

Customer(customer\_ID, customer\_first\_name, customer\_last\_name, customer\_user\_name, customer\_password, customer\_address, Payment.account\_ID)

Order(order\_ID, order\_date, order\_time, order\_completed, Customer.customer\_ID, Product.product\_ID)

Payment(account\_ID, account\_Name, Customer.customer\_ID, Bank.bank\_account\_number, Card\_card\_Number)

Bank(bank\_account\_number, bank\_routing\_number, payment.account\_ID)

Card(card\_number, card\_expiration\_date, card\_ccv, payment.account\_ID)

Product(product\_ID, product\_Name, product\_price, product\_brand, Store.store\_ID, Discounts.discount\_ID)

Store(store\_ID, store\_name, store\_URL)

Discounts(discount\_ID, discount\_percent\_off, discount\_start\_date, discount\_end\_date, Product.product\_ID, Store.store\_ID)

Constraints:

Not Null: customer\_ID, order\_ID, account\_ID, product\_ID, store\_ID, discount\_ID, account\_Name, order\_completed, store\_name, discount\_percent\_off, discount\_start\_date, discount\_end\_date, customer\_user\_name, customer\_password, customer\_address

Unique: customer\_ID, order\_ID, product\_ID, store\_ID, discount\_ID, store\_URL, payment\_account\_id, bank\_account\_number, card\_number

Functional Dependencies:

**Customer table:**

F= {customer\_ID -> customer\_first\_name, customer\_last\_name, customer\_address, customer\_user\_name, customer\_password, payment.account\_ID

customer\_user\_name -> customer\_first\_name, customer\_last\_name, customer\_ID

}

**Order Table:**

F= {Order\_ID -> order\_date, order\_time, order\_completed, Customer.customer\_ID, Product.product\_ID}

**Payment Table:**

F= {account\_ID -> account\_Name, Customer.customer\_ID, Bank.bank\_account\_number, Card.card\_Number}

**Bank account Table:**

F= {bank\_account\_number -> bank\_routing\_number, payment.account\_ID)

**Card Table:**

F= {card\_number -> card\_expiration\_date, card\_ccv, payment.account\_ID}

**Product Table:**

F= {product\_ID -> product\_name, product\_price, product\_brand, Store.store\_ID, Discounts.discount\_ID}

**Store Table:**

F= {store\_ID -> store\_name, store\_api,

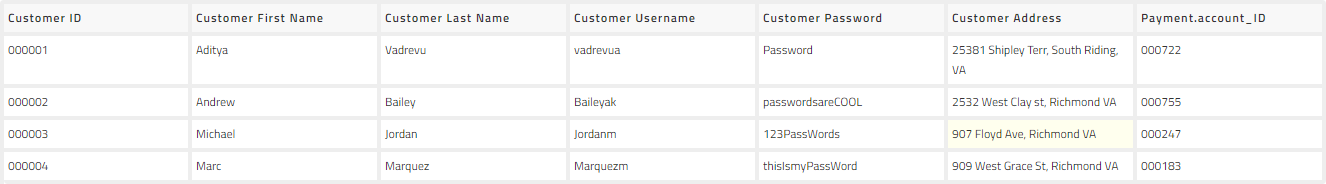
store\_URL -> store\_ID, store\_name}

**Discounts Table:**

F= {discount\_ID -> discount\_percent\_off, discount\_start\_date, discount\_end\_date, Product.product\_ID, Store.store\_ID}

Decomposition is not necessary because all relations are in BCNF and 4th Normal Form.

Customer Table:



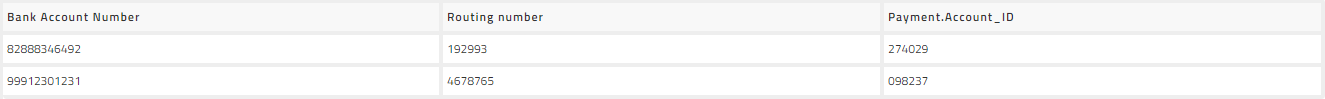
Order Table:

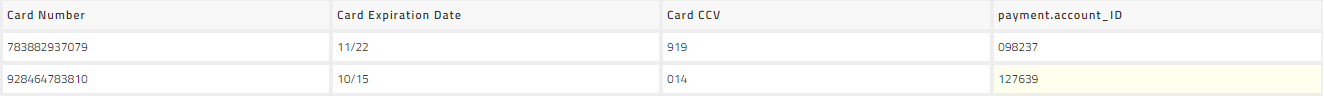


Payment Account Table:

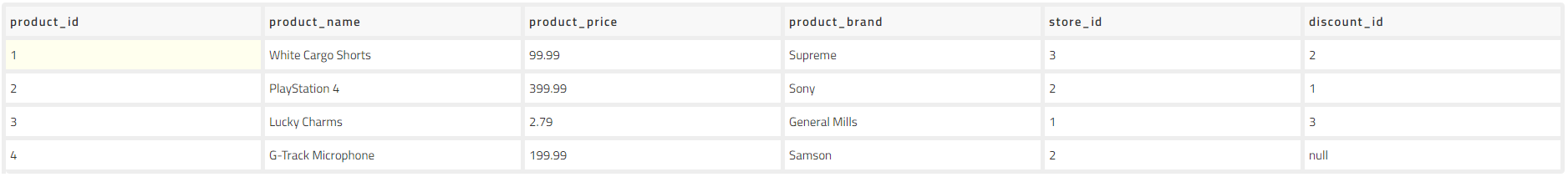


Bank Account Table:



Card Account Table:

Discount Table:

Product Table:

Store Table:

