**System Specification**

**System Overview**

The system is a FastAPI-based REST service that allows users to store and retrieve data from a PostgreSQL database. It provides endpoints to add new data sources, retrieve data for a given source, update source information, and trigger data retrieval for a specific source.

**System Components**

1. FastAPI: A Python web framework used to build the REST service.
2. PostgreSQL: The relational database used for storing the data.
3. SQLAlchemy: A Python SQL toolkit and Object-Relational Mapping (ORM) library for database interactions.
4. Pydantic: A library for data validation and serialization, used for defining request and response models.
5. Databases: An asynchronous database library for Python, used for database connectivity.
6. uvicorn: An ASGI server used to run the FastAPI application.

**Data Models**

SourceCreate

* **source: str**: Name of the source.
* **source\_type: str**: Type of the source.
* **source\_tag: str**: Tag for the source.
* **from\_date: datetime**: From date for the source.
* **to\_date: datetime**: To date for the source.
* **last\_update\_date: datetime**: Last update timestamp for the source.

SourceData

* **source\_id: int**: Id of the source (required).
* **source: str**: Name of the source.
* **source\_type: str**: Type of the source.
* **source\_tag: str**: Tag for the source.
* **last\_update\_date: datetime**: Last update timestamp for the source.
* **from\_date: datetime**: From date for the source.
* **to\_date: datetime**: To date for the source.
* **frequency: str**: Update frequency in minutes.

SourceUpdate

* **source\_id: int**: Id of the source.
* **from\_date: datetime**: Updated from date for the source.
* **to\_date: datetime**: Updated to date for the source.
* **last\_update\_date: datetime**: Updated last update timestamp for the source.

**API Endpoints**

1. Add a new data source

* Endpoint: **/add\_data**
* Method: POST
* Request body: SourceCreate
* Response: JSON response indicating the status of the operation.

2. Get data for a given source

* Endpoint: **/get\_data**
* Method: GET
* Request body: SourceData.
* Response: JSON response containing the data for the specified source (SourceData).

3. Update source information

* Endpoint: **/update\_data**
* Method: PATCH
* Request body: SourceUpdate
* Response: JSON response indicating the status of the operation.

4. Trigger data retrieval for a given source

* Endpoint: **/get\_data\_trigger**
* Method: GET
* Request body: SourceData.
* Response: JSON response containing the updated data for the specified source (SourceData).

**System Requirements:**

* Python 3.7 or above
* FastAPI framework
* PostgreSQL database
* SQLAlchemy library
* Databases library
* Pydantic library
* uvicorn server