UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
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SECD2523-10 (Database)

Project : Phase 2

< VogueVerse.com >

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1.0 Introduction

The global COVID-19 pandemic has transformed consumer behavior, forcing businesses, including traditional physical shops, to rapidly adapt to online platforms. Online shopping has become an important part of daily life in Malaysia, providing consumers with a safe and convenient way to access necessary goods during movement restrictions. This transition has resulted in a growth in online commercial business as sellers handle the pandemic's challenges.

Even though the immediate threat of the pandemic has passed, the trend of online shopping continues to thrive. E-commerce has grown into a desired and popular option for consumers. Online transactions' simplicity, accessibility, and cost-effectiveness have not only maintained the growth that was established during the pandemic but also established e-commerce as an essential part of current consumer culture. Every consumer, regardless of age, is involved in this brand-new consumer culture.

As a result of these ongoing changes, businesses such as GENIE Fashion Style have embraced internet retail, particularly in the field of fashion. However, the transition to online operations has shown difficulties in managing orders, tracking shipments, and analyzing business data. Ms Joanne, the founder of GENIE Fashion Style, faces difficulties using existing platforms, which is causing bottlenecks in stock management, order tracking, and data analysis.

This proposal plans for the development of a new system to solve GENIE Fashion Style's current problems. This system attempts to analyze order data and payment status, enhance package tracking, and provide an organized stock management solution. It will not only address existing challenges but also contribute to a better user experience and a more convenient and effective business monitoring experience for the seller.

