Chapter 2. Federated Databases (1: SQL format)

Federated Database Object Study Case: source directory structure

- Support Software and configuration
    - fdbo_study_case/support
- Data Source Simulation Scripts
    - fdbo_study_case/1_DataSource
- Integration Structures
    - fdbo_study_case/2_AccessModel_SQL

PREPARE Source Data and Integration Context

- Install Oracle 21c DB XE and PostgreSQL 14: native or docker containers
- Create support schemas:
    - SQL Developer (Connect with SYS on XEPDB1):
        - fdbo_study_case/0_SET_Config/00_SET_ORCL_Schemas.sql
    - PGAdmin or DBeaver (Connect with postgres)
        - fdbo_study_case/0_SET_Config/00_SET_PG_Schemas.sql
- Create Source Data Tables
    - SQL Developer (Connect with SALES on XEPDB1)
        - fdbo_study_case/1_DataSources/11_DS_ORCL_Schema_Sales.sql
    - PGAdmin or DBeaver (Connect with customers)
        - fdbo_study_case/1_DataSources/12_DS_PG_Schema_Customers.sql
- Configure PostgREST SQL Service
    - OS Shell: Install PostgREST
        - https://docs.postgrest.org/en/v12/tutorials/tut0.html
        - Download link
    - OS Shell/Terminal/Command Prompt: check postgrest executable
        - fdbo_study_case/support/2_AccessModel_SQL/26_POSTGREST-config/ postgrest

CASE STUDY 1: ORCL FDB with Oracle Database Links

- Create Integration Views on FDBO schema
    - SQL Developer (Connect with FDBO)
        - fdbo_study_case/2_AccessModel/21_AM_ORCL_Link_View.sql

CASE STUDY 2: ORCL FDB postgREST Data Source

- Configure PostgREST
  - DBeaver/PGAdmin (Connect with postgres): Create admin roles for PostgREST:
    - fdbo_study_case/support/2_AccessModel_SQL/26_POSTGREST-config/ *1_pgR-roles.sql* with postgres admin user.
  - Test Editor: Create a configuration file, e.g.:
    - fdbo_study_case/support/2_AccessModel_SQL/26_POSTGREST-config/ tutorial.conf: change first line: replace password with actual password of postgres:
      - db-uri = "postgres://postgres:password@localhost:5432/postgres"
- Run PostgREST executable
  - OS-Shell/Terminal: Run **postgrest** executable
    - from: fdbo_study_case/support/2_AccessModel_SQL/26_POSTGREST-config
    - postgrest tutorial.conf
- Create Integration Views on FDBO schema
  - SQL Developer (Connect with FDBO)
    - fdbo_study_case/2_AccessModel/**26_AM_POSTGREST_View.sql**
  - In case of using ORCL and PG in docker containers see 26_AM_POSTGREST_View_Docker.sql

Docker Support:

- Oracle DB Container Creation

```
docker run
   --name=oracle-xe-21c \
   -p 1521:1521 -p 5500:5500 -p 8080:8080  \
   -e ORACLE_PWD=Oracle21c \
   -v ~/Professionals/DBA/OracleXE.Docker/oracle-xe-21c:/opt/oracle/oradata \
   container-registry.oracle.com/database/express:21.3.0-xe
```

- Postgres DB Container Creation

```
docker run
   --name postgresql-container
   -p 5432:5432
```

```
-e POSTGRES_PASSWORD=pgadmin
-d postgres
```

- MongoDB Container Creation

```
docker run
   --name mongodb-6.0
   -p 27017:27017
   -d mongo:6.0
```

- Neo4J Container Creation

```
docker run \
   --name=neo4j.graph\
   --publish=7474:7474 --publish=7687:7687 \
   --env NEO4J_AUTH=neo4j/neo4j_admin \
   neo4j:2025.02.0
```