Technical Challenge for Software Engineer - Backend Focus

Objective: Develop a backend system for handling and managing patient data. While synthetic data from Synthea is suggested, candidates are free to use any similar data sets.

Core Requirements:

1. **Microservices Architecture:** Structure the application as a set of independent, but integrated, microservices.
2. **Framework:** Use FastAPI to build the system's API.
3. **Data Manipulation:**
    - Import and process patient data, with a suggestion to use the Synthea dataset.
    - Create endpoints for creating patient records. Note: While only creation is specified, candidates may explore further CRUD operations.
    - Implement data validation to ensure data integrity.
4. **Authentication and Authorization:** Develop a system for user authentication and authorization to secure data access.
5. **API Documentation:** Use tools like Swagger for comprehensive API documentation.

Advanced Requirements (Bonus):

1. **Search Mechanism:**
    - Develop an efficient search feature to locate patients by various criteria (name, ID, health conditions, etc.).
    - Consider integrating tools like Elasticsearch for enhanced search capabilities.
2. **Automated Testing:** Write unit and integration tests to ensure system quality and robustness.

3. **Containerization and Orchestration:** Employ Docker for microservices containerization and optionally Kubernetes for orchestration.
4. **Monitoring and Logging:** Implement solutions for system monitoring and log management.

Evaluation Criteria:

- **Code Quality:** Clarity, organization, and adherence to design patterns.
- **Functionality:** Compliance with the requirements and correct operation of features.
- **Documentation:** Completeness and clarity of both API and code documentation.
- **Testing:** Coverage and quality of the implemented tests.
- **Bonus:** Implementation of advanced requirements and creativity in solutions.

Submission:

- The project should be submitted via a Git repository (public or private).
- Include detailed setup and execution instructions.
- Provide a README with project description, architecture used, and other relevant details.