CMPS 350 Web Development Fundamentals - Spring 2023
Lab 11 – Data Management using Prisma and SQLite Database

Objective

You will practice:

- Modelling Data using Prisma Schema Language
- Query (read/write) the database using Prisma Client

This Lab is based on Lab 10 Banking App. You are required to change the repositories to use a database instead of JSON files.

Project Setup

Download **`Lab11-Data Management`** from the GitHub Repo and copy it to your repository. Open the **`BankingApp`** in VS Code and complete the tasks below.

1. Install the Prisma packages using:

```
npm install prisma --save-dev
npm install @prisma/client
```

Also install **Prisma VS Code Extension**

2. Set up Prisma with this command:

```
npx prisma init --datasource-provider sqlite
```

This command creates a new **`prisma`** directory with **`schema.prisma`** file and configures SQLite as your database

Creating the Data Model

1. Define a Data Model in schema.prisma to model the following Banking App entities:

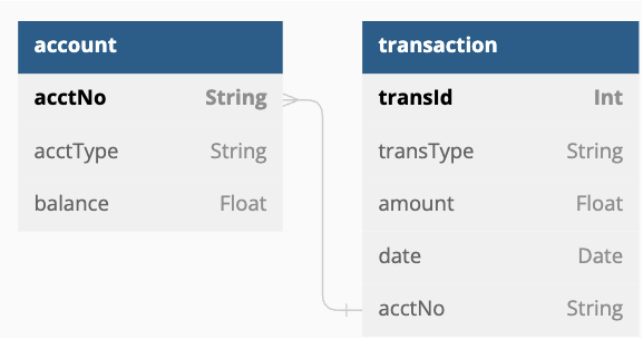


Figure 1 Banking Entities Diagram

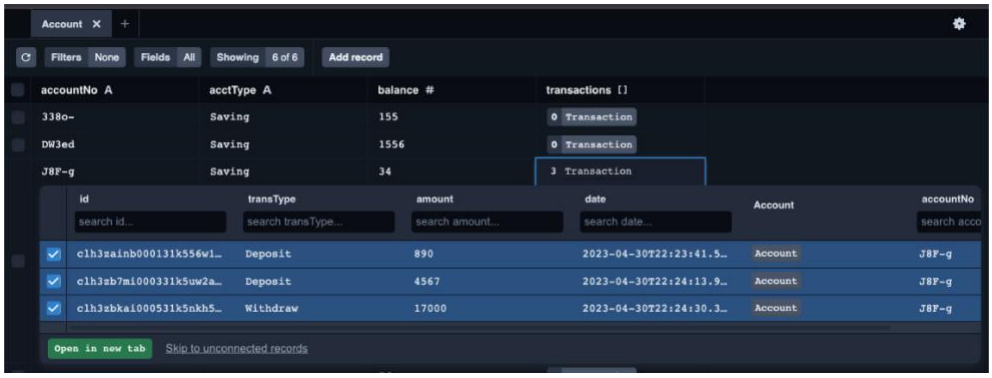
- **transId** is the primary key for Trans and should be auto-assigned.
- **acctNo** is the primary key for Account and it should be auto-assigned using cuid()
- You should define a one-to-many relationship between the two models as shown in figure 1.

2. Export the models to your database by using the following Prisma command

   `npx prisma migrate dev --name init`

   Anytime you make changes to the models, you need to `npx prisma migrate dev`

3. To view your database, run the following command `npx prisma studio`



Querying the database with Prisma client

1. Change **accounts-repo.js** repository functions to use **Prisma client**. **As you make progress** test each function using a console app, Postman or Mocha:
   a. **addAccount(account):** adds a new account
   b. **initDB()**: read `data/accounts.json` and insert them in the database using createMany Prisma client function
   c. **getAccounts(type):** returns a list of accounts filtered by account type if specified
   d. **getAccount(acctNo):** gets an account by account number
   e. **updateAccount(account):** updates an existing account
   f. **deleteAccount(acctNo):** deletes an account by account number
   g. **addTransaction**(transaction, acctNo): add either deposit or withdrawal transaction. It calls updateAccount method internally to update the balance.
   h. **getTrans(acctNo, fromDate, toDate):** get transactions for a particular account for date range
   i. **getAvgBalance():** returns average account balance by account type
   j. **getTransSum(fromDate, toDate):** returns the sum of debit and sum of credit transactions completed during a date range
2. Test the app using the user interface you implemented in Lab 10.