2.0 DFD (to-be)

Context Diagram

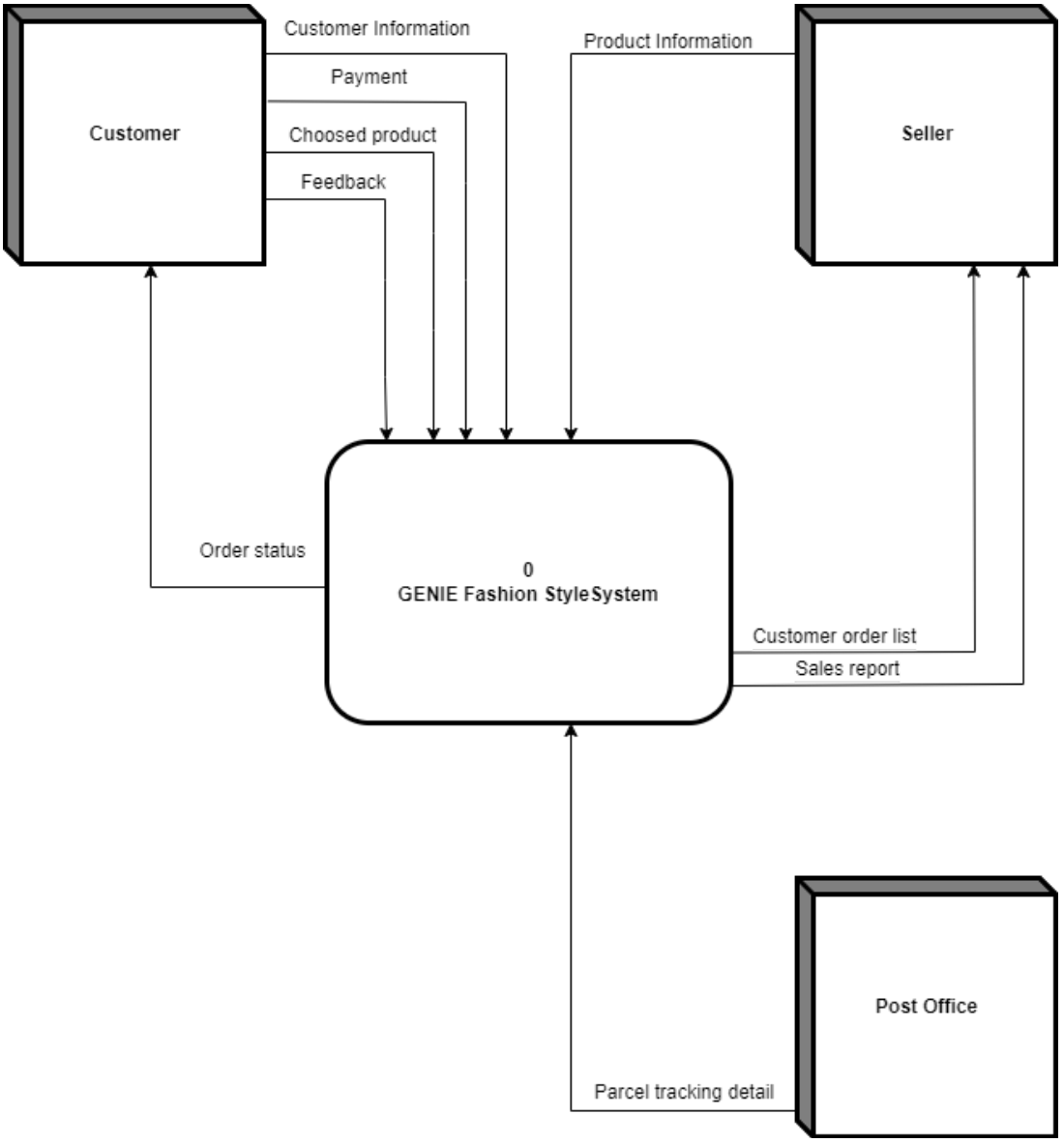
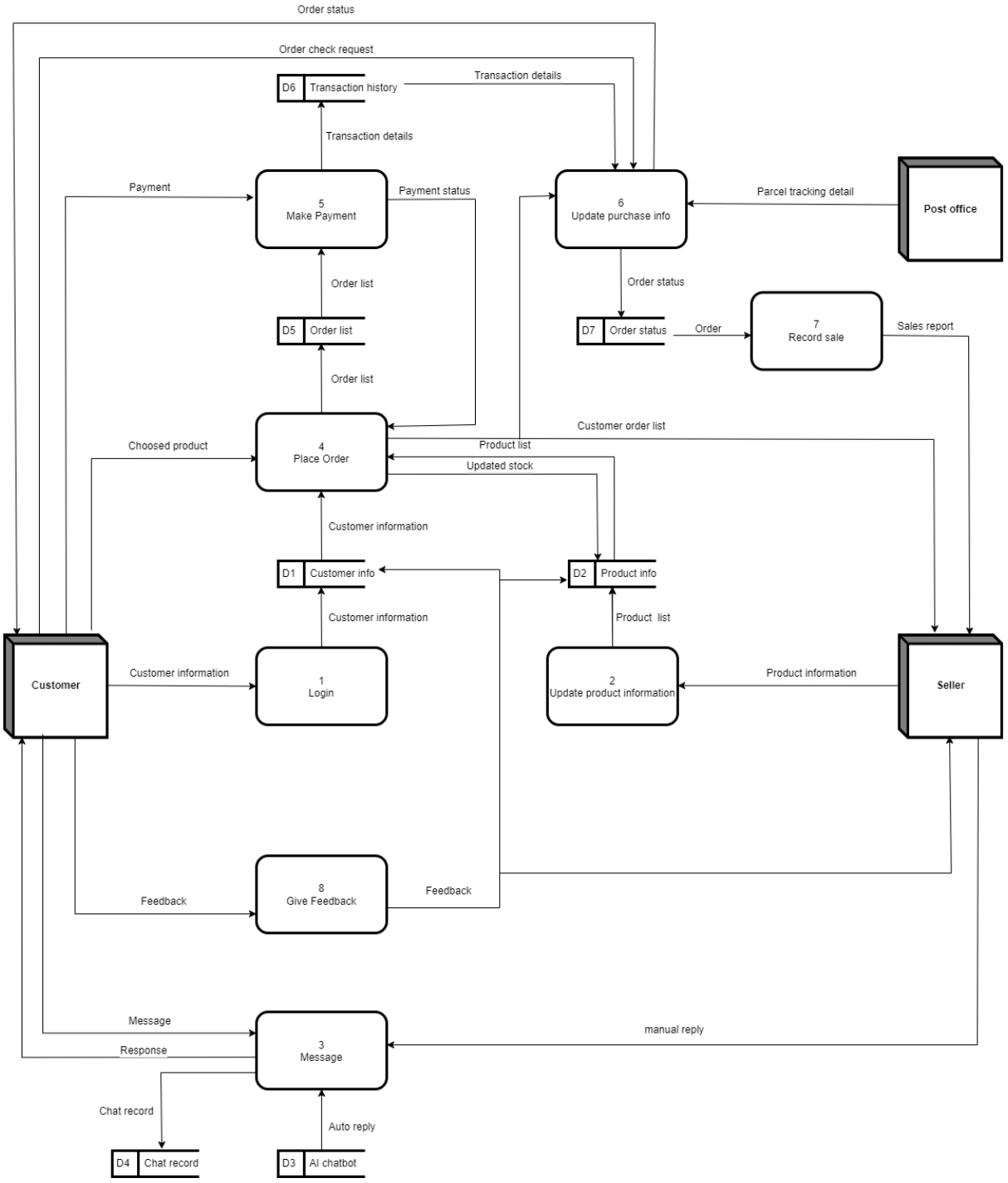
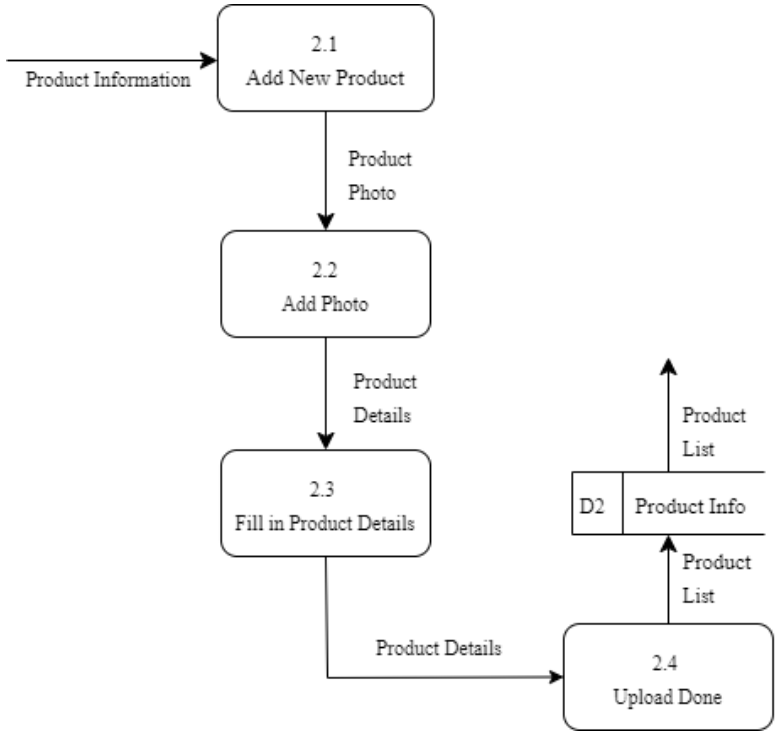


