UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
SEMESTER 1/20232024

SECD2523-10 (Database)

Project : Phase 1

< VogueVerse.com >

Group : Burger (Group 9)

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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 Background Study

Currently, GENIE Fashion Style uses spreadsheet tools such as Excel for manual stock record keeping. When new products arrived, the stock needed to be manually updated. Manual stock level calculation raises issues, especially when customers place orders while stock reaches the alert value. This situation will cause delayed identification of stock shortages, potentially leading to unfulfilled orders and customer dissatisfaction.

The seller typically communicates with customers through messaging applications like WhatsApp, which raises issues about control and the mingling of business messages with unrelated social conversations, making it difficult to classify the important message. Customers have to submit screenshots of transaction receipts for verification, which slows the payment process. The shop then manually confirms each transaction made, causing inefficiencies in order processing.

Additionally, GENIE Fashion Style lacks a centralized platform to present customers with a comprehensive inventory of products with detailed descriptions, affecting the efficiency of the ordering process. Customers have to wait for a response from the seller, which prevents them from placing orders whenever they want. Sometimes, a potential delay in response will occur due to lots of messages, resulting in customer dissatisfaction. Sellers also find themselves repeatedly explaining product details to different customers, wasting a lot of time.

Furthermore, clients are unaware of the accurate arrival time of their parcels due to the lack of an automated parcel tracking system. The uncertainty could result in missing deliveries, which would lead to consumer dissatisfaction. The consumer frequently complains to the seller about the incorrect timing of parcel arrival, which causes them inconvenience.

Furthermore, the lack of a proper system for profit and cost calculations causes operating difficulties. The seller must manually compute these financial variables, wasting valuable time and increasing the risk of errors. Financial losses have occurred, affecting business operations.

3.0 Problem statement

1. **Stock Management Inefficiencies**

   The dependency on manual stock record keeping through spreadsheet software such as Excel affects the efficiency of business operations. Sellers have to manually modify stock levels, especially when new products arrive, which can lead to errors and delays. The challenge encountered when clients submit orders when stock approaches the alert value is potentially resulting in shortages of stock and unfulfilled orders. In such cases, sellers need to inform customers of order shortages after payment, providing alternatives such as product changes or refunds.

2. **Communication Challenge**

   The use of messaging applications, such as WhatsApp, for customer communication raises control issues and results in the mingling of business-related messages with unrelated social conversations. This lack of separation makes it difficult to prioritize and classify important messages, impacting the overall efficiency of communication. The absence of personal information verification on such platforms potentially raises a security issue. The scammer can hack seller accounts easily and deceive customers, causing their financial loss and impacting the business's reputation.

3. **Order Processing Inefficiencies**

   The absence of a centralized platform with a comprehensive product inventory and detailed descriptions disrupts the ordering process, requiring customers to wait for manual responses. Potential response delays, often caused by message volume, contribute to consumer dissatisfaction. Sellers also waste time describing the same product features to different customers. The lack of an automated reply system for common questions also impacts order processing efficiency.

4. **Parcel Tracking Problem**

   The absence of an automated tracking system causes customers to be unaware of their parcel's arrival time. This uncertainty may result in missed deliveries, requiring customers to either collect the parcel themselves or face the risk of the parcel disappearing if the driver simply puts it outside the customer's house. These issues will lead to customer dissatisfaction; potentially, the seller needs to take responsibility and refund. This situation affects the seller's rating and impacts the customer's trust.

5. **Financial Management Issues**

   The absence of an effective system for calculating profits and costs leads to operational challenges. The seller is required to manually perform these financial computations, leading to time wastage and an elevated risk of errors. This has resulted in financial losses that impact the overall functioning of the business.

6. **Operational Inefficiencies**

   Using many applications without a unified and specialized system leads to disconnected and time-consuming operational processes. This lack of integration leads to inefficiencies, hindering GENIE Fashion Style growth possibilities and making it difficult to impress customers.

4.0 Proposed Solution

A new system named VogueVerse.com will be introduced to overcome these problems, providing a better and more efficient online business operation. In response to stock management challenges, the system will implement an automated feature preventing customers from adding out-of-stock products to their carts. Once a product becomes available, specific customers will receive notifications, enabling prompt purchases. This feature will ensure real-time stock updates when new arrivals or customers place orders. An intelligent alert mechanism will notify sellers of critical stock levels, preventing any shortages.

