Task 1

1. Questions：

- How the customer queries the author of the book.
- The manager queries the total values of the consumer's order.
- Check if the book has inventory and inventory quantity.

2. Specification

According to the scenario, there are four main entity sets that is customer, order, supplier, book.

In order to purchase a book, the customer will place an order, the order will be submitted to the bookstore, the supplier will provide the book according to the order information, and then the book will be send to the customer, and finally the customer will provide reading feedback after reading the book.

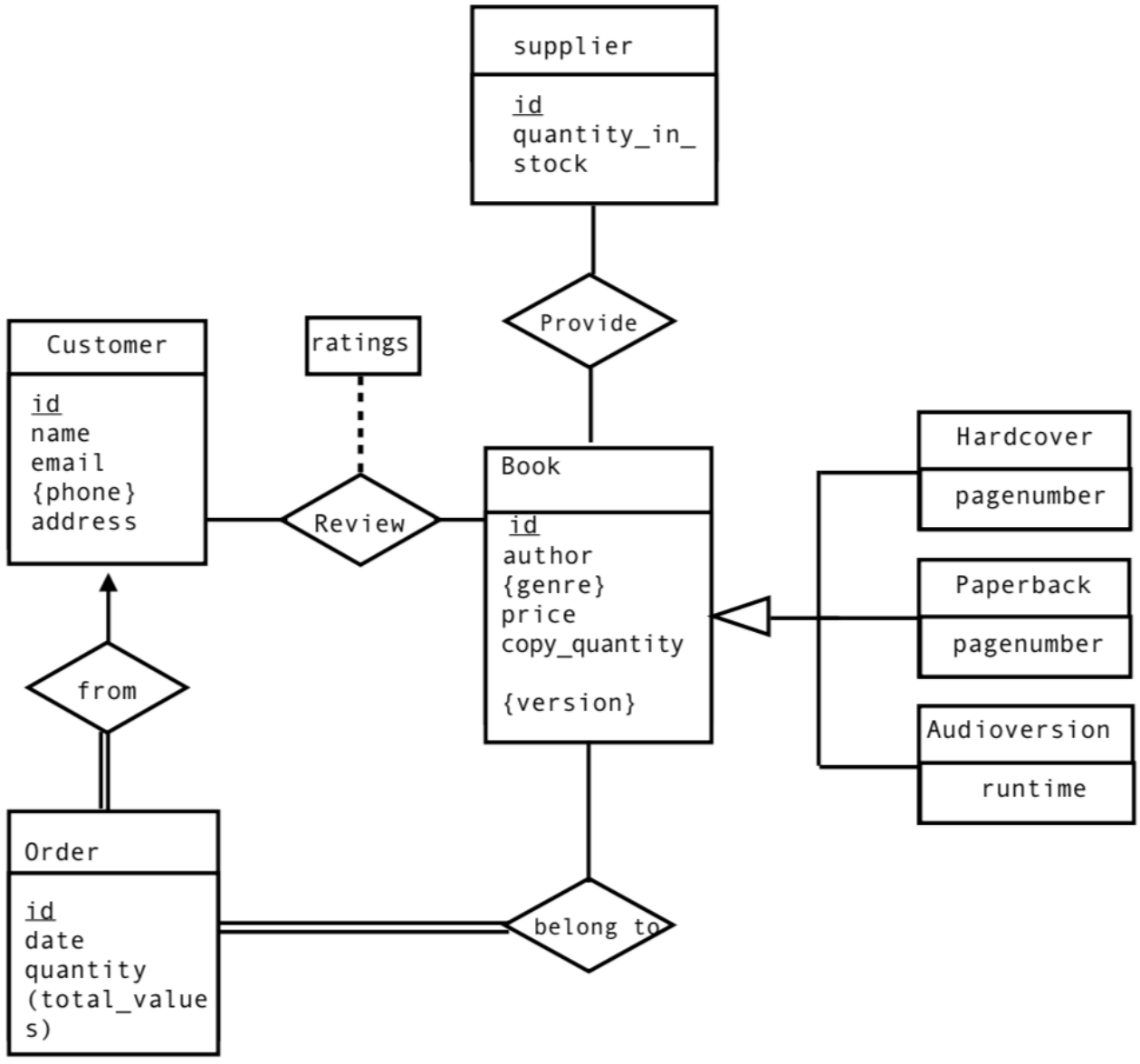
When the customer places an order, they will be asked to provide personal information (name, address, etc.), book information (title, author, version, etc.), and the order information will also be provided to the customer for inquiries.