Diagram 0

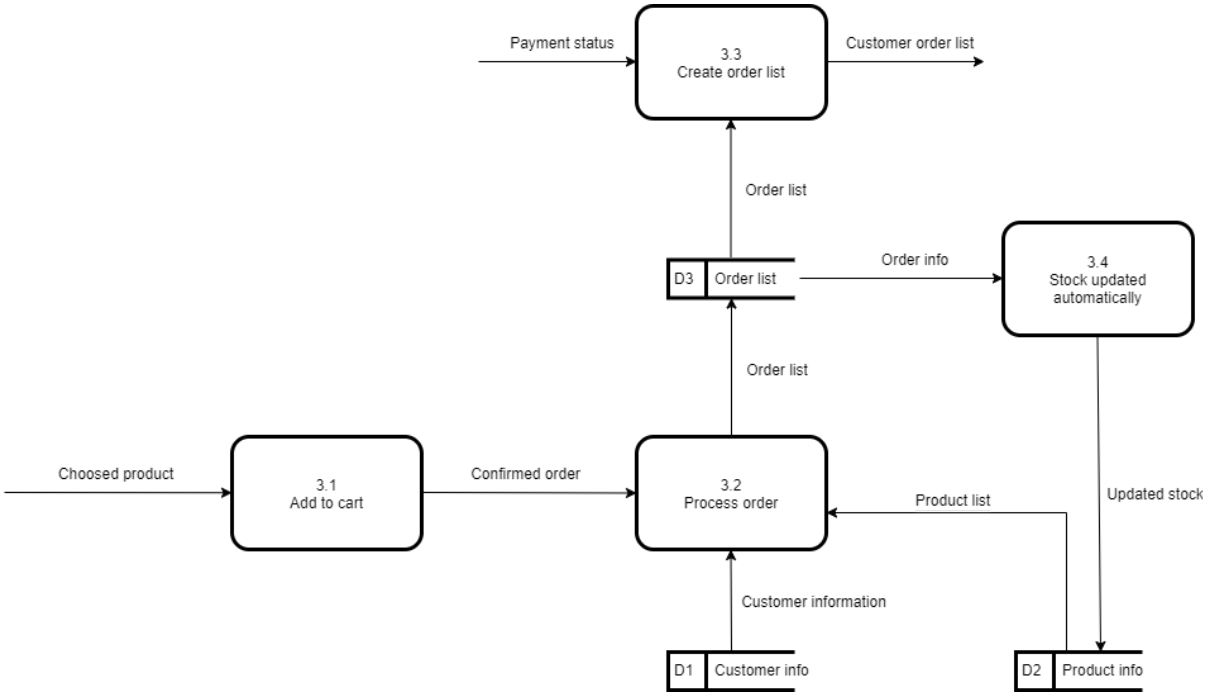

Order status
Order check request
D6 Transaction history
Transaction details
Transaction details
Payment
5
Make Payment
Payment status
6
Update purchase info
Parcel tracking detail
Post office
Order list
Order status
D5 Order list
D7 Order status
Order
7
Record sale
Sales report
Order list
Customer order list
Choosed product
4
Place Order
Product list
Updated stock
Customer information
D1 Customer info
D2 Product info
Customer information
Product list
Customer
Customer information
1
Login
2
Update product information
Product information
Seller
8
Give Feedback
Feedback
Feedback
Message
3
Message
manual reply
Response
Chat record
Auto reply
D4 Chat record
D3 AI chatbot

Child Diagram

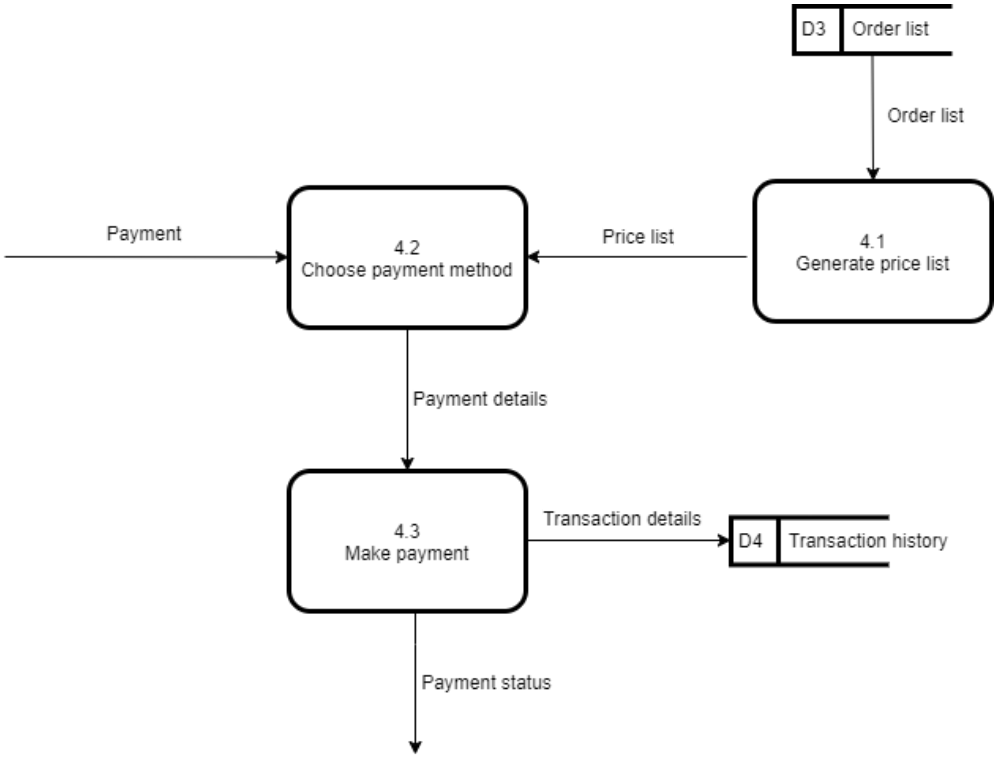
Child Diagram (Process 2: Update product information)



