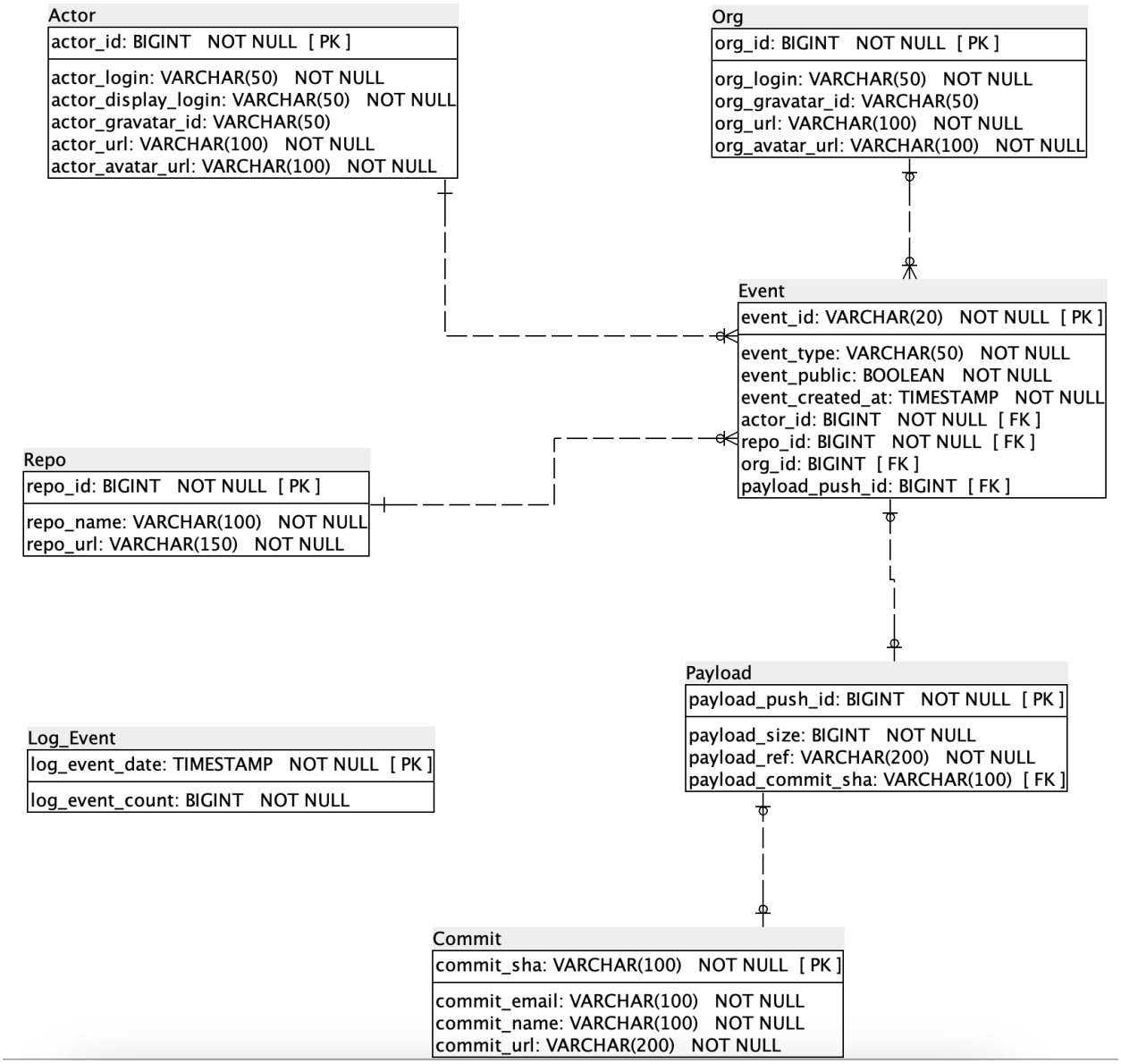
Lab5 – Project Airflow

Data model



** Table Log_Event is used to collect the log for loading of table Event.

Project implementation instruction

1. Reach the project repository '/swu-ds525/05-creating-and-scheduling-data-pipelines'

   : *$ cd 05-creating-and-scheduling-data-pipelines*

```
(base) JC@Napchins-MacBook-Air swu-ds525 % cd 05-creating-and-scheduling-data-pipelines
(base) JC@Napchins-MacBook-Air 05-creating-and-scheduling-data-pipelines %
```