The system will include advanced communication tools to address the seller's communication challenges. Sellers can more efficiently manage communication by organizing talks into different groups based on their needs. Personal information verification is provided to improve security by preventing unauthorized access to seller accounts. The streamlined messaging system ensures that communications are effectively prioritized and classified, enabling a more controlled and efficient communication environment for both sellers and customers.

To improve order processing efficiency, the system provides a user-friendly menu with a comprehensive product catalog and detailed descriptions. Customers are able to explore product details, including ratings and feedback from other customers, allowing them to make independent decisions. The approach aims to reduce consumers' reliance on manual responses, allowing customers to do efficient self-research. The system also provides an automatic response feature for common customer questions, which improves response times and overall order processing efficiency.

To resolve the parcel tracking problem, the system proposes advanced automated parcel tracking features, ensuring accurate and real-time information about parcel arrival times. A user-friendly tracking interface will be implemented to minimize the risk of missed deliveries and enhance overall customer satisfaction. As an added feature, the system will provide proactive notifications to users' devices on the day of parcel arrival. To enhance security, both delivery drivers and customers will be required to confirm receipt by taking and uploading a parcel photo through their accounts, serving as proof. This measure is compulsory to mitigate the risk of parcel loss and potential refund situations.

To address financial management concerns, the system would have consisted of advanced financial management tools designed specifically for seller accounts, automating profit and cost estimates. The platform will provide sellers with an easy-to-use interface for monitoring daily sales, customer numbers, and financial

aspects, as well as displaying the analysis graphs. This method seeks to reduce manual computations, reduce the risk of errors, and improve overall financial efficiency.

The suggested system will act as a unified and specialized platform to address operational inefficiencies caused by the use of multiple applications. The system will integrate numerous operational workflows, allowing sellers to navigate and conduct various business operations through a user-friendly interface. This method is intended to improve overall efficiency, provide excellent customer service, and unlock new growth potential for online business.

Technical Feasibility

The proposed system demonstrates reliable technical feasibility by leveraging common technologies used in e-commerce platforms and business software. It combines automated stock management, communication tools, and order processing enhancements, all well-supported by existing technologies. The use of modern parcel tracking and financial management technologies is aligned with current technology capabilities. The system's design accommodates the flexibility required for efficient online business management by ensuring accessibility across various devices, such as smartphones, computers, and tablets. A strong database will also be developed to handle the large amount of data collected during daily operations. The essential technology is common; there are no highly risky or unproven technical parts.

Operational Feasibility

The system demonstrates high operational feasibility, with a high likelihood of both customers and sellers being willing to embrace it due to its user-friendly interface and integration capabilities.Automated features such as stock updates, communication tools, and order processing advancements aim to simplify daily operations and reduce manual effort. The use of advanced parcel tracking and financial management technologies matches operational requirements, improving overall efficiency. The proposed system is designed to considerably reduce operational overhead and associated risks by solving key operational problems. Some training will be required for the business owner to get familiar with the new system, which will improve business operating efficiency and maximize system utilization, preventing the system from being abandoned after development.

Economic Feasibility (CBA)

Assumption	
Discount rate	10%
Sensitivity factor (cost)	1.1
Sensitivity factor (benefits)	0.9
Annual change in production costs	7%
Annual change in benefits	5%

Estimated Cost	
Hardware	RM 10000
Software	RM 25000
Consultant	RM 5000
IS support	RM 10000 per year
Marketing	RM 3000 per year
Maintenance	RM 4000 per year

Estimated Benefit	
Increase Sales	RM 48000 per year
Savings	RM 20000 per year

Costs	Year 0	Year 1	Year 2	Year 3
Development Costs - Hardware - Software - Consultant	 11000 27500 5500			
Total	44000			
Production Costs - Marketing - Maintenance - IS Support		 3300 4400 11000	 3531 4708 11770	 3779 5038 12594
Anuual Pod.Costs (Present Value)		18700 17000	20009 16537	21411 16087
Accumulated Costs		61000	77537	93624

Benefits	Year 0	Year 1	Year 2	Year 3
- **Increase Sales** - **Savings**		43200 18000	45360 18900	47628 19845
Annual inventory costs (Present Value)		61200 55637	64260 53108	67473 50694
Accumulated benefits (Present Value)		55637	108745	159439
Gain or Loss		(5363)	31208	65815
Profitability Index	1.50			

5.0 Objective

1. Enable sellers to easily update and track stock levels.
2. Provide a secure communication platform to prevent scams and enhance control over business messages.
3. Create a user-friendly platform for sellers to manage product listings and descriptions efficiently.
4. Provide automated replies for common questions, improving order processing efficiency.
5. Enable an efficient parcel tracking feature that will automatically update the parcel status and estimated delivery time.
6. Record business sales and provide automated profit and cost calculations, improving overall business operations.

