Proxinea is working with the telecommunications provider "AwesomeTel" and is being asked to perform general customer analytics and to build a customer churn model. For the project, we have been given 3 different data sources describing general customer properties, product holdings, and interactions with customer care.

For modeling churn, we need to identify **which** customers have churned **when** (date of deactivation of all products). We will then need to capture the customer state shortly before they churned (e.g. 1 month prior to deactivation) to serve as predictors in the model. For this, we need to describe every customer with their general descriptors (such as age, location, etc.) as well as features potentially related to churn on a regular basis over time.

Please design a customer datamart that allows us to characterize the state of every customer over time. The datamart should be structured in a way that enables quick analyses on which customer features correlate with churn as well as the derivation of customer summary statistics on a daily level.

The design should contain an overview of the source data, the ETL's and the target structure. Additionally, features potentially correlating with churn should be engineered.

Once designed, please implement the corresponding ETL-pipeline to create the final data structure, preferably in SQL. Your code should also include the capability of backfilling the datamart to the start of 2023.

In the interview we would like to ask you to present the datamart, its pros & cons, and the transformation steps required to build the final solution. Examples of questions we may ask include:

- Did you identify any features correlating with churn?
- Is the customer base growing or shrinking?
- What kind of cleaning steps were necessary?

You will find the data in a postgres database to which you can connect with the following parameters:

Server: proxinea-db3.postgres.database.azure.com
Port: 5432
Database: db3
Username: db3_user
Password: abcdef123

You have permissions set to create schemas, tables, views, etc. The input data is stored in the "input" schema as 3 tables; account_info, interactions, product_holdings.

In case you have any questions, or the task is not clear, please let us know. We can schedule a short call to clarify.