2.1 ER diagram

图示

描述已自动生成

Both owner and customer are the user off our application, they can buy books form the bookstore, however, the owners have more right that can modify the books collection in the bookstore and read the report of bookstore in a period. When user finishing checkout, an order will be automatically generated in the user\_order entity to record shipping information. And each book will have a publisher that published them.

2.2 Reduction to the schema

Owner (user\_name, password, email, payment, billing\_address, shipping\_address, is\_owner)

customer (user\_name, password, email, payment, billing\_address, shipping\_address, is\_owner)

Report (date, genre, author, sales, expenditures)

Book (Id, book\_name, author\_name, publisher\_name, genre, ISBN, prices, cost, sales\_percentage, in\_stock)

User\_order (order\_id, user\_name, order\_date, expected\_date, current\_location)

Publisher (publisher\_name, address, email, phone\_number, bank\_account)

Access (user\_name, date, genre, author)

Manage (user\_name, Id)

Buys (user\_name, Id, date, quantity)

2.3 Normalization

Owner (user\_name, password, email, payment, billing\_address, shipping\_address, is\_owner)

FD for owner:

customer (user\_name, password, email, payment, billing\_address, shipping\_address, is\_owner)

FD for customer:

Report (date, genre, author, sales, expenditures)

FD for report:

Book (Id, book\_name, author\_name, publisher\_name, genre, ISBN, prices, cost, sales\_percentage, in\_stock)

FD for book:

User\_order (order\_id, user\_name, order\_date, expected\_date, current\_location)

FD for user\_order:

Publisher (publisher\_name, address, email, phone\_number, bank\_account)

FD for publisher:

Access (user\_name, date, genre, author)

FD for access: Null

Manage (user\_name, Id)

FD for manage: Null

Buys (user\_name, Id, date, quantity)

FD for buys: