**Deployment Process and Configurations for Data Ingestion and Transformation**

**Overview**

The deployment process consists of two parts: Data Ingestion and Data Transformation. The Data Ingestion process consumes the source file located at `/app/event\_log.csv` and loads it into the `stg\_layer.event\_log` table with basic transformations using a mostly 1to1 mapping. The Data Transformation process involves loading the `dim\_date`, `dim\_professional`, and `dim\_service` tables using SCD Type 1 methodology, and the `fct\_availability\_snapshot` table follows a truncate and load strategy.

**Prerequisites**

* Docker and Docker Compose installed on the deployment environment.
* Access to the `/app/event\_log.csv` source file.
* MySQL database container running with necessary grants and permissions.

**Configuration**

MySQL Database Connection:

Host: ` mysqlinstapro-container`

Port: Default MySQL port (e.g., 3306)

MYSQL\_ROOT\_USER: root

MYSQL\_ROOT\_PASSWORD: root

MYSQL\_USER: nonroot

MYSQL\_PASSWORD: nonroot

Database: `stg\_layer` (for Data Ingestion)

Database: `analytics\_layer` (for Data Transformation)

**Deployment Steps**

1. Open the terminal or command prompt and navigate to the root directory of the project.

2. Run the following command: `docker-compose up`

This will create an empty MySQL database container along with the data ingestion and transformation pipeline containers.

3. Connect to the MySQL database from the command line interface using the following command:

docker exec it mysqlinstaprocontainer mysql u root p D information\_schema

Enter the ‘root’ password when prompted.

4. Execute the SQL statements provided in the `deployment.sql` document to create the necessary tables and grants. You can copy and paste the SQL statements from the `deployment.sql` file into the MySQL commandline interface.

5. Once the tables are created and the necessary grants are provided, restart the following containers in the same order:

* docker\_instaprodata\_ingestion
* docker\_instaprodim\_date
* docker\_instaprodim\_professional
* docker\_instaprodim\_service
* docker\_instaprofct\_availability\_snapshot

**Testing**

To test the data ingestion process, compare the record counts between the source flat file (`/app/event\_log.csv`) and the staging table (`stg\_layer.event\_log`). They should match.

For testing the data transformation process, you can perform the following:

* Update a record in the source flat file (`/app/event\_log.csv`) and rerun the data ingestion process. Verify if the updated record is reflected in the staging table (`stg\_layer.event\_log`).
* Check the updated record in the staging table and observe if it gets updated in the dimension tables in subsequent runs since SCD Type 1 methodology is implemented.

**Monitoring and Error Handling**

Monitor the logs of the data ingestion and transformation containers for any errors or issues.

If an error occurs during the data ingestion or transformation process, refer to the logs for detailed error messages and troubleshoot accordingly.

**Troubleshooting**

If you encounter any errors while connecting to the MySQL database, wait for a couple of minutes to ensure the database container is up and running. Then, restart the data ingestion and transformation pipeline containers.

Check the logs of the containers for any error messages and investigate accordingly.

Refer to the MySQL documentation and Docker documentation for troubleshooting specific issues.