Foreign key fields are marked red.

I normalized the schema first (specifically, private\_info was in 2NF, I decomposed it to be in BCNF). So,

Old Schema: private\_info(email, password, phone\_number, postal\_code, address, name, surname)

New Schema: addresses(address, postal\_code)

New Schema: private\_info(email, password, phone\_number, address, name, surname)

After that though, I’ve made a few changes to the schema. First of all I changed the name of “private\_info” to be just “contact\_info”. It didn’t make sense that a user may have more than one password. Now email and password are stored in the “users” table. Also now, email is the new pk for the “users” table. Consequently, all occurrences of (name, surname) composite foreign key to reference “users” table were changed with “email” to reference it.

I also changed up the logic about the “pay” relation. I realized instead of having pay, pay\_baskets and pay\_coupons, it just made more sense to create a single table payment\_history(id, credit\_card\_number, basket\_id, coupon\_code, date). I also added a new field “date” which will represent at what date the payment took place.

I changed the security\_code field in credit\_cards to cvv. And I renamed the email attribute to owner\_email for clarity.

I also added id as the new pk to baskets\_items, as there may be duplicate records with the old composite primary key (basketID, itemID) as there may be a basket that contains the same item more than once.

New final complete relation schema that is in BCNF:

users(email, password, name, surname, is\_verified)

addresses(address, postal\_code)

contact\_info(id, phone\_number, address, email)

baskets(id, filter, order\_asc, notify)

credit\_cards(number, month, year, cvv, owner\_email)

coupons(code, discount\_percentage)

categories(id, title, image\_path, description, parent\_id)

items(id, name, image\_path, price, stock)

payment\_history(id, credit\_card\_number, basket\_id, coupon\_code, date)

baskets\_users(basketID, email)

baskets\_items(id, basketID, itemID)

categories\_items(categoryID, itemID)