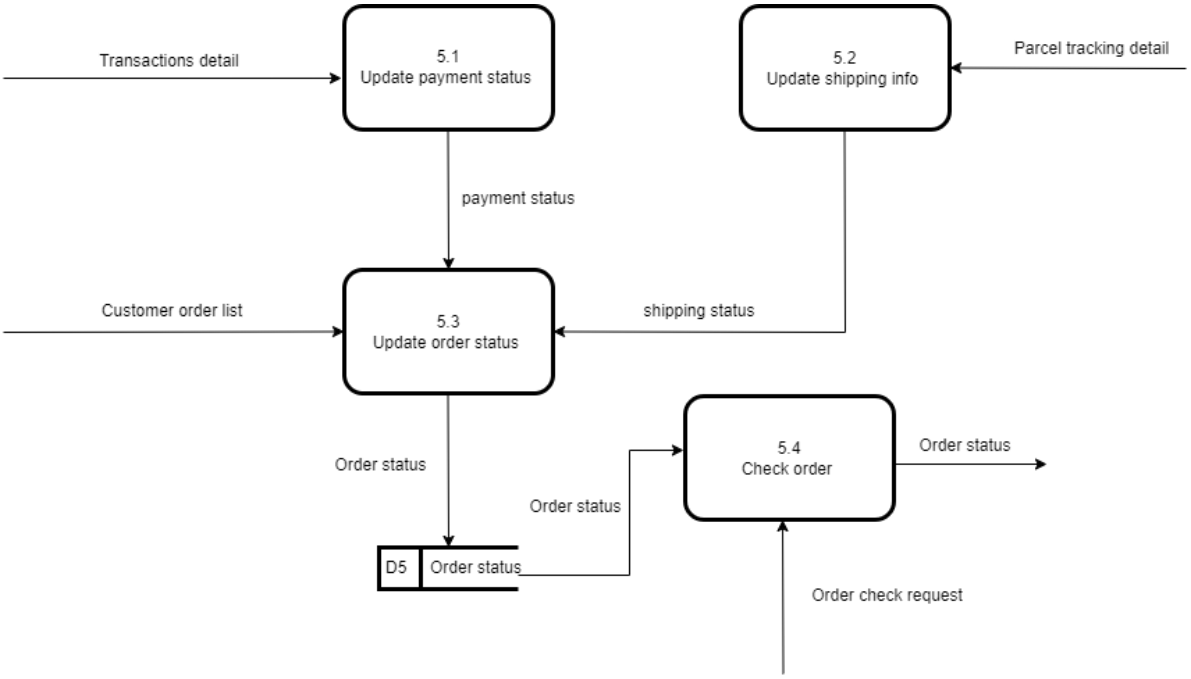
Child Diagram (Process 3: Place order)



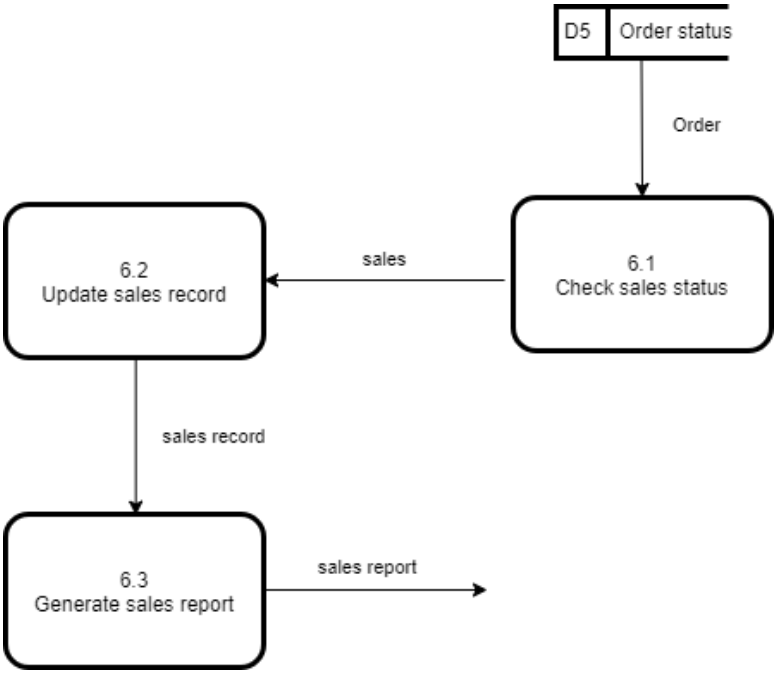
Child Diagram (Process 4: Make payment)



