Nimish Birla

ER Diagram for a bookstore

Entities — Book, Author, Customer, Order, Publisher

P·K — Primary key

F·K — Foreign key
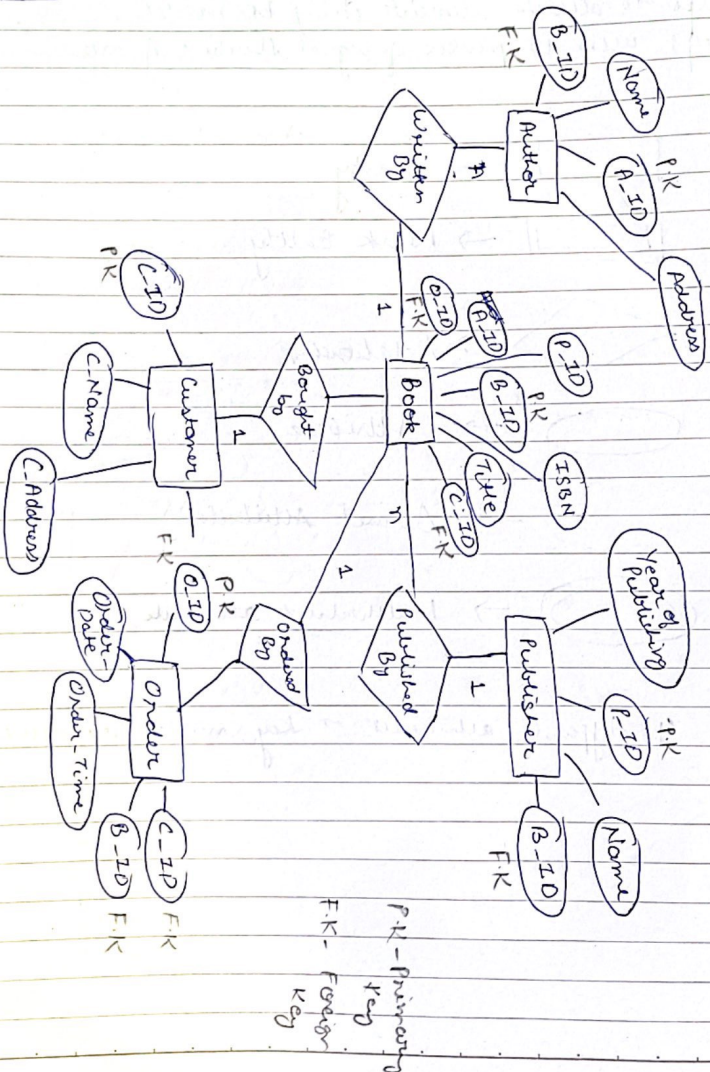
Book
B-ID (P.K)
P-ID (F.K)
Title
ISBN
C-ID (F.K)
A-ID (F.K)
O-ID (F.K)

Author
A-ID (P.K)
B-ID (F.K)
Name
Address

Publisher
P-ID (P.K)
B-ID (F.K)
Name
Year of Publishing

Customer
C-ID (P.K)
C-Name
C-Address
O-ID (F.K)

Order
O-ID (P.K)
C-ID (F.K)
B-ID (F.K)
Order-Date
Order-Time

Customer	Book	OrderID	Publisher	Author
Ram	XY21, XY22	1, 2	ABC1, ABC2	Charan, Birla

1NF

Customer	Book	OrderID	Publisher	Author
Ram	XY21	1	ABC1	Charan
Ram	XY22	2	ABC2	Birla

2NF

Order-ID	Customer	Book
1	Ram	XY21
2	Ram	XY22

Book	Publisher	Author
XY21	ABC1	Charan
XY22	ABC2	Birla

Initial Schema (ONE)

Table: Customer
- C_ID (P.K)
- Name (Atomic)
- Phone_No (Non Atomic — Violates ONE)

Table: Product Book
- B-ID (P.K)
- Name (Atomic)
- Genre (Atomic)
- Price (Atomic)

1st Normal Form (1NF)

Table: Customer
- C_ID (P.K)
- Name (Atomic)
- Phone No (Atomic)

Table: Order
- O_ID (P.K)
- B_ID (F.K)
- Quantity (Atomic)

Table: Book
- B-ID (P.K)
- Name (Atomic)
- Genre (Atomic)
- Price (Atomic)

2nd Normal Form (2NF)

Table : Customer
- C-ID (Primary Key)
- Name (Atomic)
- Phone Numba (Atomic)

Table: Order
- Order-ID (Primary Key)
- Customer - ID (F·K)

Table: Order - Book
- Order - Book - ID (P·K)
- Order - ID (F·K)
- Book - ID (F·K)
- Quantity (Atomic)

Table : Book
- Book - ID (P·K)
- Name (Atomic)
- Genre (Atomic)
- Price (Atomic)

3rd Normal Form (3NF)

Table: Customer
C-ID (P.K)
Name (Atomic)
Phone Number (Atomic)

Table: Order (2NF)
· O_ID (P.K)
· (other order - related attributes)

Table: ~~Product~~ Book (2NF)
· B_ID (P.K)
· Name (Atomic)
· Genre (Atomic)
· Price (Atomic)

Table : Customer_Order
· Order_ID (F.K)
· C_ID (F.K)