Therefore, the entity set customer includes the id attribute, the name attribute, the email attribute, the phone number attribute, and the address attribute. Book entity set includes attributes such as id, author, genre, price, copies quantity, version, etc. The entity set Order includes attributes such as id, date, quantity, copies, total values, etc.

3.Constrains

A customer can place multiple orders, but an order can only belong to one customer. There are at least one book in all orders, but books are not necessarily purchased by consumers.Each order can be supplied by multiple suppliers, and each supplier can also provide books in multiple orders.

Task 2



E-R diagram for an online bookstore WeDeliverBooks

Task 3

First of all, according to the requirements of the topic, the database is used to manage details about the company's books, customers, and book orders. The customer uses the database to query the basic information of the book, and the manager uses the database to query the order placed by the customer and collect the basic information of the customer.

The second step is to identify the entity. After we have identified the database functions of a specific online bookstore, we must identify the key objects or entities that the database will manage. The objects to be managed by the database mainly include books, customers, and orders. Books can be divided into hardcover, paperback, and audio. Because of the inventory problem, I added the supplier.

The third step is to identify the details in each entity (the attributes of the entity). Because the database requires the management of books, customers, and orders, it is necessary to provide sub-member information contained in the three entity sets.
The specific information of the book is the author of the book, the publisher, the date of publication, the number of pages, pricing, ISBN and other information. The ISBN is the id of the book, and the isbn is unique, so it is the primary key of the book.A book can be divided into multiple categories, such as literature, fantasy, so genre is a multivalued attribute. A book can have multiple versions, such as hardcover, paperback or audio, so version is also a multivalued attribute. The rests such as title, author are simple attributes.

The basic information of the customer is the personal id, name, contact information, telephone number, and address. Everyone is given a different id information, so id is the primary key. A person may have multiple phone numbers, and the phone number is a multivalued attribute. The address includes county, city, zip code, street, so the address is a composite attribute.

The manager wants to check the total price of the order, the quantity purchased, and the customer wants to check the logistics and time of the order. So the above needs to be included in the basic information of the order. The id of each order is unique, so the id is the primary key. The total value needs to be calculated, so it is a derived attribute.

The fourth step is to identify the relationship between the entities. This requires analysing the connections between consumers, orders, and book entity sets, determining how these tables are logically related to each other, and then adding relation sets to establish connections. According to the title, each order has customers, and each customer can have multiple orders. Each order includes at least one book, but not every book will be purchased by consumers. Consumers can also rate multiple books, and a book can be scored by multiple consumers. The same book can be provided by multiple suppliers, or multiple books can be provided by one supplier. There are also situations that cannot be provided by a book vendor, such as out of stock.

The above is the relationship network of the entire online bookstore database.Through the study of the database, I understand that every industry can do not without the database, even a small online bookstore can not do without it. Therefore the course of the database is extensive.
Through this assignment, I can understand how the database implements information management for the online bookstore. The process is complex, consumer requires personal information, and book information needs to be provided to consumers. Not only we need to complete the requirements specification, but also the E-R diagram, etc., although it is not difficult to imagine, but it is very difficult to transform into a text that people can read, especially this is the first time I have contacted a complete management system. I often do it while I am doing my homework because some data does not correspond well and some of the information is missing. The database system is also completed in such a state of repeated modification. These gave me deeper thoughts. The completion of a database must take into account the realities. It is normal to change frequently when doing this type of work.