De La Salle University - Manila

College of Computer Studies

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In partial fulfillment of the course

INFORMATION MANAGEMENT - CCINFOM S17

Pharmacy Management System

Database Application Project Proposal

Submitted by:

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Submitted to:

Ms. Marivic Tangkeko

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Section 1.0 Group Composition

Group Leader (Group Member 1): Uy, Tara Ysabel P.
Group Member 2: Guo, Anie H.
Group Member 3: Tan, Andrea Jadyn K.

Section 2.0 Why is this Database System important to be developed

Pharmaceutical companies and pharmacies handle large volumes of data on medicines, customers, and suppliers. While Excel may work at first, it quickly becomes messy when tracking large inventories and restocking. A database system provides a structured way to store and connect records, making it easier to manage medicine availability, track supplier deliveries, and generate accurate reports that support decision-making and keep operations running smoothly.

Section 3.0 Records Management

Medicine Record Management	(medicine_id (PK), name, price_bought, price_for_sale, quantity_in_stock, expiration_date, discontinued) Viewing a Record with Other Related Records: - Viewing of a specific medicine record and the list of suppliers providing it Note: Due to the UNIQUE (medicine_name, expiration_date) constraint, the medicine table functions as the inventory (batch) table. medicine_id acts as the unique Batch ID. This table is primarily managed by the Delivery and Purchase Transactions, not by manual user input. Business Rules: - When the medicine is discontinued or expired, it cannot be sold. - price_bought, price_for_sale, quantity cannot be negative. - When the medicine is returned to the supplier, stock levels must update. - A medicine cannot be deleted from the database, they are marked as discontinued.	**assigned to Uy, Tara Ysabel P.**
Customer Record Management	(customer_id (PK), name, contact_info, senior_pwd_id, customer_status) Viewing a Record with Other Related Records: - Viewing of a customer record and the list of medicines they purchased Business Rules: - senior_pwd_id must be unique per customer. - If the customer's senior_pwd id is not null, then a 20% discount is applied. - The customer must be registered before they can purchase a medicine. - A customer cannot be deleted from the database, they are marked as inactive.	**assigned to Guo, Anie H.**

Supplier Record Management	(supplier_id (PK), name, address, contact_info, supplier_status) Viewing a Record with Other Related Records: - Viewing of a supplier record and the medicines they provide to the pharmacy Business Rules: - The supplier cannot be deleted, they are marked as inactive. - Only active suppliers can process returns or deliveries.	**assigned to Tan, Andrea Jadyn K.**

Section 4.0 Transactions

1. Purchasing of Medicine as a Transaction will involve the following data, operations **assigned to Guo, Anie H.**
   Core Records Involved: Medicine Record, Customer Record
   Attributes: purchase_no, purchase_date, customer ID, customer Name, senior_pwd_id (if applicable), customer contact info, customer_status, medicine ID, medicine Name, quantity ordered, price of medicine, expiration_date, quantity_in_stock, discontinued, discount, total
   Customer Record: customer_id (PK)
   Associative Entity purchase: purchase_no (PK), customer_id (FK)
   Associative Entity purchase_details: purchase_no (PK, FK), medicine_id (PK, FK)
   Medicine Record: medicine_id (PK)
   a. Reading the customer record to verify registration (create new if not yet registered)
   b. Reading the customer record to verify if the customer is a senior citizen or PWD to apply a 20% discount
   c. Reading the customer record to verify that the customer is active
   d. Reading the specific medicine record using its medicine_id to confirm the stock, expiry, and discontinued status (handled by prevent_expired_or_discontinued_sale trigger)
   e. Recording the purchase transaction (purchase_no, medicine_id, quantity_ordered, discount, total)
   f. Updating the specific medicine record to deduct the quantity_ordered and quantity_in_stock
   g. Generating a receipt for the customer