6.0 Scope

For seller:

Stock Management:

- Real-time stock updates.
- Automatic notifications for essential stock levels.
- prevent shoppers from adding items to their baskets that aren't in stock.

Communication Platform:

- Channels of communication that are secure and distinct for messages about business.
- Verification of personal information to stop cheating and illegal access.

Product Listing and Description Management:

- A centralized system for thorough product inventories.
- Efficient tools for managing product listings and descriptions.

Order Processing:

- Automatic replies to customer’s questions.

Financial Management:

- Automatic profit and cost calculations for business operations.

For courier:

Parcel Tracking:

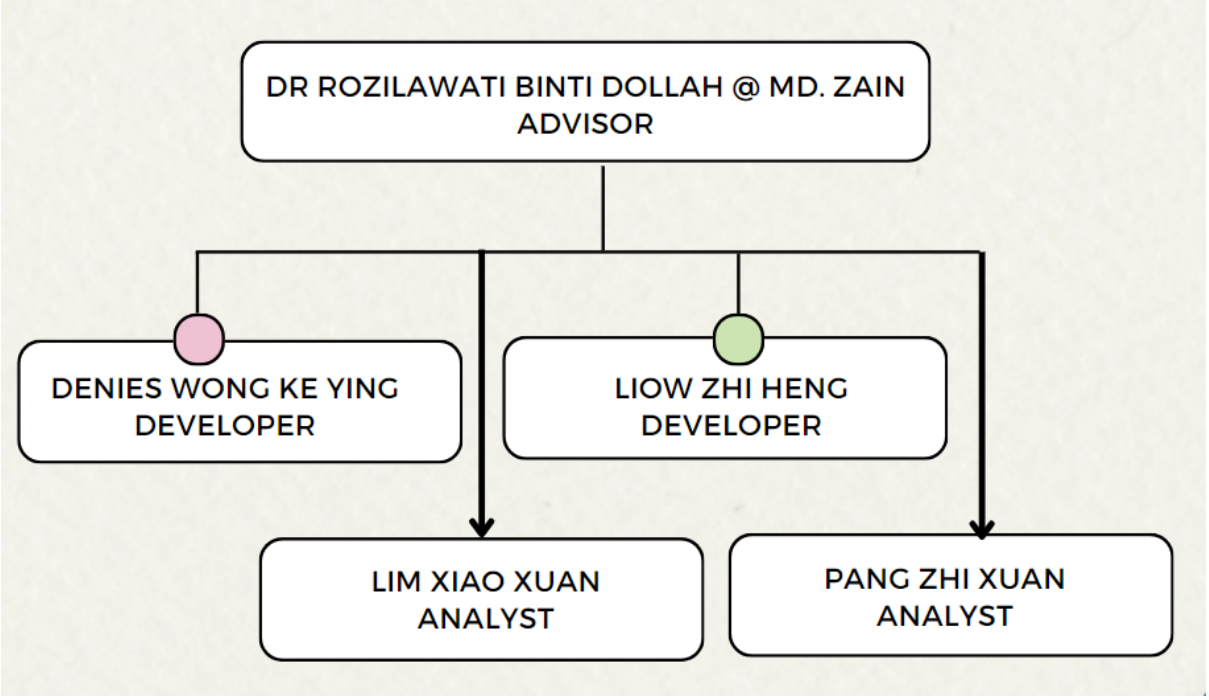
- Automatic parcel tracking system for customers.
- Real-time updates on parcel status and estimated delivery time.

