

# CMPS 350 Web Development Fundamentals - Spring 2023

## Lab 11 – Data Management using Prisma and SQLite Database

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### 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:

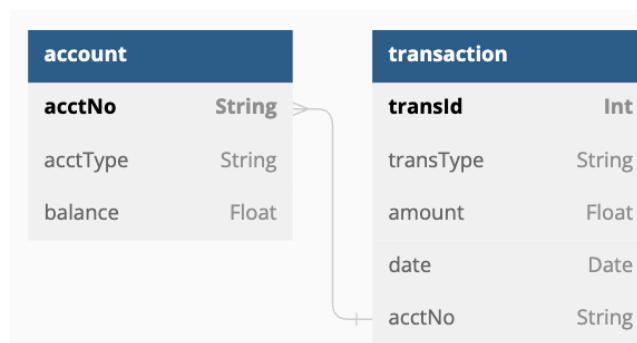
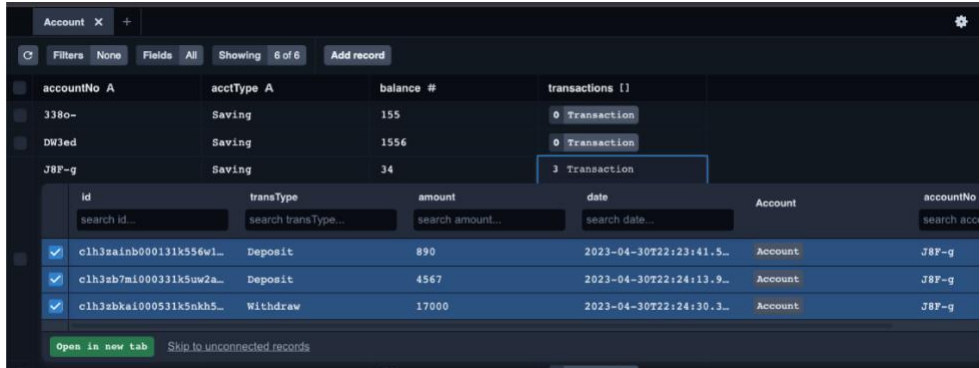


Figure 1 Banking Entities Diagram

- **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.

- 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`**
- To view your database, run the following command **`npx prisma studio`**



## Querying the database with Prisma client

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