Book(isbn, book_name, price, quantity_inventory, no_of_pages, genre)

Basket(basket_id, user_id, isbn, quantity_basket)

author(author_id, author_name)

wrote(author_id, isbn)

publisher(publisher_id, publisher_name, bank_info)

published(isbn, publisher_id, year)

order(order_id, date, billing_address_id, shipping_address_id, total_amount, status)

check_out(order_id, basket_id)

publisher_commission(order_id, publisher_id, commission)

user(user_id, name, billing_address_id, shipping_address_id, phone_number, password)

admin(admin_id, admin_name)

address(address_id, user_id, address_line, postal code, province)

Functional Dependencies:

isbn-> book_name, price, quantity_inventory, no_of_pages, genre

basket_id, user_id -> isbn, quantity_basket

autor_id -> author_name

author_id -> isbn

publisher_id -> publisher_name, bank_info

isbn, publisher_id -> year

order_id -> date, total_amount, status

order_id, publisher_id -> commission

user_id -> user_name, billing_address_id, shipping_address_id, phone_number, user_password

admin_id -> admin_name, admin_password

address_id, user_id -> address_line, postal_code, province

finding candidate keys:

isbn --> book_name

isbn --> price

isbn --> quantity_inventory

isbn --> no_of_pages

isbn --> genre

basket_id,user_id --> isbn

basket_id,user_id --> quantity_basket

author_id --> isbn

author_id --> author_name

publisher_id --> publisher_name

publisher_id --> bank_info

publisher_id,isbn --> year

order_id --> billing_address_id

order_id --> shipping_address_id

order_id --> date

order_id --> total_amount

order_id --> status

order_id,publisher_id --> commission

user_id --> name

user_id --> billing_address_id

user_id --> shipping_address_id

user_id --> phone_number

user_id --> password

admin_id --> admin_name

address_id --> address_line

address_id --> postal_code

address_id --> province

The candidate Keys are: publisher_id, user_id, order_id, basket_id, author_id, admin_id, address_id

Check for 3NF:

isbn-> book_name, price, quantity_inventory, no_of_pages, genre

> isbn is not in some key, but **book_name, price, quantity_inventory, no_of_pages, genre**
>
> can be derived from isbn
>
> **Test passed**

basket_id, user_id -> isbn, quantity_basket

> basket_id and user_id are candidate keys
>
> **Test passed**

autor_id -> author_name

> author_id is candidate Key
>
> **Test passed**

author_id -> isbn

> **Test passed**

publisher_id -> publisher_name, bank_info

> publisher_id is candidate key
>
> **Test passed**

isbn, publisher_id -> year

> publisher_id is candidate key
>
> **Test passed**

order_id -> date, billing_address, shipping_address, total_amount, status

> order_id is candidate key
>
> violation:

transitive relation: therefore, split:

order_id -> date, total_amount, status

Test passed

order_id, publisher_id -> commission

order_id and publisher_id are candidate key

Test passed

user_id -> user_name, billing_address_id, shipping_address_id, phone_number, user_password

user_id is candidate key

Test passed

admin_id -> admin_name, admin_password

admin_id is candidate key

Test passed

address_id, user_id -> address_line, postal_code, province

address_id and user_id are candidtate keys

Test passed

Therfore, the dependencies are also in 2NF and 1NF.