   Business Rules:
   - Medicine can only be purchased if they are not expired, not discontinued, and in stock.
   - An inactive customer's transaction will remain for tracking purposes.
2. Delivering of Medicine from Supplier as a Transaction will involve the following data, operations **assigned to Uy, Tara Ysabel P.**
   Core Records Involved: Medicine Record, Supplier Record
   Attributes: delivery_no, shipped_date, request_date, status, supplier_id, supplier_name, contact_info, supplier_address, supplier_status, medicine_id, medicine_name, medicine_quantity_in_stock, price_bought, discontinued, expiration_date, quantity_bought, total
   Supplier Record: supplier_id (PK)
   Associative Entity delivery: delivery_no (PK), supplier_id (FK)
   Associative Entity delivery_details: delivery_no (PK, FK), medicine_id (PK, FK)
   Medicine Record: medicine_id (PK)
   a. Reading the medicine records to check stock levels
   b. Reading the supplier record to check that the supplier is still active

c. Recording the main delivery request in the delivers table
d. Adding a new medicine record for each new batch being delivered by creating a new, unique medicine_id with medicine_name, price_bought, price_for_sale, quantity_in_stock, and expiration_date.
e. Recording the link between the delivery and the new batches in the delivery_details table (by pairing delivery_no with each new medicine_id)
f. Updating the medicine stock once the restock is completed
g. Recording the supplier delivery for tracking

Business Rules:

- Only active suppliers can supply medicines.
- Inactive supplier remains for tracking purposes.

3. Returning of Medicine (discontinued or expired) to Supplier as a Transaction will involve the following data, operations **assigned to Tan, Andrea Jadyn K.**

Core Records Involved: Medicine Record, Supplier Record

Attributes: return_no, reason, shipped_date, request_date, return_status, supplier_id, supplier_name, contact_info, address, supplier_status, medicine_id, medicine_name, discontinued, expire_date, quantity_returned

Supplier Record: supplier_id (PK)

Associative Entity return: return_no (PK), supplier_id (FK)

Associative Entity return_details: return_no (PK, FK), medicine_id (PK, FK), delivery_no (PK, FK)

Medicine Record: medicine_id (PK)

a. Reading the medicine records to identify expired or discontinued medicines
b. (7-Day Rule Check) For specific medicine_id to be returned, the system will:
    i. Read the delivery_details table to find the delivery_no associated with the medicine_id
    ii. Read delivers table using delivery_no to find shipped_date
    iii. Verify if the CURDATE() is within 7 days of that shipped_date
c. Reading the supplier record to verify supplier is active status
d. Recording the return in the return table (to get new return_no) and in return_details (linking return_no, medicine_id and delivery_no)
e. Updating medicine record's quantity_in_stock to 0 (or mark as discontinued) to remove from sellable inventory
f. Generating a receipt for the return

Business Rules:

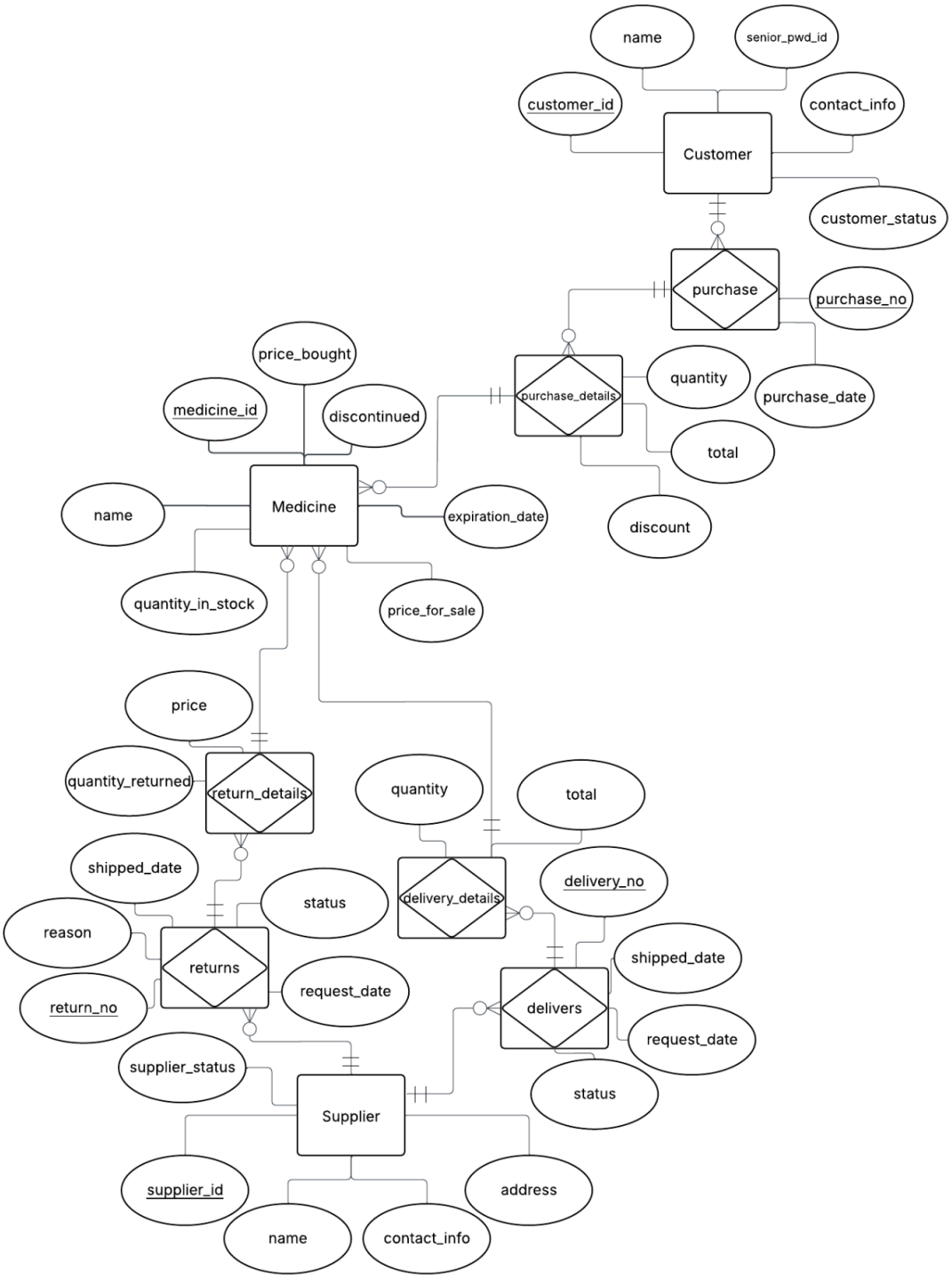
- Only medicines supplied by that supplier may be returned.
- Returns must be initiated within 7 days of delivery.
- When a medicine is discontinued or expired, they can be returned to the supplier.

