Relations R from Phase II

Person: { person_id, address, gender, date_of_birth, first_name, middle_name, last_name}
- FD: { person_id → address, gender, date_of_birth, first_name, middle_name, last_name }
- Key: person_id
- Foreign Key: none
- Already in 3NF

Person_PhoneNo: {person_id, phone_number}
- FD: {}
- Key: person_id, phone_number
- Foreign Key: none
- Already in 3NF

Employee: {employee_id, gold_customer_id, start_date}
- FD: { employee_id → gold_customer_id, start_date}
- Key: employee_id
- Foreign Key: gold_customer_id
- Already in 3NF

Silver Customer: {silver_customer_id, emrollment_date}
- FD: {silver_customer_id, emrollment_date }
- Key: silver_customer_id
- Foreign Key: none
- Already in 3NF

Online Customer: {online_customer_id, email_address}
- FD: {online_customer_id → email_address }
- Key: online_customer_id
- Foreign Key: none
- Already in 3NF

Non-Online Customer: {non_online_customer_id, gold_customer_id}
- FD: non_online_customer_id → gold_customer_id }
- Key: non_online_customer_id
- Foreign Key: gold_customer_id
- Already in 3NF

Work: {employee_id, store_id, working_hours, date}
- FD: employee_id, store_id → working_hours, date
- Key: employee_id, store_id
- Foreign Key: none

- already in 3NF
-

Bill: {bill_id, person_id, store_id, cashier_id, purchase_date, bill_amount, payment_method}
- FD: { bill_id → person_id, store_id, cashier_id, purchase_date, bill_amount, payment_method }
- Key: billl_id
- Foreign Key: person_id, store_id, cashier_id
- Already in 3NF

Bill_Detail: {bill_id, product_id, quantity}
- FD: { bill_id, product_id → quantity }
- Key: billl_id, product_id
- Foreign Key: bill_id, product_id
- Already in 3NF

Store: {store_id, name, address, contact}
- FD: { store_id → name, address, contact}
- Key: store_id
- Foreign Key: none
- Already in 3NF

Voucher: { voucher_id, store_id}
- FD: {voucher_id → store_id }
- Key: voucher_id
- Foreign Key: store_id
- Already in 3NF

Promotion: {promotion_id, description}
- FD: { promotion_id → description }
- Key: promotion_id
- Foreign Key: none
- Already in 3NF

Voucher_Details: {voucher_id, promotion_id}
- assumption: as statement does not clearly point out the state of promotion. The team make an assumption that promotion cannot be exist alone and it has to be part of a voucher. A voucher could have multiple promotions.
- FD: {}
- Key: voucher_id, promotion_id
- Foreign Key: voucher_id, promotion_id
-

- Already in 3NF

Free: {gold customer_id, voucher_id, date, quantity}
- Include new attributes, date, quantity
- FD: { gold_customer_id, voucher_id, date → quantity }
- Key: gold_customer_id, voucher_id
- Foreign Key: gold_customer_id, voucher_id
- Already in 3NF

Buy: {non_online_cutomer_id, voucher_id, date, quantity}
- Need to record the date of purchase of voucher, so add date and quantity to the relation.
- FD: { non_online_cutomer_id, voucher_id, date → quantity }
- Key: non_online_cutomer_id, voucher_id, date
- Foreign Key: non_online_cutomer_id, voucher_id,
- Already in 3NF

Sale: {store_id, sale_id, start_date, end_date }
- Duration of sale needs to be specific. Add start and end date of the sale and include them as primary key in the relation.
- FD: {}
- Key: store_id, sale_id, start_date, end_date
- Foreign Key: none
- Already in 3NF

Sale_Details: {sale_id, description}
- This new relation is added to each saleID might be shared among stores, but description is same.
- FD: { sale_id → description }
- Key: sale_id
- Foreign Key: none
- Already in 3NF

Supplier: {name_id}
- FD: {}
- Key: name_id
- Foreign Key: none
- Already in 3NF

Product: {product_id, supplier_name, description, quantity}
- FD: {product_id → supplier_name, description, quantity }
- Key: product_id
- Foreign Key: supplier_name
- Already in 3NF

Perishable: {product_id, input_date, quantity, expire_date}
- FD: { product_id , input_date → quantity, expire_date }
- Key: product_id, input_date
- foreign key: product_id
- Already in 3NF

Non_Perishable: {product_id, input_date, quantity}
- FD: { product_id, input_date →quantity }
- Key: product_id, input_date
- Foreign Key: product_id
- Already in 3NF

Online_Order: {order_no, online_customer_id, date}
- FD: { order_no → online_customer_id, date }
- Key: order_no
- Foreign Key: online_customer_id
- Already in 3NF

Online_Order_Details: {order_no, product_id, amount}
- FD: { order_no, product_id → amount }
- Key: order_no, product_id
- Foreign Key: order_no, product_id
- Already in 3NF

Gold_Customer: {gold_customer_id, enrollment_date}
- FD: {gold_customer_id → enrollment_date }
- Key: gold_customer_id
- Foreign Key: none
- Already in 3NF

Card: {card_id, date_of_issue, gold_customer_id}
- FD: { card_id → date_of_issue, gold_customer_id }
- Key: card_id
- Foreign Key: gold_customer_id
- Already in 3NF

Task_Assignment: { assign_id, employee_id, date_of_assign}
- FD: { assign_id → employee_id, date_of_assign }
- Key: assign_id
- Foreign Key: employee_id
- Already in 3NF

Aisle_Product_Details: {assign_id, ailse_no, product_id, finished_date}
- FD: {}
- Key: assign_id, ailse_no, product_id, finished_date
- Foreign Key: assign_id, ailse_no, product_id
- Already in 3NF

Aisle: {aisle_no, section}
- FD: { aisle_no → section }
- Key: aisle_no
- Foreign Key: none
- Already in 3NF

Floor_Staff: {floor_staff_id, start_date}
- FD: { floor_staff_id → start_date }
- Key: floor_staff_id
- Foreign Key: floor_staff_id
- Already in 3NF

Cashier: {cashier_id, start_date}
- FD: { cashier_id → start_date }
- Key: cashier_id
- Foreign Key: cashier_id
- Already in 3NF

Manager: {manager_id, start_date}
- FD: manager_id → start_date }
- Key: manager_id
- Foreign Key: manager_id
- Already in 3NF

Employee_Promotion_Records: {employee_id, date_of_change, previous_position}
- FD: { employee_id, date_of_change, previous_position }
- Key: employee_id, date_of_change
- Foreign Key: employee_id
- Already in 3NF