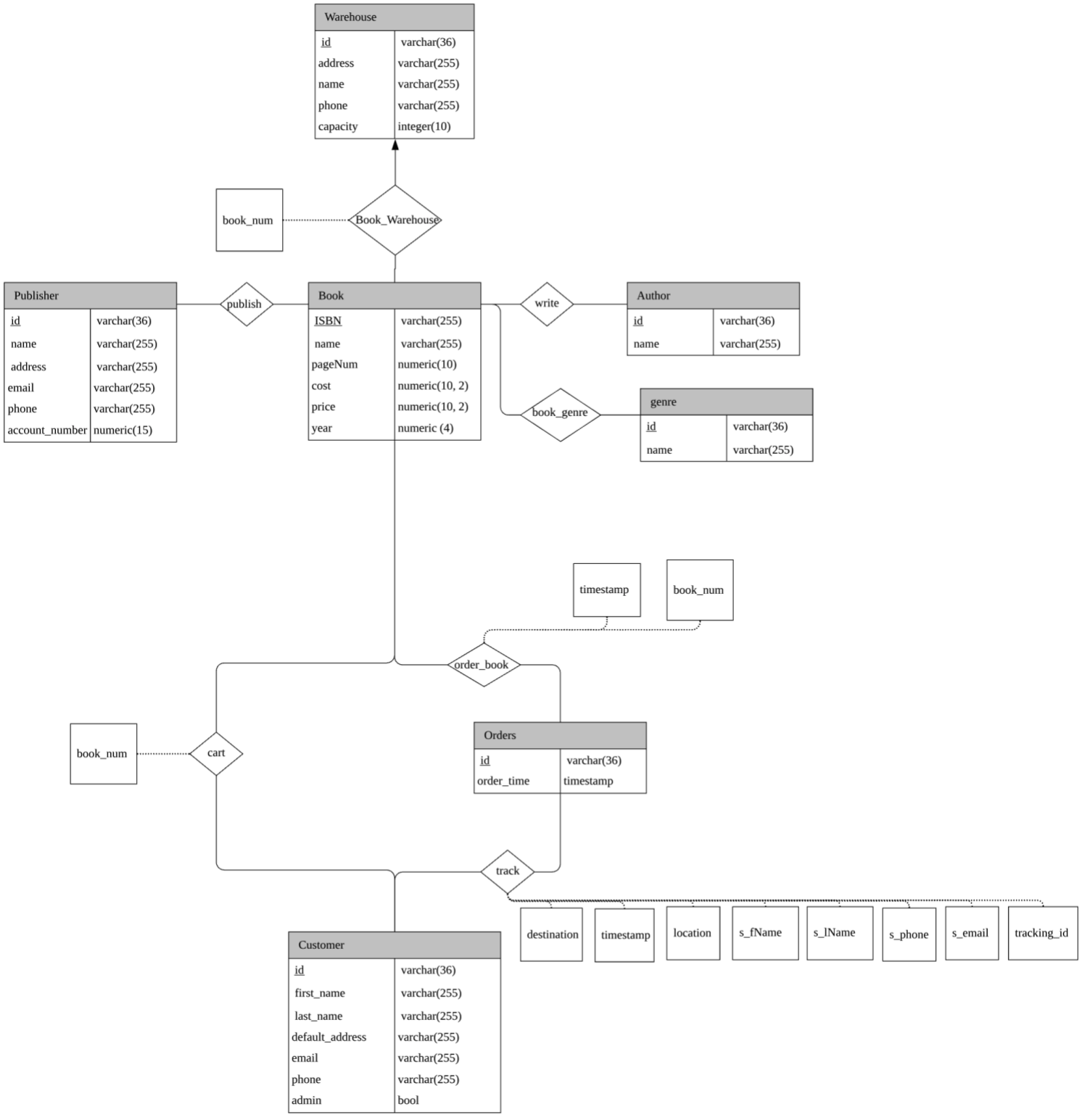
Book Store

Haowei Tu

1. ER Diagram:



2. Relation Schemas:

Book(ISBN, name, pageNum, cost, price, year)

Warehouse(id, address, name, phone, capacity)

Author(id, name)

Publisher(id, name, address, email, phone, accout_number)

Genre(id, name)

Book_genre(ISBN, genre_id)

Write(ISBN, author_id)

Publish(ISBN, publisher_id)

Orders(id, order_time)

Customer(id, first_name, last_name, default_address, email, phone, admin)

Track(order_id, customer_id, timestamp, location, destination, tracking_id, s_email, s_phone, s_fname, s_lname)

Order_book(ISBN, order_id, timestamp, book_num)

Cart(ISBN, customer_id, book_num)

3. Normalization (the order matches the above for readability):

Relations:

F = {

Bi --> Bn, Bpn, Bc, Bp, By = Bi_+

Wi --> Wa, Wn, Wp, Wc = Wi_+

Ai --> An = Ai_+

Pi --> Pn, Pa, Pe, Pp, Pan = Pi_+

Gi --> Gn = Gi_+

Oi --> Ot = Oi_+

Ci --> Cf, Cl, Cd, Ce, Cp, Ca = Ci_+

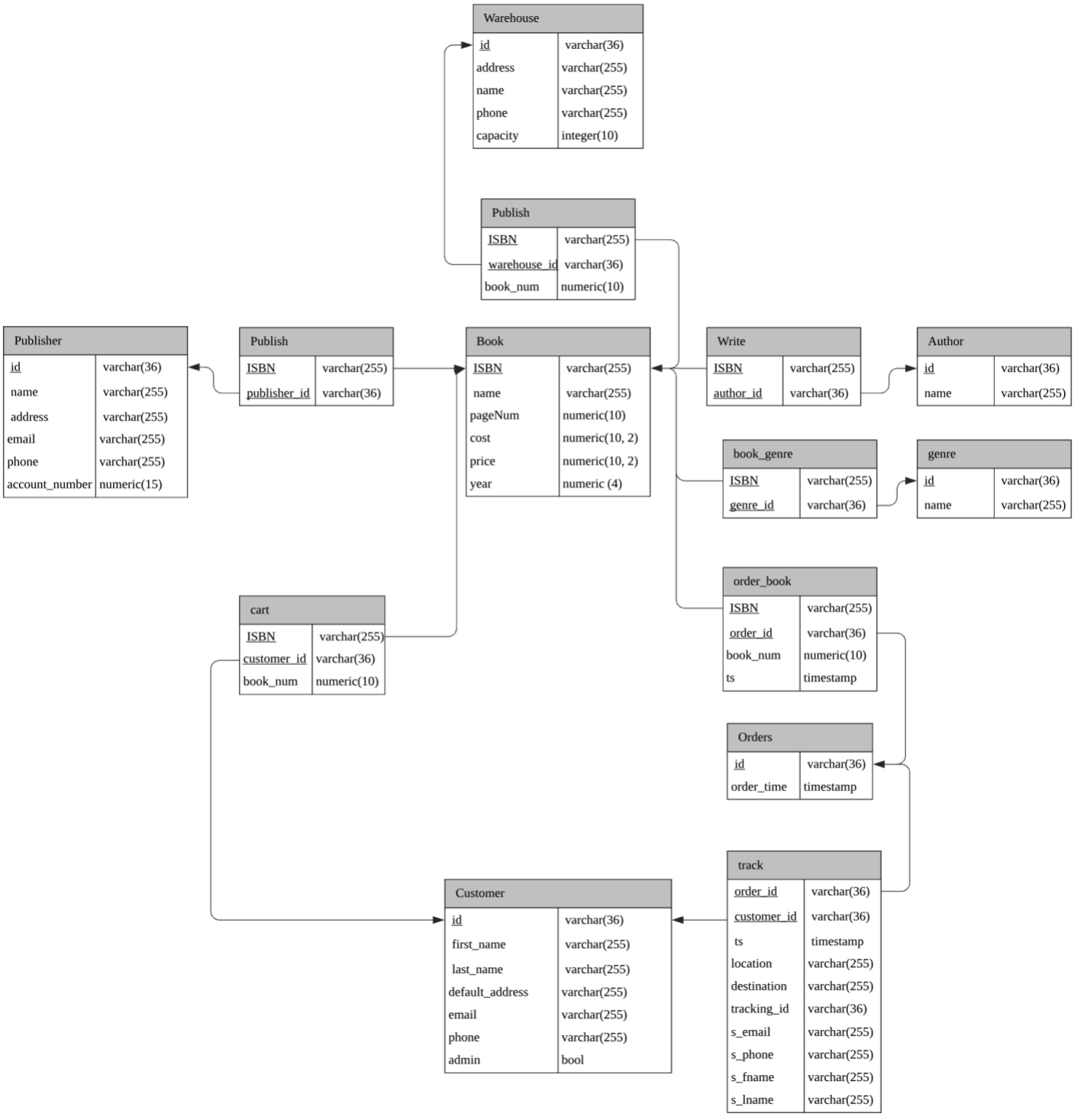
Oi, Ci --> Tt, Tl, Td, Ti, Tse, Tsp, Tsf, Tsl

Bi, Oi --> BOt, BOn

Bi, Ci --> BCn

}

4. Schema Diagram



Implementation:

The application is web-based using Javascript, Node.js, Express framework, MongoDB, PostgreSQL, although two databases being used, the MongoDB only contains the login session data, all of the actual bookstore information is stored in PostgreSQL database. Node.js uses a package called “pg” to interact with PostgreSQL.

Full Structure Diagram:

https://ibb.co/Bfp0MT6

backup link:

https://imgur.com/a/B7fijPS

The diagram provides a full illustration of every router and every function of the program with images.

Instructions for running the program:

I have already did the demonstration with a TA, however, if you are still going to run the program on your device, here are some instructions.

To run the program, you need to:

1. Download PostgreSQL, create the database such the user is “postgres”, the password is “123456”, the port number “5432” and create a new database named “BookStore”, and then open SQL shell (psql), connect to the BookStore database (\connect BookStore), load the data from the BookStore.sql (\i BookStore.sql), finall leave the PostgreSQL running before launching the program
2. If you don’t have MongoDB on your device, download and install, use the default setting and have it running before launching the program.

   Windows: https://docs.mongodb.com/manual/tutorial/install-mongodb-on-windows/

   Mac: https://docs.mongodb.com/manual/tutorial/install-mongodb-on-os-x/

3. Open the terminal / powershell / shell on your device, set the directory to /Proj, run “npm init”, and then “node server.js”, if there is no error message, then you are good to go.

GitHub:

https://github.com/winds-13/BookStore

The .sql file is created by pg_dump, you can load the database directly by the step 1 above, (\i BookStore.sql), and then everything is imported.