Section 5.0 Reports to be Generated

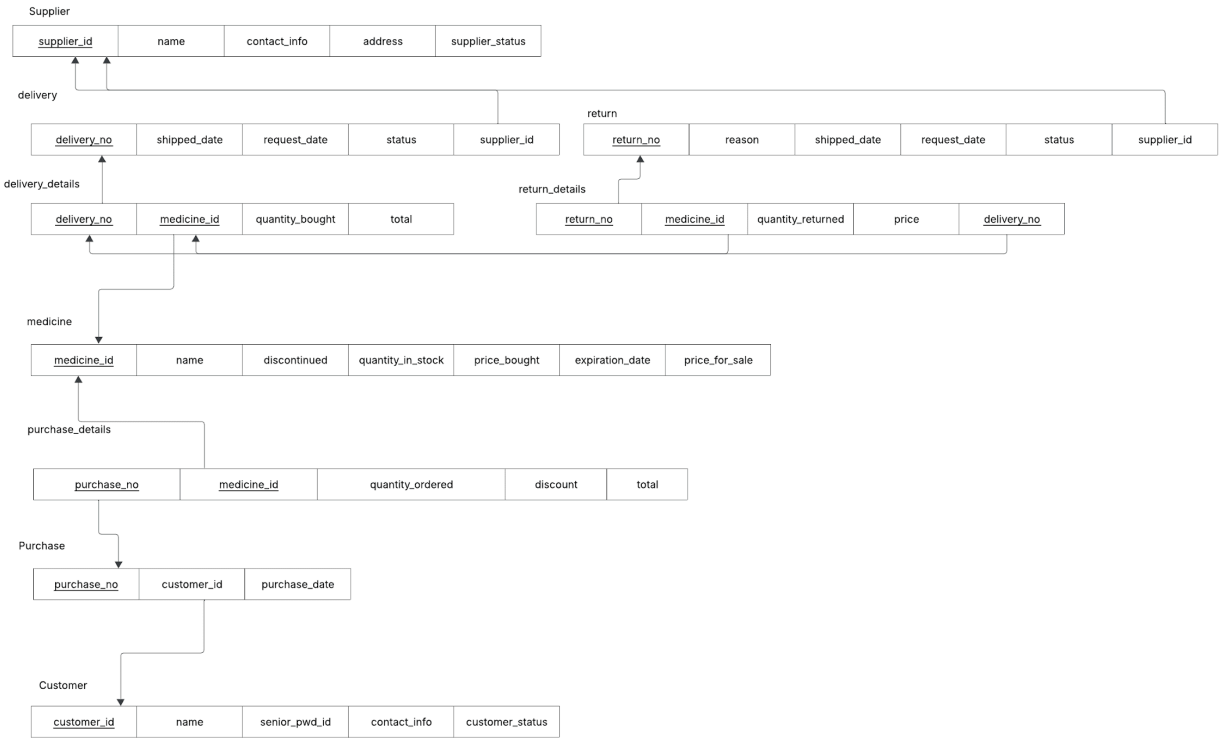
Customer Purchase Report	Core/Transaction Used: Medicine Record, Customer Record, Selling of Medicine Transaction (number and total amount of sales transactions) per customer for a given Month and Year	**assigned to Guo, Anie H.**

Medicine Return Report	Core/Transaction Used: Medicine Record, Supplier Record, Return Transaction (number and total amount of returns) per medicine for a given Month and Year	**assigned to Uy, Tara Ysabel P.**
Procurement Report	Core/Transaction Used: Medicine Record, Supplier Record, Restocking of Medicine from Supplier Transaction (number and total amount of restocks) per supplier for a given Month and Year	**assigned to Tan, Andrea Jadyn K.**

Entity Relationship Diagram


name
senior_pwd_id
customer_id
contact_info
Customer
customer_status
purchase
purchase_no
price_bought
medicine_id
discontinued
purchase_details
quantity
purchase_date
total
discount
name
Medicine
expiration_date
quantity_in_stock
price_for_sale
price
quantity_returned
return_details
quantity
total
shipped_date
status
delivery_details
delivery_no
reason
returns
request_date
return_no
shipped_date
delivers
request_date
supplier_status
status
Supplier
supplier_id
address
name
contact_info

Transform to Relations



Normalize

Purchasing of Medicine

purchase_no, medicine_id -> quantity_ordered, discount, total (Full Dependency)

purchase_no -> purchase_date, customer_id, customer_name, senior_pwd_id, contact_info, customer_status (Partial Dependency)

medicine_id -> medicine_name, price_for_sale, expiration_date, quantity_in_stock, discontinued (Partial Dependency)

customer_id -> customer_name, senior_pwd_id, contact_info, customer_status (Transitive Dependency)

UNF

purchasing(purchase_no, purchase_date, customer_id, customer_name, senior_pwd_id, contact_info, customer_status, {medcine_id, medicine_name, quantity_ordered, price_for_sale, expiration_date, quantity_in_stock, discontinued, discount, total})

1NF

purchasing(purchase_no, purchase_date, customer_id, customer_name, senior_pwd_id, contact_info, customer_status, medcine_id, medicine_name, quantity_ordered, price_for_sale, expiration_date, quantity_in_stock, discontinued, discount, total)