For customer:

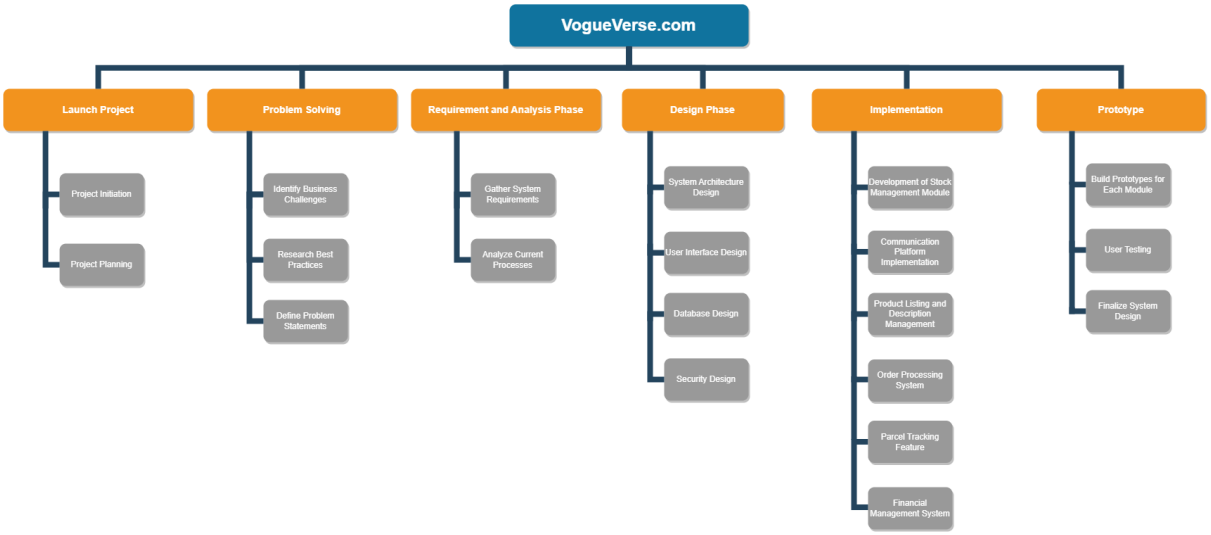
- User-friendly interfaces
- Notifications and alerts for important updates

7.0 Project Planning

7.1 Human Resource

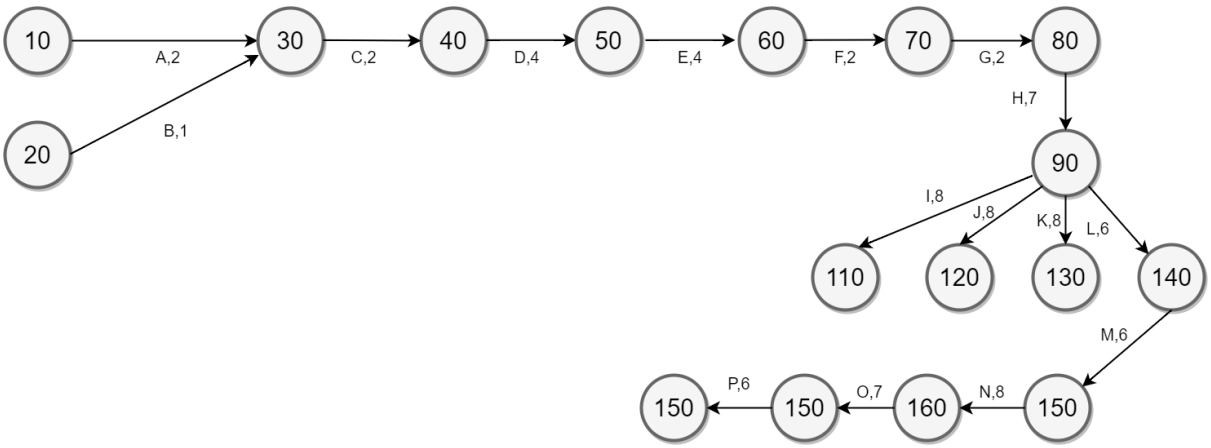


7.2 Work Breakdown Structure (WBS)



7.3 PERT Chart

Activity	Task Name	Duration	Predecessor
A	Project Initiation	2	-
B	Project Planning	1	-
C	Identify Business Challenges	2	A, B
D	Research Best Practices	4	C
E	Define Problem Statements	2	D
F	Gather System Requirements	2	E
G	Analyze Current Processes	2	F
H	Stakeholder Validation	7	G
I	System Architecture Design	8	H
J	User Interface Design	8	H
K	Database Design	8	H
L	Security Design	6	H
M	System-system Implementation	6	L
N	Build Prototypes for Each Module	8	M
O	User Testing	7	N
P	Finalize System Design	6	O



7.4 Gantt Chart

Project Start Date: 11/6/2023 (Monday) Week: 1

Task [1]	Start [2]	End [3]	Days [4]	[5]
Launch Project				
Project Initiation	Mon 11/06/23	Tue 11/07/23	2	
Project Planning	Wed 11/08/23	Wed 11/08/23	1	
Problem Solving				
Identify Business Challenges	Wed 11/08/23	Thu 11/09/23	2	
Research Best Practices	Fri 11/10/23	Mon 11/13/23	4	
Define Problem Statements	Tue 11/14/23	Wed 11/15/23	2	
Requirement and Analysis Phase				
Gather System Requirements	Wed 11/15/23	Thu 11/16/23	2	
Analyze Current Processes	Thu 11/16/23	Fri 11/17/23	2	
Stakeholder Validation	Sat 11/18/23	Fri 11/24/23	7	
Design Phase				
System Architecture Design	Fri 11/24/23	Fri 12/01/23	8	
User Interface Design	Sat 12/02/23	Sat 12/09/23	8	
Database Design	Sun 12/10/23	Sun 12/17/23	8	
Security Design	Mon 12/18/23	Sat 12/23/23	6	
Implementation				
Development of Stock Management Module	Sat 12/23/23	Sat 12/23/23	1	
Communication Platform Implementation	Sun 12/24/23	Sun 12/24/23	1	
Product Listing and Description Management	Mon 12/25/23	Mon 12/25/23	1	
Order Processing System	Tue 12/26/23	Tue 12/26/23	1	
Parcel Tracking Feature	Wed 12/27/23	Wed 12/27/23	1	
Financial Management System	Thu 12/28/23	Thu 12/28/23	1	
Prototype				
Build Prototypes for Each Module	Thu 12/28/23	Thu 1/04/24	8	
User Testing	Fri 1/05/24	Thu 1/11/24	7	
Finalize System Design	Fri 1/12/24	Wed 1/17/24	6	

8.0 Requirement Analysis (based from AS-IS analysis)

1. Stock Management

a. **Current State:** Sellers manually adjust stock levels, leading to potential errors and delays.
b. **Challenge:** The manual process affects operational efficiency and can result in stock shortages and unfulfilled orders.
c. **Requirement:** The system needs automated stock management, real-time stock updates, and intelligent alert mechanisms for critical stock levels.

2. Communication

a. **Current State:** Sellers use messaging applications like WhatsApp for customer communication.
b. **Challenge:** The mingling of business-related messages with social conversations and lack of personal information verification raises control and security issues.
c. **Requirement:** The system should include advanced communication tools and personal information verification to manage communication efficiently and securely. Sellers can manage communication by organizing talks into different groups based on their needs.

3. Order Processing

a. **Current State:** Customers have to wait for manual responses due to the absence of a centralized platform with a comprehensive product inventory and detailed descriptions.
b. **Challenge:** Potential response delays, often caused by message volume, contribute to consumer dissatisfaction. Sellers also waste time describing the same product features to different customers.
c. **Requirement:** The system should provide a user-friendly menu with a comprehensive product catalog and detailed descriptions. It should also provide an automatic response feature for common customer questions, which improves response times and overall order processing efficiency.

4. Parcel Tracking

a. **Current State:** Customers are unaware of their parcel's arrival time due to the absence of an automated tracking system.
b. **Challenge:** This uncertainty may result in missed deliveries, requiring customers to either collect the parcel themselves or face the risk of the parcel disappearing if the driver simply puts it outside the customer's house.
c. **Requirement:** The system should have advanced automated parcel tracking features,

ensuring real-time information about parcel arrival times. The system should provide proactive notifications to users' devices when parcels arrive. Both delivery drivers and customers should confirm receipt by uploading parcel photos, serving as proof.

5. Financial Management

a. **Current State:** The seller is required to manually perform financial computations, leading to time wastage.
b. **Challenge:** Manual calculations of profits and costs can lead to errors, resulting in financial losses that impact the overall functioning of the business.
c. **Requirement:** The system should consist of advanced financial management tools designed specifically for seller accounts, automating profit and cost estimates. The platform should provide sellers with an easy-to-use interface for monitoring daily sales, customer numbers, and financial aspects, as well as displaying the analysis graphs.

