RDF Navigator Unified App - Setup & Execution Guide

1. **Prerequisites**

- **Python 3.8+** (recommended: 3.8, 3.9, or 3.10)
- **Java 8+** (required for Apache Jena Fuseki)
- **pip** (Python package manager)
- **Git** (optional, for cloning the repo)

2. **Install and Set Up Apache Jena Fuseki**

a. Download Fuseki

- Go to: https://jena.apache.org/download/index.cgi
- Download the latest stable release of **Apache Jena Fuseki** (zip or tar.gz).
- Extract the archive to a convenient location.

b. Start Fuseki Server

- Open a terminal/command prompt.
- Navigate to the extracted Fuseki directory.
- Run:
  - On Windows:

    fuseki-server.bat

  - On Mac/Linux:

    ./fuseki-server

- By default, the Fuseki web interface will be available a

  - (http://localhost:3030/)

c. Create a Dataset

- Open (http://localhost:3030/) in your browser.
- Click **"Manage datasets"** > **"Add new dataset"**.
- Enter a name (e.g., `ds`) and choose **Persistent (TDB2)**.
- Click "**Create Dataset".**
- Your SPARQL endpoint will be: `http://localhost:3030/ds/sparql`
- Your data endpoint will be: `http://localhost:3030/ds/data`

3. **Install Python Dependencies**

a. (Recommended) Create a Virtual Environment:

python -m venv venv

Activate:

On Windows:

venv\Scripts\activate

On Mac/Linux:

source venv/bin/activate

b. Install Requirements

pip install streamlit pandas rdflib requests pyvis

4. Running the Streamlit App

- Make sure Fuseki is running.
- In your project directory, run:

streamlit run rdf_navigator_unified.py

- The app will open in your browser (usually at (http://localhost:8501/)).

5. Using the Application

a. Configure Triple Store

- In the sidebar, set the **Fuseki Base URL** (default: `http://localhost:3030/ds`).

b. Upload CSV(s)

- Use the **Upload CSV(s) to Add Data to Triple Store** section.
- Select one or more CSV files and upload.
- The app will convert them to RDF and upload to Fuseki.

c. Explore, Query, and Visualize

- Use the tabs to:
  - **Graph Explorer:** Browse resources and relationships.
  - **SPARQL Queries:** Run built-in or custom queries.
  - **Graph Visualization:** See interactive network graphs.

d. Data Management

- Use sidebar buttons to **clear** or **download** all data from the triple store.
- You can also load local RDF Turtle files for ad-hoc exploration.

6. Troubleshooting

- **Fuseki not running:** Make sure the server is started and accessible at the configured URL.
- **Port conflicts:** If port 3030 is in use, change the port in Fuseki and update the app config.
- **Dependency errors:** Double-check Python and pip versions, and re-install requirements.
- **CSV upload issues:** Ensure your CSV has a unique ID column (e.g., `ER_ID`, `IR_ID`, etc.).
- **No data showing:** Try clearing the triple store and re-uploading your CSVs.

7. Example Usage

- Upload a CSV file with columns like `ER_ID,Description,Priority,Requested_By,...`
- The app will convert each row to RDF triples, store them in Fuseki, and make them available for querying and visualization.
- Use the **SPARQL Queries** tab to find connections, analyze data, or run custom queries.

For more help, see the in-app tooltips or contact the project maintainer.