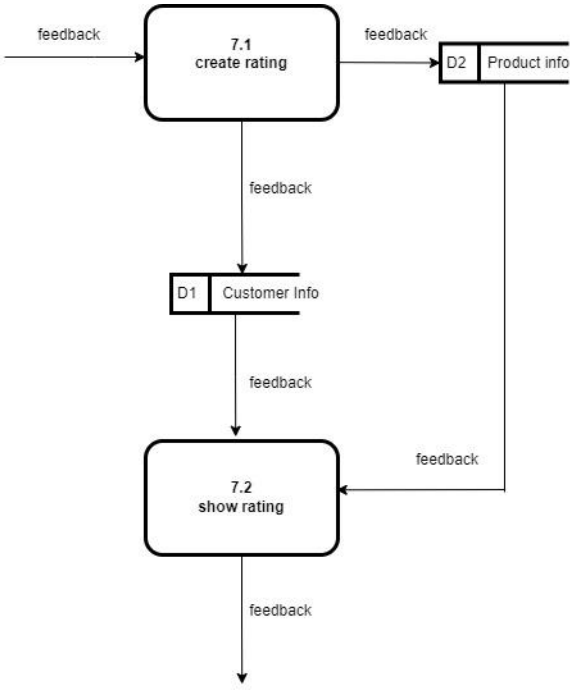
Child Diagram (Process 5: Update purchase info)



Child Diagram (Process 6: Record sales)



Child Diagram (Process 7: Give feedback)



3.0 Data & Transaction Requirement

3.1 Proposed Business Rule

1. The system will work 23 hours for 7 days.
2. The payment system will stop service every day at 12 am until 1 am because of the maintenance of the bank system.
3. Users will be required to login the platform by entering their name, email, phone number and address.
4. The system will establish a systematic process for collecting and analyzing customer feedback, using insights to refine products, services, and the overall customer experience.
5. The system will automatically update the stock levels in real-time upon the arrival of new products or the fulfillment of customer orders.
6. When stock levels drop below a set point, the system will automatically notify users so she can make timely decisions about reordering.
7. The system will enable easy updating of product images and videos to showcase the latest visual content, improving the overall presentation of products.
8. By separating personal and business-related communications, the system will make it easier to communicate in a systematic way and guarantee that important information is accessible and clear.
9. Upon customer order placement, the system will automatically update relevant records, including order history and payment status of the product.
10. The system will immediately send automated order confirmation notifications to customers upon successful placement of an order.
11. The system offers flexible payment scheduling options, allowing customers to choose convenient payment intervals or installment plans for certain products.
12. The post office will implement an automated system to update shipping information with the post office once an order has been processed and dispatched.

13. The system will provide an automated parcel tracking feature, enabling customers to monitor the accurate arrival time of their orders.
14. The system facilitates real-time parcel tracking updates by the post office to the platform and ensures accurate and timely information for users.
15. The system will automate profit and cost calculations, minimizing manual efforts and reducing the risk of errors in financial operations.
16. The system will enable the generation of sales reports for specified periods, allowing users to easily access and analyze sales performance.

3.2 Proposed Data & Transactional

Data Requirement

1. Customer Info requirement
    - CustomerID (PK)
    - CustomerName
    - PhoneNumber
    - Email
    - Address

2. Product Info requirement
    - ProductID (PK)
    - ProductName
    - ProductPrice
    - ProductImage
    - ProductCategory
    - ProductDescription
    - StockQuantity
    - ProductRatings

3. Order Info requirement
    - OrderID (PK)
    - OrderDate
    - OrderNumber
    - EstimatedArrivalDate
    - ShippingAddress
    - CustomerID (FK)
    - ProductID (FK)

4. Transaction History requirement
    - TransactionID (PK)

- TransactionDateTime
- PaymentMethod
- OrderID (FK)

5. Feedback requirement
    - FeedbackID (PK)
    - CustomerId (FK)
    - Feedback

6. Chat Record requirement
    - ChatID (PK)
    - AutoReply
    - ManualReply
    - CustomerID (FK)

7. Sales Record requirement
    - SalesRecordID (PK)
    - OrderID (FK)
    - ProductID (FK)
    - CustomerID (FK)
    - Quantity
    - SalesDate
    - TotalPrice

Transactional

Data entry

1. Customer registration
    - Allow data entry for new customer details.
    - This includes the customer's name, contact information, email and address. The system should also assign a unique ID to each customer for easy identification.

2. Product list
    - Enable the addition of new product details
    - Collecting new product's specifics includes product's name, price, image, description, stock quantity, and ratings. Each product should also be assigned a unique ID.

3. Order
    - Capture and store order details when a customer places an order
    - This includes the date of the order, order number, estimated arrival date, shipping address, customer ID, and product ID. The system should also generate a unique order ID for each order.

4. Transaction
    - Capture and store transaction details when a transaction occurs.
    - This includes the date/time of the transaction, payment method used, and order ID. The system should also generate a unique transaction ID for each transaction.

5. Feedback
    - Capture and store customer feedback.
    - This includes the feedback ID, customer ID, and the feedback itself. The system should also timestamp each feedback entry.

6. Chat Record
    - Capture and store chat records.
    - This includes the chat ID, auto reply, manual reply, and customer ID. The system should also timestamp each chat record.