2NF

purchase_detail(purchase_no, medicine_id, quantity_ordered, discount, total)

medicine(medicine_id, medicine_name, price_for_sale, expiration_date, quantity_in_stock, discontinued)

purchase(purchase_no, purchase_date, customer_id, customer_name, senior_pwd_id, contact_info, customer_status)
3NF
purchase_detail(purchase_no, medicine_id, quantity_ordered, discount, total)
medicine(medicine_id, medicine_name, price_for_sale, expiration_date, quantity_in_stock, discontinued)
purchase(purchase_no, purchase_date, customer_id, customer_status)
customer(customer_id, customer_name, senior_pwd_id, contact_info, customer_status)

Delivering of Medicine
delivery_no, medicine_id ->quantity_bought, total (Full Dependency)
delivery_no -> shipped_date, request_date, delivery_status, supplier_id, supplier_name, contact_info, supplier_address, supplier_status (Partial Dependency)
medicine_id -> medicine_name, medicine_quantity_in_stock, price_bought, discontinued, expiration_date (Partial Dependency)
supplier_id -> supplier_name, contact_info, supplier_address, supplier_status (Transitive Dependency)
UNF
delivery(delivery_no, shipped_date, request_date, delivery_status, supplier_id, supplier_name, contact_info, supplier_address, supplier_status, {medicine_id, medicine_name, medicine_quantity_in_stock, price_bought, discontinued, expiration_date, quantity_bought, total})
1NF
delivery(delivery_no, shipped_date, request_date, delivery_status, supplier_id, supplier_name, contact_info, supplier_address, supplier_status, medicine_id, medicine_name, medicine_quantity_in_stock, price_bought, discontinued, expiration_date, quantity_bought, total)
2NF
delivery_details(delivery_no, medicine_id, quantity_bought, total)
medicine(medicine_id, medicine_name, medicine_quantity_in_stock, price_bought, discontinued, expiration_date)
delivery(delivery_no, shipped_date, request_date, delivery_status, supplier_id, supplier_name, contact_info, supplier_address, supplier_status)
3NF
delivery_details(delivery_no, medicine_id, quantity_bought, total)
medicine(medicine_id, medicine_name, medicine_quantity_in_stock, price_bought, discontinued, expiration_date)
delivery(delivery_no, shipped_date, request_date, delivery_status, supplier_id)
supplier(supplier_id, supplier_name, contact_info, supplier_address, supplier_status)

Returning of Medicine
return_no, medicine_id, delivery_no -> quantity_returned, price_returned (Full Dependency)
return_no -> reason, shipped_date, request_date, status, supplier_id, supplier_name, contact_info, address, supplier_status (Partial Dependency)
medicine_id -> medicine_name, discontinued, expire_date, price_bought (Partial Dependency)
supplier_id -> supplier_name, contact_info, address, supplier_status (Transitive Dependency)
UNF
return(return_no, reason, shipped_date, request_date, status, supplier_id, supplier_name, contact_info, address, supplier_status, {medicine_id, delivery_no, medicine_name, discontinued, expire_date, price_bought, quantity_returned, price_returned})
1NF

return(return_no, reason, shipped_date, request_date, status, supplier_id, supplier_name, contact_info, address, supplier_status, medicine_id, delivery_no, medicine_name, discontinued, expire_date, price_bought, quantity_returned, price_returned)
2NF
return_details(return_no, medicine_id, delivery_no, quantity_returned, price_returned)
return(return_no, reason, shipped_date, request_date, status, supplier_id, supplier_name, contact_info, address, supplier_status)
medicine(medicine_id, medicine_name, discontinued, expire_date, price_bought)
3NF
return_details(return_no, medicine_id, delivery_no, quantity_returned, price_returned)
medicine(medicine_id, medicine_name, discontinued, expire_date, price_bought)
return(return_no, reason, shipped_date, request_date, status, supplier_id)
supplier(supplier_id, supplier_name, contact_info, address, supplier_status)

Section 6.0 Declaration of Generative AI Use

The group used ChatGPT (OpenAI, GPT-5) to assist in brainstorming project ideas and to help brainstorm possible transactions and reports. The group members reviewed, edited, and customized the content to ensure accuracy and alignment with project proposal guidelines. No part of the proposal was fully generated or rewritten solely by AI.