1 Client Statistics

You are developing software for a retail store chain. Your goal is to make a system for analyzing clients' shopping habits.

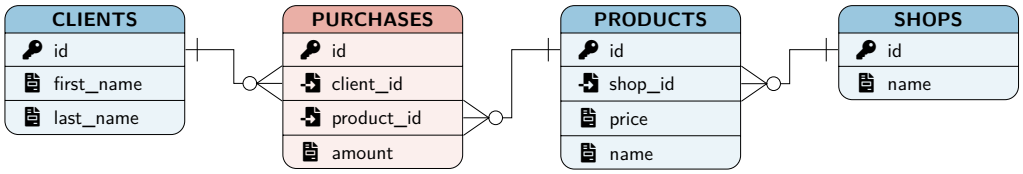

Figure 1: Data structure

Tables CLIENTS, PRODUCTS and SHOPS (blue in Figure 1) are given, but the table PURCHASES (red in Figure 1) is not provided, and thus must be added by you.

All tasks must be accomplished efficiently (optimized for SQL) in C language using `sqlite3.h` library.

2 Tasks

- Foreign key constraints must be turned on (`PRAGMA foreign_keys = ON`).
- At launch, check if the table PURCHASES exists and add the table if necessary.
- Make a menu that allows the user to execute commands until the user signals that they want to exit.
- All queries that use input from the user MUST use "prepare statement" with "bind", i.e., `sqlite3_prepare_v2` and `sqlite3_bind`.
- Allow only valid inputs, e.g.
  - price and amount cannot be negative,
  - `id` values, product and shop `name` must be unique,
  - none of the fields are "nullable".

  Warn the user if inputs are invalid.
- Make commands for:
  1. adding, modifying and deleting records in the table PURCHASES;
  2. printing all PURCHASES grouped by clients;
  3. finding average spending by client/customer over all shops;
  4. finding average spending by client/customer per shop (in descending order);
  5. finding the top 10 clients/customers who spend the most over all shops (in descending order);
  6. finding the top 10 clients/customers who spend the most per shop (in descending order).

DATABASE: https://blue.pri.ee/ttu/files/db/shop1.db

3 Contact

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