7. Sales Record
    - Capture and store sales records when a sale occurs.
    - This includes the sales record ID, order ID, product ID, customer ID, quantity sold, sales date, and total price. The system should also calculate the total price of each sale.

Data Update/ delete

1. Customer information modification
    - Allow for the update of customer's information.
    - This includes changes to the customer's contact information and shipping address.

2. Product Information Modification
    - Allow for the update of product information.
    - This includes changes to the description, price, product categories and stock quantity of the product.

3. Order Modification
    - Allow for modifications to the changes of product selected by customers, update their shipping details and order cancellations.

Data Queries

1. Retrieve a Customer's Details
    - Get the name, phone number, email, and address of a customer with a specific customer ID

2. Find Products in a Category

- List all products in a specific category, including their names, prices, images, descriptions, stock quantities, and ratings

3. Check Order Status
    - Find the status of an order with a specific order ID

4. Get Transaction Details
    - Retrieve the details of a transaction with a specific transaction ID

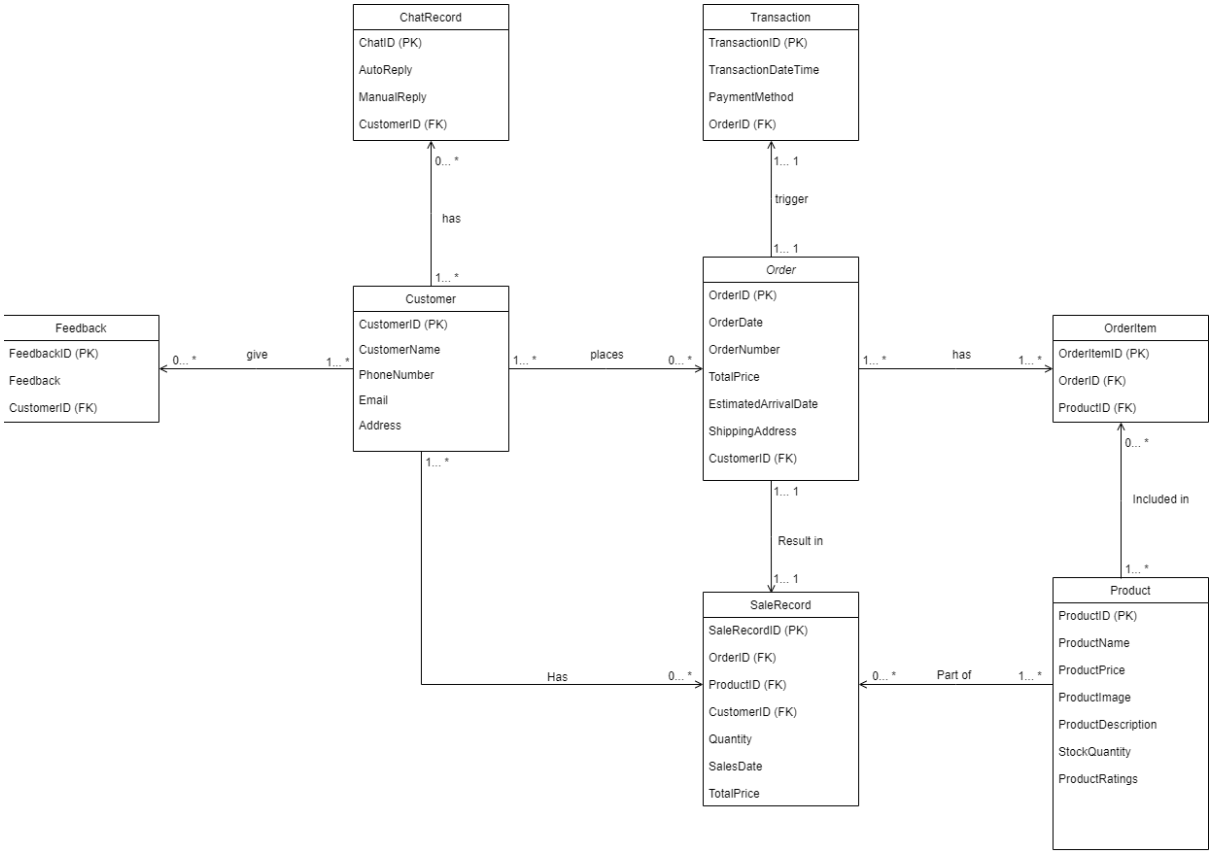
5. Read Customer Feedback
    - Get the feedback from a customer with a specific customer ID