2. Setup Environment (*** ONLY FOR LINUX on 1ST TIME SETUP ***)

   : $ mkdir -p ./dags ./logs ./plugins

   : $ echo -e "AIRFLOW_UID=$(id -u)" > .env

```
mkdir -p ./dags ./logs ./plugins
echo -e "AIRFLOW_UID=$(id -u)" > .env
```

3. Prepare the environment workspace thru 'docker-compose.yml'

   : $ docker-compose up

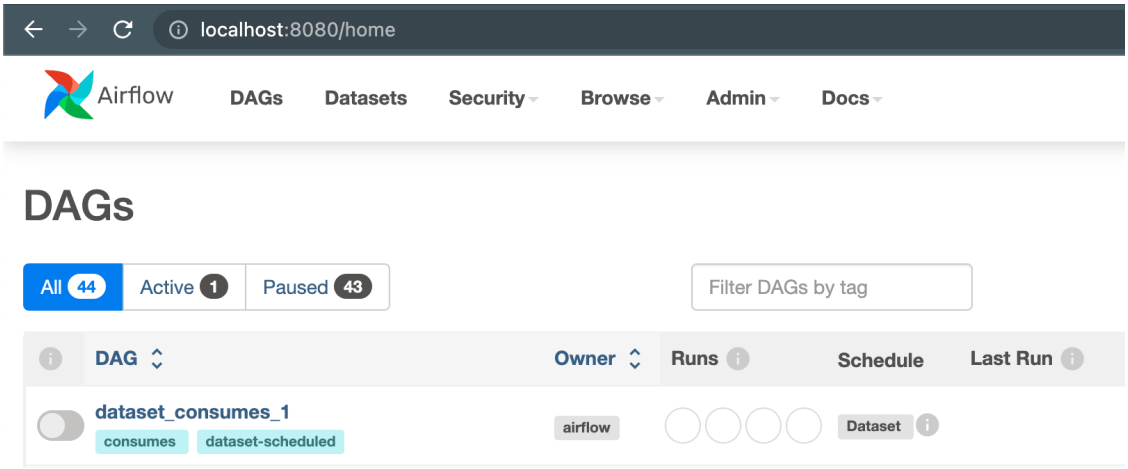
```
docker-compose up
```

   These services will be up

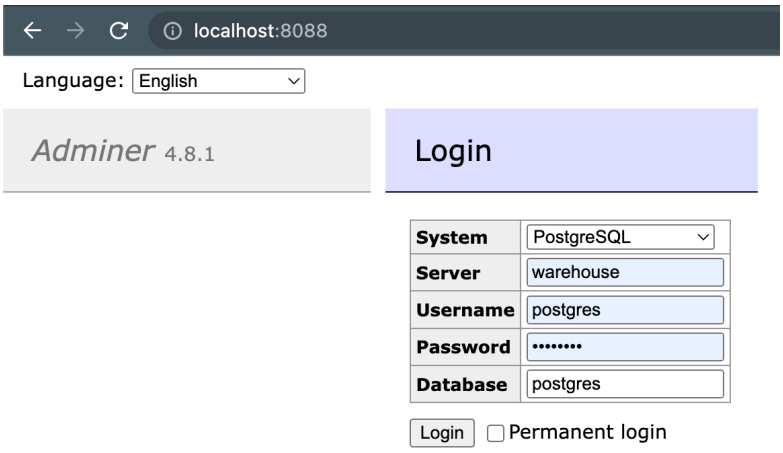
   - Apache Airflow : for task scheduling
   - Postgres : for database
   - Adminer : for Postgres access thru web service

