

CMPS 350 Web Development Fundamentals - Spring 2023

Lab 12 – Data Management using Prisma and SQLite Database

Part 2

Objective

This Lab is a continuation of Lab 11, and you will practice more advance concepts about Prisma.

- Modelling Data using Prisma Schema Language
- Cascade Delete and Update
- Relation Queries [Include, Select]
- Full Text Search [Search]
- Filtering and Sorting
- Aggregation, Grouping and Summarization

Project Setup

Download **Lab12-Data Management II** from the GitHub Repo and copy it to your repository. Open the **BankingApp** in VS Code and complete the tasks below.

1. `npm i` to install the dependencies
2. add the `.env` file and add the following line [`DATABASE_URL='file:./dev.db'`]
3. `npx prisma db seed`
4. `npm run dev`

Update the database Schema

1. Modify the previous weeks `schema.prisma` file and add the following new model named “owner”. See the entity relationship diagram below.

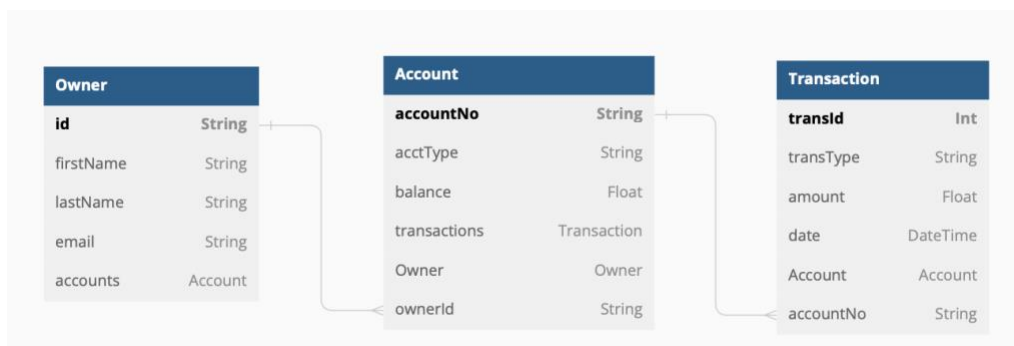


Figure 1 Banking Entities Diagram

- `id` is the primary key for owner and should be auto-assigned using `cuid()` as you did for account model.
- 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`

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

The screenshot shows the Prisma Studio interface with two tables: 'accounts' and 'transactions'.

Accounts Table:

id	firstName	lastName	email	accounts []
ckockkdfg2fpt	John	Doe	john.doe@gmail.com	1 Account
dfghfrjki756gh	Alice	Smith	alicesmith@gmail.com	1 Account
uijklopt543ght	Bob	Johnson	bobjohnson@gmail.com	1 Account

Transactions Table:

accountNo	acctType	balance	transactions	Owner
poiuytrewq1	Savings	10000	0 Transaction	Owner
asw2rtyui0	Savings	389	1 Transaction	Owner
rsfrg2fprksfrg2fpt	Savings	50009999	4 Transaction	Owner

The 'transactions' table is expanded to show details:

transId	transType	amount	date	Account	ownerId
2	Withdraw	1000	2021-08-17T10:00:00.0...	Account	rsfrg2fprksfrg2fpt
7	deposit	5000	2021-09-01T10:00:00.0...	Account	rsfrg2fprksfrg2fpt
8	deposit	500	2021-10-01T10:00:00.0...	Account	rsfrg2fprksfrg2fpt
9	Withdraw	2000	2021-11-02T10:00:00.0...	Account	rsfrg2fprksfrg2fpt
12	Withdraw	111	2021-05-07T01:58:40.3...	Account	asw2rtyui0

Querying the database with Prisma client

- Add to the `accounts-repo.js` repository the following functions that use **Prisma client**. **As you make progress** test each function using a console app, Postman or Mocha:
 - `getOwners()` : returns all the owners
 - `getTrans(accountNo, fromDate, toDate)`: get transactions for a particular account for date range
 - `getAvgBalance()`: returns average account balance by account type
 - `getMinAndMaxBalance()` : returns the minimum and maximum balance in the accounts table
 - `getTop3Accounts()` : returns the top three accounts with the highest balance
 - `getTransSum(accountNo , fromDate, toDate)`: returns the total amount of withdrawals and deposits made within a specified date range for a given account.
 - `getOwnerReport(ownerId)` : returns all the information about the owner, including their accounts, and for each account, it should also include all its transactions.
- Test the app using the user interface by running the app `npm run dev`.