6. Operational Efficiency

a. **Current State:** The use of many applications without a unified and specialized system leads to disconnected and time-consuming operational processes.
b. **Challenge:** This lack of integration leads to inefficiencies, hindering growth possibilities and making it difficult to impress customers.
c. **Requirement:** The system should act as a unified and specialized platform to integrate numerous operational workflows, allowing sellers to navigate and conduct various business operations through a user-friendly interface.

8.1 Current business process (scenarios, workflow)

1. Stock Management

a) Scenarios: The seller receives a new shipment of products.

b) Workflow: The seller manually updates and monitors the stock levels in the system. If the stock level of any product drops below a predetermined threshold, the seller will check the physical inventory and order from the suppliers.

2. Communication

a) Scenarios: Customer inquiries about a product.

b) Workflow: The seller receives the query from business-related messages. The

seller has to confirm the customer's personal information to prevent dishonest activities.

3. Order Processing

a) Scenarios: A product is ordered by a customer.

b) Workflow: The seller confirms the customer's orders and updates the stock level of the ordered product.

4. Parcel Tracking

a) Scenarios: A customer's parcel is out for delivery.

b) Workflow: The estimated delivery time and parcel status are manually updated by the seller. To find out when the parcel will arrive, the customer must get in touch with the seller or the delivery service.

5. Financial Management

a) Scenarios: The seller wants to calculate the profit and cost of business operations.

b) Workflow: The seller calculates the profit and expenses which can cause wastage of time and risk of errors.

6. Operational Efficiency

a) Scenarios: The seller desires to carry out a number of business operations.

b) Workflow: The seller performs different business operations by different applications which causes time-consuming operational processes.

7. User-friendly interfaces

a) Scenarios: A customer browses the online store to buy products.

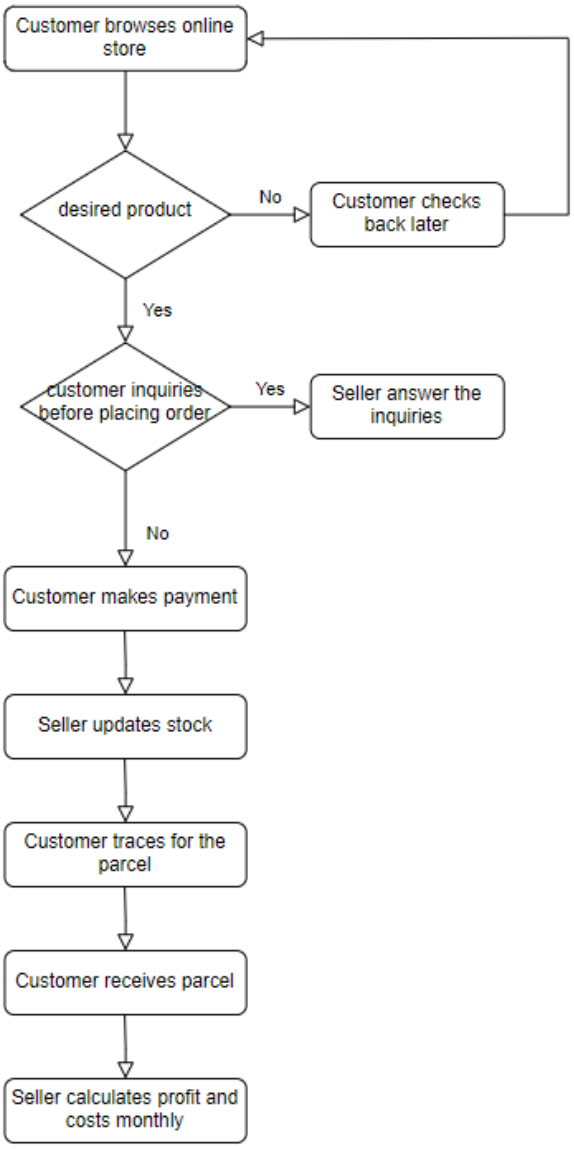
b) Workflow: The customer uses the user-friendly interface to choose desired products, add items to the cart, and place an order. Customers receive alerts and reminders from the seller on any updates.

8. Product Listing and Description Management

a) Scenarios: The seller desires to expand online business by adding new items.

b) Workflow: The seller adds the new product to the inventory and gives a thorough description of the products. The seller manually manages the product listings and descriptions.

