outline:**
    - Sketch a basic architecture for the microservice.
    - Explain how it will integrate with existing property management systems and user databases accessible via RESTful APIs.
    - Choose and justify the use of specific technologies, suggesting Flask or FastAPI for simplicity.
    - Candidates are encouraged to ask questions to better define any ambiguities in the system's requirements or existing integrations.
2. **Code Prototype:**
    - **Objective:** Build a prototype capable of sending notifications based on user preferences.
    - **Key Functionalities:**
        - **Notification System:** Implement email and SMS notifications (Can be mocked).
        - **API Development:**
            - An endpoint to schedule notifications (**POST /notifications**).
            - Endpoints to manage user preferences (**GET**, **POST /preferences/{user_id}**).
            - Payload example for POST: **{ "email_enabled": true, "sms_enabled": false }**
    - **Queuing Mechanism:** Use a simple queue system for task management.
    - **Implementation Details:** Use Flask or FastAPI for the API and a relational DB.
    - **Testing:** Candidates should provide example unit tests for their code and mock-up integration tests.
3. **Documentation:**
    - Provide a README file with setup and basic usage instructions. Include explanations for running tests and a section on known limitations or areas for improvement.

Deliverables:

- **Architecture Diagram:** A simple diagram showing the microservice architecture.

GitHub Repository: Containing all source code and the README.