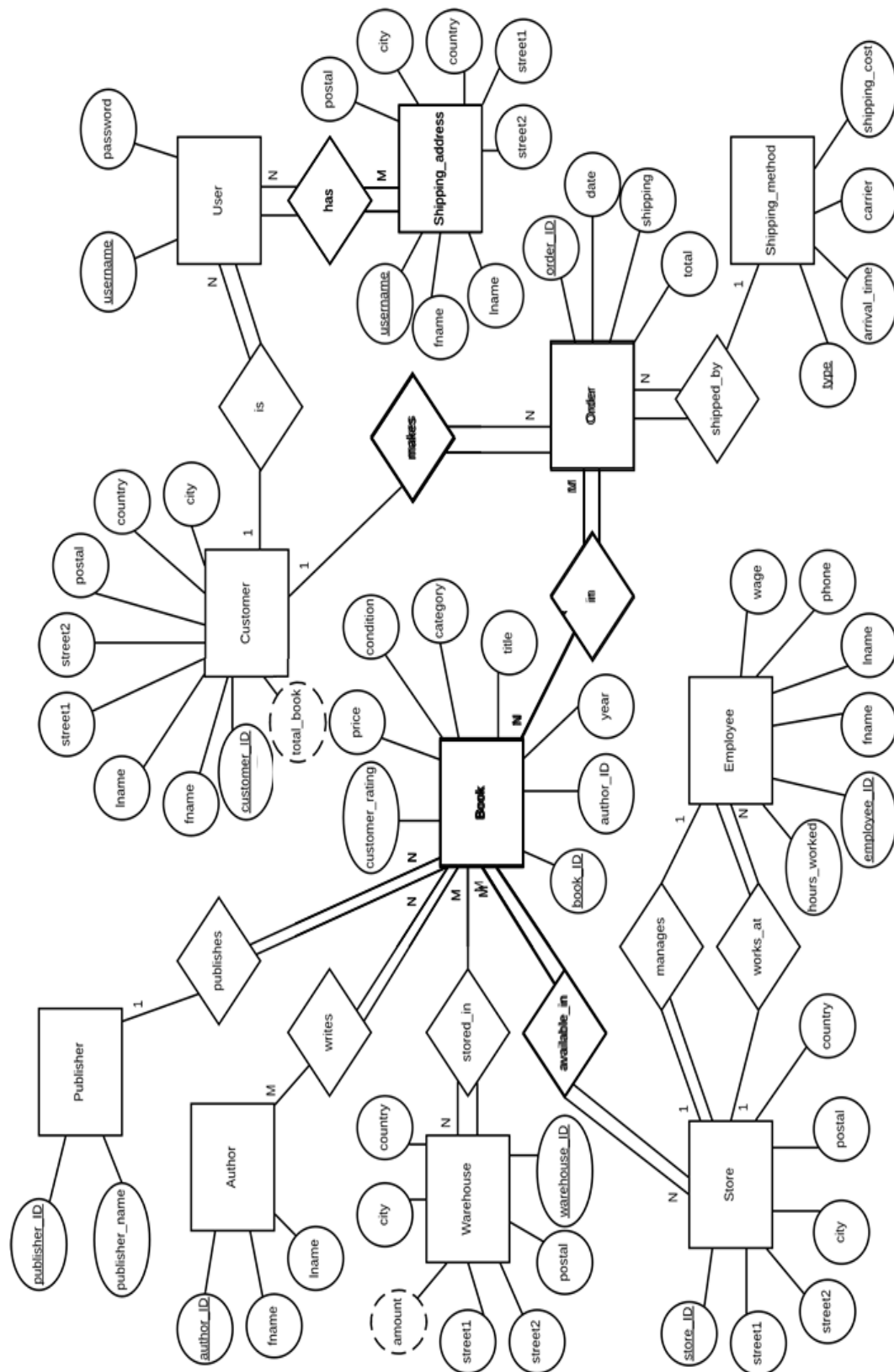


Section 1 – Database Description

a) ER Diagram



b) Relational Schema

publisher(publisher_ID, publisher_name)

author(author_ID, fname, lname)

customer(customer_ID, Fname, Lname, street1, street2, city, country, postal)

user(username, password, customer_ID)

Foreign key **customer_ID** references Customer

warehouse(warehouse_ID, street1, street2, city, country, postal)

Foreign key **book_ID** references Book

book(book_ID, author_ID, publisher_ID, ISBN, customer_rating, price, condition, title)

Foreign key **author_ID** references Author

Foreign key **publisher_ID** references Publisher

store(store_ID, street1, street2, city, country, postal, manager_ID)

Foreign key **manager_ID** references Employee

employee(employee_ID, store_ID, hours_worked, Fname, Lname, email, phone, wage)

Foreign key **store_ID** references Store

order(order_ID, customer_ID, date, shipping, total)

Foreign key **customer_ID** references Customer

shipping_address(username, fname, lname, street1, street2, city, country, postal)

Foreign key **username** references User

shipping_method(type, arrival_time, carrier, shipping_cost)

writes(publisher_ID, book_ID)

Foreign key **publisher_ID** references Publisher

Foreign key **book_ID** references Book

stored_in(warehouse_ID, book_ID)

Foreign key **warehouse_ID** references Warehouse

Foreign key **book_ID** references Book

available_in(store_ID, book_ID)

Foreign key **store_ID** references Store

Foreign key **book_ID** references Book

in(book_ID, order_ID)

Foreign key **book_ID** references Book

Foreign key **order_ID** references Order

has(user_ID, username)

Foreign key **user_ID** references User

Foreign key **username** references Shipping_address

Table explanations

Publisher: a person or company who publishes books

publisher_ID: a unique identifier for each publisher. Primary key of publisher table. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

publisher_name: publisher's name. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

Author: a person who writes a book

author_ID: a unique identifier for each author. Primary key of author table. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

Fname: author's first name. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

Lname: author's last name. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

Warehouse: a building for the storage of books

warehouse_ID: a unique identifier for each warehouse. Primary key of warehouse table. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

street1: address line 1 of a warehouse. Data type: VARCHAR up to the maximum length of 30 characters. Can't be null.

street2: address line 2 of a warehouse. Data type: VARCHAR up to the maximum length of 30 characters.

city: city where a warehouse is located in. Data type: VARCHAR up to the maximum length of 20 characters. Can't be null.

country: country where a warehouse is located in. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

postal: postal code of a warehouse. Data type: VARCHAR up to the maximum length of 10 characters. Can't be null.

book_ID: a unique identifier for each book. Foreign key that references book table. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

Store: a retail establishment where customers go to shop books.

store_ID: a unique identifier for each store. Primary key of store table. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

street1: address line 1 of a store. Data type: VARCHAR up to the maximum length of 30 characters. Can't be null.

street2: address line 2 of a store. Data type: VARCHAR up to the maximum length of 30 characters.

city: city where a store is located in. Data type: VARCHAR up to the maximum length of 20 characters. Can't be null.

country: country where a store is located in. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.

postal: postal code of a store. Data type: VARCHAR up to the maximum length of 10 characters. Can't be null.

manager_ID: a unique identifier for each manager who manages the store. Foreign key that references employee table. Data type: VARCHAR up to the maximum length of 15 characters. Can't be null.