DATABASE

- **Account** (describes an account):
  - o id (account id);
  - o balance (account balance, MONEY data type);
  - o account owner (FK);
  - o system account (a flag representing that this account does not belong
- **Status** (account status, e.g., «Active», «Locked» и т.д.):
  - o id (status id);
  - o name (status name).
- **Transaction operational** (for transactions in the current month):
  - o id (transaction id);
  - o source account (FK);
  - o destination account (FK);
  - o date and time (transaction datetime);
  - o sum (transaction total sum).
- **Transaction archive** (for transactions before the current month):
  - o id (transaction id);
  - o source account (FK);
  - o destination account (FK);
  - o date and time (transaction datetime);
  - o sum (transaction total sum).
- **Account owner** (bank client):
  - o id (account owner id);
  - o name (account owner name).
- **Site page** (bank website page):
  - o id (page id);
  - o parent page (rFK);
  - o name (page name).
- **Office** (bank office):
  - o id (office id);
  - o city (office location);
  - o name (office name);
  - o total sells sum (MONEY datatype, sum of profit by the office).

TASKS

Analyze the "Bank" database model (see below). Perform the following tasks:

1. Do you see any imperfections in its infological and datalogical levels? If yes, name them.

- Office has no relational data to the rest of the entities.
- Site Page has no relational data to the rest of the entities.
- Account doesn't have a Status attribute so it's not possible to correlate Account entity with Status entity.
- Account Owner entity doesn't have an Account Id attribute in order to correlate Account Owner with Account.

2. What questions do you want to ask the Customer to improve the models? Write down these questions.

1. What is the reason for having 2 types of Transactions? Can they be combined?
2. Can 2 or more owners share same account?
3. How many types of status name are there needed?
4. What is the criteria for Status name (e.g. status locked if...)?
5. Should it be known at what office has the account owner opened the account?
6. Does a city have multiple offices?
7. What does total sells from an Office mean? What is it exactly that is being sold? How is this sum calculated?
8. How is the website related to the Offices and the Bank? What is Parent Page showing?

3. Try representing the "Bank" database model using graph and hierarchy schemas.

UML ORIGINAL SCHEMA

HIERARCHY SCHEMA

GRAPH SCHEMA