4. Open Airflow and Postgres thru web service

   Airflow :



Postgres : password = ‘postgres’

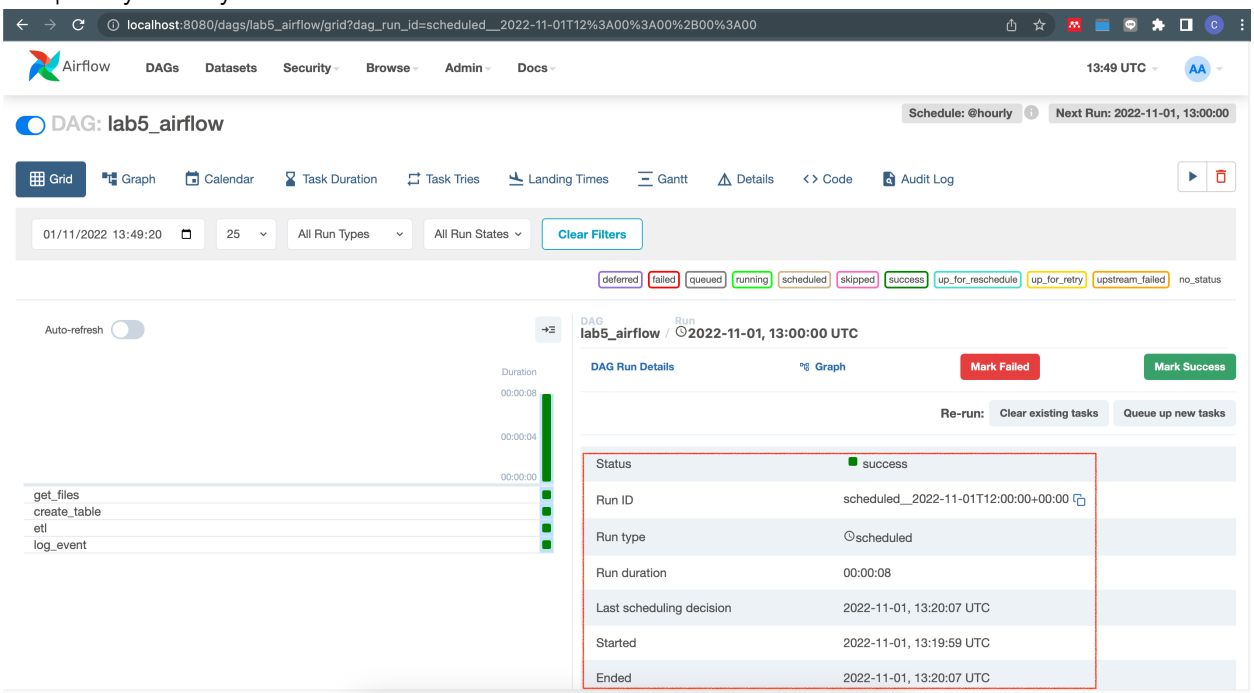


** below are Postgres connection information, setup in **docker-compose.yaml**

```yaml
warehouse:
  image: postgres:13
  environment:
    POSTGRES_USER: postgres
    POSTGRES_PASSWORD: postgres
    POSTGRES_DB: postgres
  volumes:
    - warehouse-db-volume:/var/lib/postgresql/data
```