6. Access Chat Records
    - Access the chat records of a customer with a specific customer ID

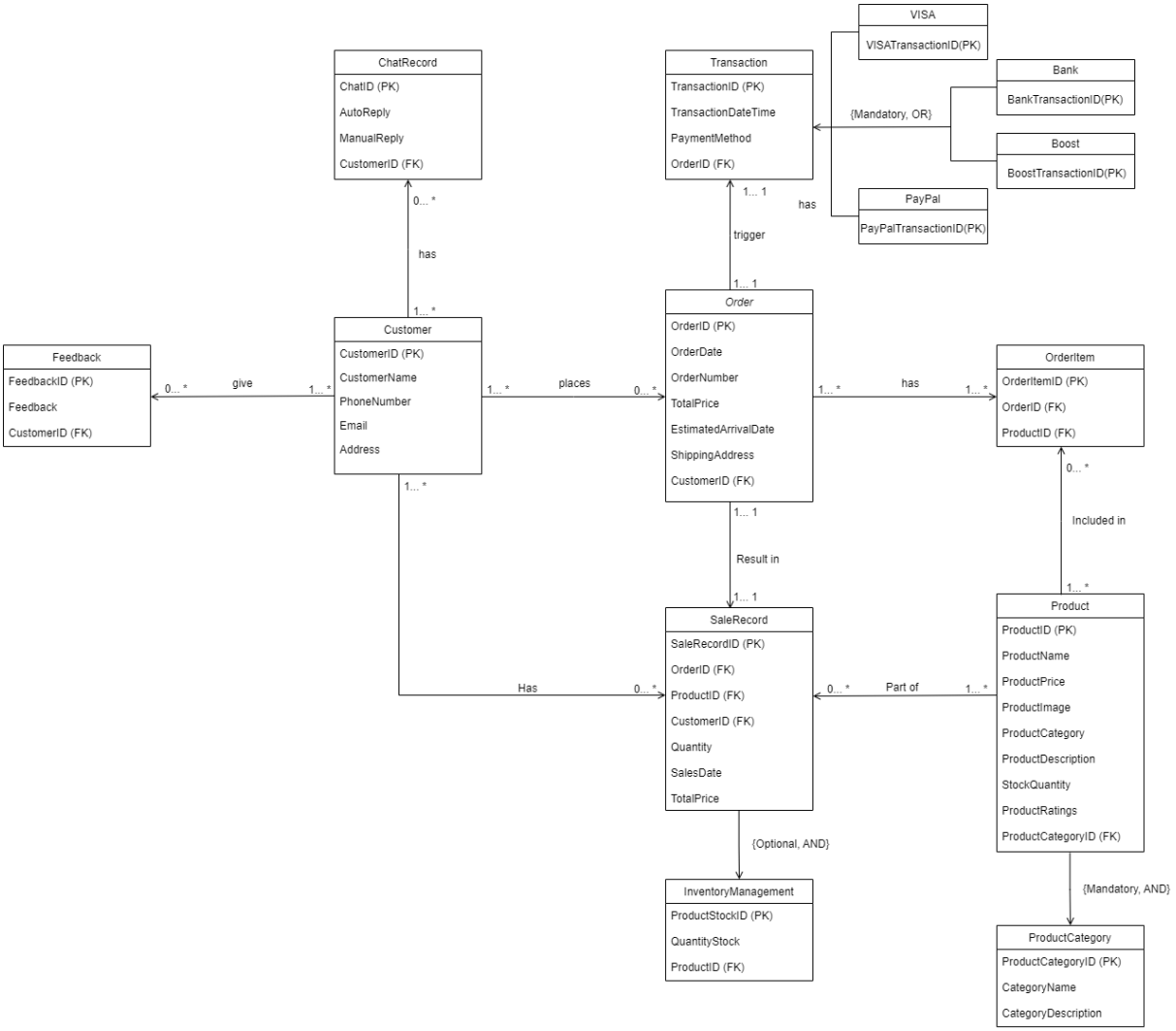
7. View Sales Record
    - View the sales record with a specific sales record ID

4.0 Database Conceptual Design

4.1 Conceptual ERD



4.2 Enhanced ERD (EERD)



5.0 Data Dictionary

5.1 Description of entity

Entity	Description	Occurence
Customer	Hold customer data	A customer registers on the system
Order	Hold order data	A new order placed by customer
Product	Hold product data	A new product is added to the inventory
ProductCategory	Holds data for different categories of products	A new category of products is introduced
Transaction	Holds transaction data	A customer completes a payment for an order
VISA	Holds transaction data	A customer choose VISA method to complete a payment for an order
Bank	Holds transaction data	A customer choose Bank method to complete a payment for an order
Boost	Holds transaction data	A customer choose Boost method to complete a payment for an order
PayPal	Holds transaction data	A customer choose PayPal method to complete a payment for an order
OrderItem	Holds data for each item in an order	A specific item is added to an order
Feedback	Holds feedback data provided by customers	A customer leaves feedback about their experience
ChatRecord	Holds data for each chat interaction between the customer and the system/seller	A new chat interaction occurs between the customer and the system
SaleRecord	Holds data for each sale	Record a new sale
InventoryManagement	Holds stock data	Record stock data

5.2 Relationships between entity

Entity	Multiplicity	Relationship	Multiplicity	Entity
Customer	1…*	Places	0…*	Order
Customer	1…*	Gives	0…*	Feedback
Customer	1…*	Has	0…*	ChatRecord
Customer	1…*	Has	0…*	SaleRecord
Order	1…1	Triggers	1…1	Transaction
Order	1…*	Has	1…*	OrderItem
Order	1…1	Result in	1…1	SaleRecord
Product	1…*	Included in	0…*	OrderItem
Product	1…*	Part of	0…*	SaleRecord
Product	1…*	Belongs to	1…1	ProductCategory

5.3 Attributes of entity

Entity	Attribute	Description	Data Type	Constraint
Customer	CustomerID	Customer's ID	VARCHAR2(15)	PRIMARY KEY
	CustomerName	Customer's name	VARCHAR2(30)	NOT NULL
	PhoneNumber	Customer's phone number	VARCHAR2(12)	NOT NULL
	Email	Customer's email	VARCHAR2(30)	NOT NULL
	Address	Customer's address	VARCHAR2(50)	NOT NULL
Order	OrderID	Order's ID	VARCHAR2(15)	PRIMARY KEY
	OrderDate	Order's date	DATE	NOT NULL