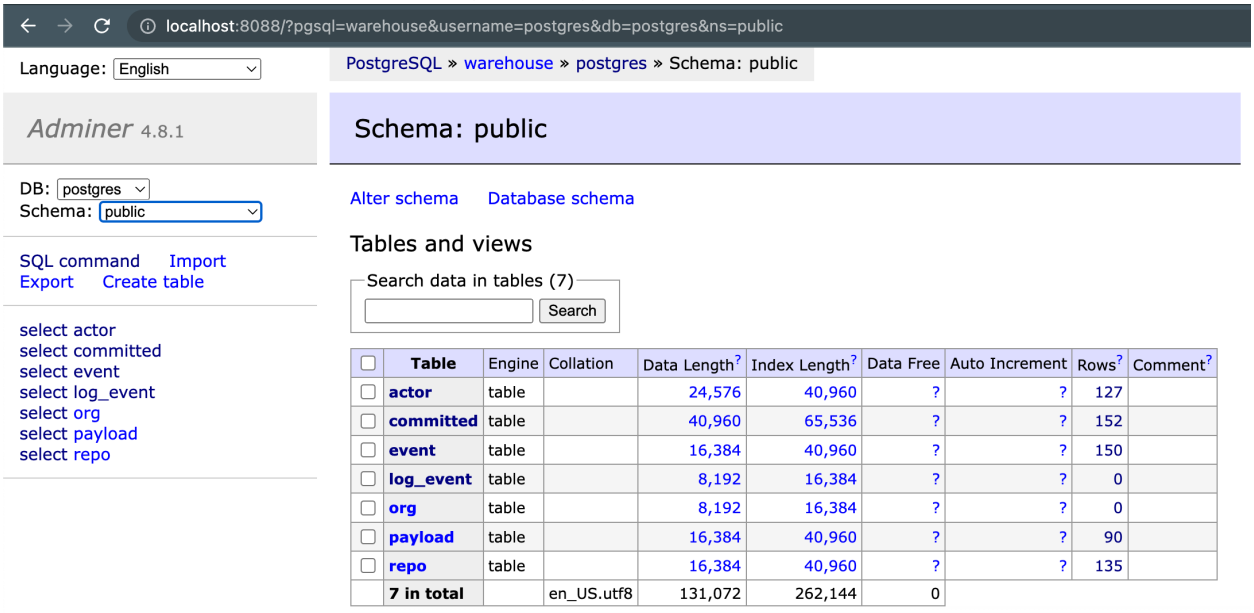
5. Check Airflow schedule

   Frequency: Hourly



** Schedule was run successfully

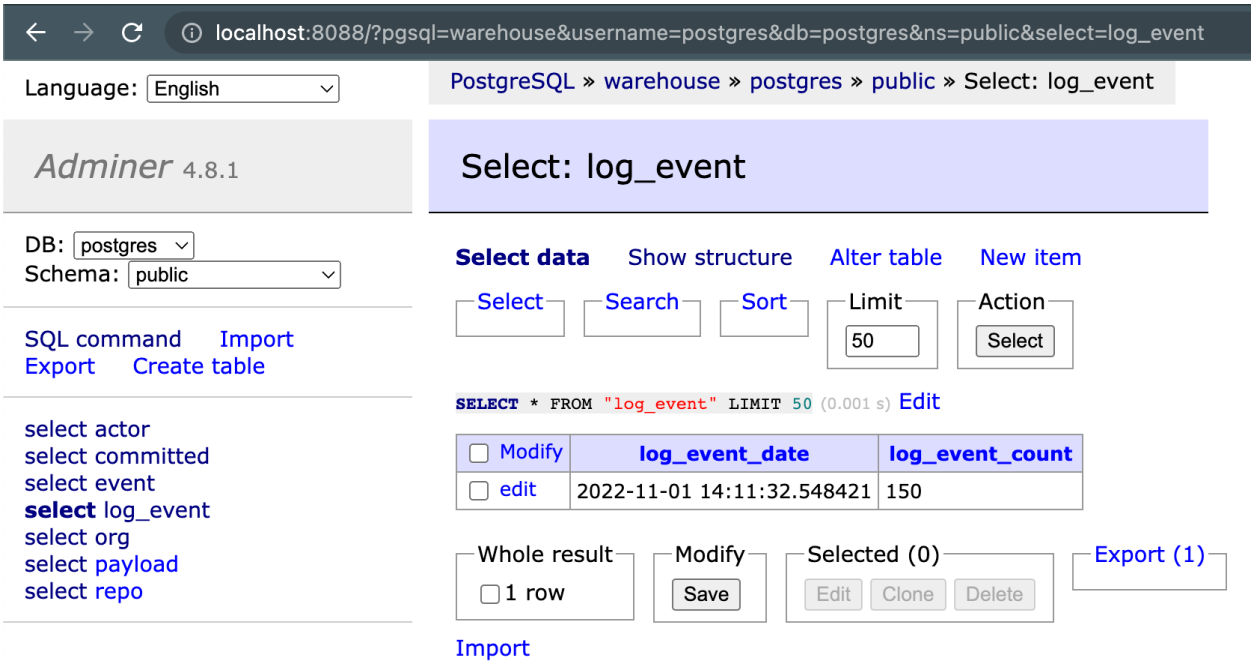
6. Check table creation and data loading in Postgres



** Tables were created and data were loaded properly

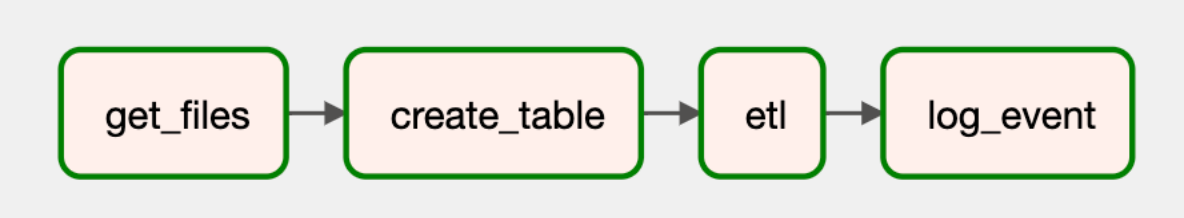
7. Check data in tables

Table **log_event** : the timestamp and record count were inserted



Appendix

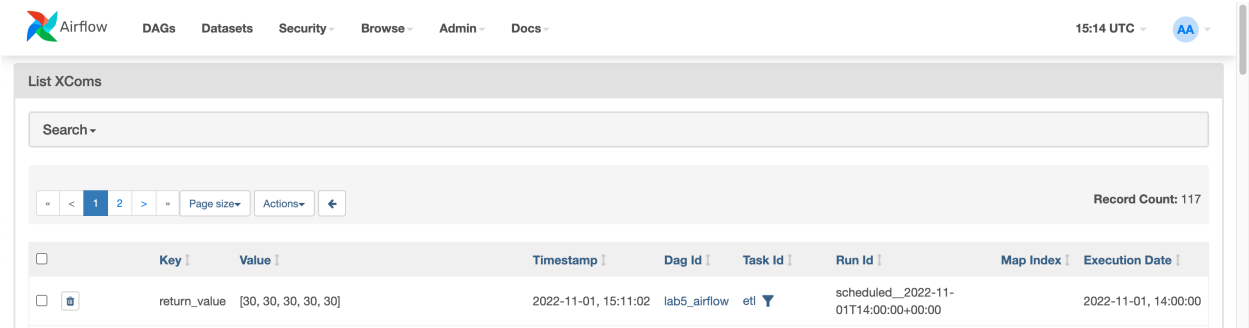
1. Workflow



   a. Get data files
   b. Create tables if not exist
   c. Loading the data if not exist
   d. Log the loading information (timestamp of loading & record count) for table **Event**

2. Using Xcoms to store returned output of task

   Xcoms variable:



   Access Xcoms variable:

```
def _log_event(**context):
    ti = context['ti']
    event_cnt = ti.xcom_pull(task_ids = 'etl', key = 'return_value')
```

3. DAG schedule

```
with DAG(
    'lab5_airflow',
    start_date = timezone.datetime(2022, 11, 1),
    schedule = '@hourly',
    tags = ['lab5'],
    catchup = False,
) as dag:
```

   Start: 2022-11-01

   Frequency: Hourly

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