	OrderNumber	Order’s number	VARCHAR2(15)	NOT NULL
	TotalPrice	Order’s total price	DECIMAL (8,2)	NOT NULL
	EstimatedArrivalDate	Estimated Arrival Date of Order	DATE	NOT NULL
	ShippingAddress	Shipping Address for Order	VARCHAR2(50)	NOT NULL
	CustomerID	Customer’s ID	VARCHAR2(15)	FOREIGN KEY reference Customer
OrderItem	OrderItemID	Order Item’s ID	VARCHAR2(15)	PRIMARY KEY
	OrderID	Order’s ID	VARCHAR2(15)	FOREIGN KEY reference Order
	ProductID	Product’s ID	VARCHAR2(15)	FOREIGN KEY reference Product
Product	ProductID	Product’s ID	VARCHAR2(15)	PRIMARY KEY
	ProductName	Product’s name	VARCHAR2(30)	NOT NULL
	ProductPrice	Product’s unit price	DECIMAL (8,2)	NOT NULL
	ProductImage	Product’s image	VARCHAR2(255)	NOT NULL
	ProductDescription	Product’s description	VARCHAR2(100)	NOT NULL
	StockQuantity	Product’s stock quantity	NUMBER (4)	NOT NULL
	ProductRatings	Product’s rating	DECIMAL(3, 2)	NOT NULL
	ProductCategoryID	Product Category’s ID	VARCHAR2(15)	FOREIGN KEY

				reference ProductCategory
ProductCategory	ProductCategoryID	Product Category's ID	VARCHAR2(15)	PRIMARY KEY
	CategoryName	Category's Name	VARCHAR2(30)	NOT NULL
	CategoryDescription	Category's Description	VARCHAR2(100)	NOT NULL
Transaction	TransactionID	Transacrion's ID	VARCHAR2(15)	PRIMARY KEY
	TransactionDateTime	Transaction's time	TIMESTAMP	NOT NULL
	PaymentMethod	payment method	ENUM	NOT NULL
	OrderID	Order's ID	VARCHAR2(15)	FOREIGN KEY reference Order
VISA	VISATransactionID	VISATransaction's ID	VARCHAR2(15)	PRIMARY KEY
Bank	BankTransactionID	BankTransaction's ID	VARCHAR2(15)	PRIMARY KEY
Boost	BoostTransactionID	BoostTransaction's ID	VARCHAR2(15)	PRIMARY KEY
PayPal	PayPalTransactionID	PayPalTransaction's ID	VARCHAR2(15)	PRIMARY KEY
SaleRecord	SaleRecordID	Sale record's ID	VARCHAR2(15)	PRIMARY KEY
	Quantity	Sale's quantity	NUMBER (10)	NOT NULL
	SalesDate	Sale's date	DATE	NOT NULL
	TotalPrice	Sale's total price	DECIMAL (10,2)	NOT NULL
	OrderID	Order's ID	VARCHAR2(15)	FOREIGN KEY reference

				Order
	ProductID	Product’s ID	VARCHAR2(15)	FOREIGN KEY reference Product
	CustomerID	Customer’s ID	VARCHAR2(15)	FOREIGN KEY reference Customer
InventoyManagement	ProductStockID	ProductStock’s ID	VARCHAR2(15)	PRIMARY KEY
	QuantityStock	Stock’s quantity	NUMBER (10)	NOT NULL
	ProductID	Product’s ID	VARCHAR2(15)	FOREIGN KEY reference Product
Feedback	FeedbackID	Feedback’s ID	VARCHAR2(15)	PRIMARY KEY
	Feedback	Feedback from customer	TEXT	NOT NULL
	CustomerID	Customer’s ID	VARCHAR2(15)	FOREIGN KEY reference Customer
ChatRecord	ChatID	Chat’s ID	VARCHAR2(15)	PRIMARY KEY
	AutoReply	Automatic reply from system	TEXT	NOT NULL
	ManualReply	Manual reply from seller	TEXT	NOT NULL
	CustomerID	Customer’s ID	VARCHAR2(15)	FOREIGN KEY reference Customer

6.0 Summary

In conclusion to Phase 2 of the GENIE Fashion System project, our team has been actively working with Ms. Joanne, the founder of GENIE Fashion Style, to address the operational difficulties the company is currently facing. We have established a strategic plan for the creation of a strong online platform through friendly talks and careful analysis of user feedback. The suggested system offers a seamless and efficient solution to the noted pain points, and it has the potential to completely transform the way GENIE Fashion Style conducts business.

Important features like order tracking, real-time stock updates, and automated transaction verification are all included in the imagined GENIE Fashion System and are all integrated into a user-friendly interface. The proposed system wants to improve user experience and optimize workflow by centralizing order processing, stock management, and communication channels. It is expected that Ms. Joanne and her group will experience a rise in results, a decrease in manual labor, and an enhancement in their ability to make decisions, setting up GENIE Fashion Style for long-term success in the competitive marketplace of online fashion retail.

As we move forward with the development stage, we commit to transform these imagined features into an actual, customized system that perfectly fits the particular requirements of GENIE Fashion Style. Delivering a solution that not only addresses current issues but also provides the company for long-term development and flexibility in the constantly evolving environment of online fashion retail is still the primary objective.