Flowchart of current business flow



9.0 Transaction Requirement (Data Entry, Data Update/Delete, Data Queries)

Data Entry:

1. Product Information Entry:
    - Permit approved staff to add new product details to the database.
    - To assist users with accurate data entry, provide tool descriptions or informational icons.
    - Product name, category, description, sizes, colors, price, and images are all required fields.
2. Real-Time Stock Updates:
    - Automatically adjust inventory levels based on quantities specified during data entry.
    - To make the process more efficient, support batch updates for several products.
    - To prevent stock updates from being delayed, use real-time synchronization.
3. Customer Information Database:
    - Create a thorough database of customer information with Name, contact details, communication preferences, order history, feedback and reviews.
    - Keep track of critical or urgent customer inquiries by creating a record of messages according to priority levels.

Data Update/Delete:

1. Product Information Update:
    - Establish a change request procedure for adding and removing product details such as detailed description of the requested change, justification, and potential impact.
    - Enable bulk deletions and updates for efficiency, particularly when working with large amounts of product data to avoid accidental data loss.
2. Inventory Adjustment:
    - When products get damaged or become unsalable, adjustments are made and the quantity of inventory is decreased.
    - Inventory quantities may need to be updated in response to product returns or exchanges based on the returned or exchanged items.
3. Customer Information Update:
    - Set up a notification system to inform the appropriate personnel of updates regarding important customer communications.
    - Allow for dynamic updates to customer segmentation tags in response to changing preferences and behaviors.

Data Queries:

1. Product Information Overview:
    - Get an in-depth overview of every fashion item, complete with information on the name, category, cost, and availability.
    - Get comprehensive details about a particular fashion item and customer feedback.
2. New Arrivals:
    - Obtain details about the newest fashion arrivals, such as the name of the product, the arrival date, and the available stock.
3. Customer Information Overview:
    - Get a complete list of all customers who have registered, complete with their ID, name, email address, and registration date.
4. Customer Feedback Analysis:
    - To determine overall satisfaction, obtain customer feedback, including ratings and comments.
5. Customer Purchase History:
    - Get an overview of a customer's recent purchases, complete with product names, numbers, and order dates.
6. Out-of-Stock Products:
    - Search for clothing items not currently available right now.
7. Customer Wishlist:
    - Obtain the items that clients placed on their wishlist.
8. Return Rate Analysis:
    - Determine the percentage of fashion products that customers have returned by calculating the return rate.
9. Restocking Needs:
    - Determine which products require restocking by applying established requirements like low levels of stock or high sales.
10. High-Value Customers:
    - Determine high-value clients by looking at their overall spending.

10.0 Benefit and Overall Summary

1. **Streamlined Inventory Management**: Through doing away with the need for manual updates, automated stock record-keeping ensures accuracy in real time and lowers the possibility of stock shortages.

2. **Timely Stock Alerts**: Automatic low stock level alerts reduce the time it takes to discover shortages, allow for quick reordering, and lower the possibility of orders going unfulfilled.

3. **Improved Customer Communication**: By facilitating organized customer communication, VogueVerse.com reduces the need for messaging apps. This improves control over business communications and keeps them apart from insignificant social talks.

4. **Comprehensive Product Information**: VogueVerse.com gives clients thorough product descriptions, streamlining the ordering process and cutting down on the amount of time clients must wait for responses.

5. **Enhanced Customer Satisfaction**: Simplified procedures, enhanced communication, and precise information all work together to increase overall customer satisfaction and lower the risk of complaints and dissatisfaction.

6. **Time and Resource Savings**: Employees can concentrate on more strategic business aspects by automating time-consuming manual tasks like financial computations, order confirmations, and stock updates. This saves money and resources.

7. **Financial Management Efficiency**: The efficiency of financial management is increased overall, manual labor is decreased, and mistakes are minimized when profit and cost calculations are done automatically.

VogueVerse.com is a system that makes our client gain access to real-time sales insights such as profit margins, top products, and other critical metrics. Decisions can be made quickly using the most up-to-date information thanks to this instant access to data. Moreover, customers may customize the way sales data is arranged in the system to suit their own preferences. With this level of customization, clients are guaranteed to concentrate on the metrics and aspects of their sales performance that correspond with their particular business objectives. Besides that, this system gives our customers clear and convenient access to sales data, giving them insights into the popularity of products, reviews, relevant promotions and so on. In addition, the system also gives our customers an integrated system for managing sales data, making information easier to access and arrange. This simplified procedure lessens the difficulties involved in maintaining manual records and analyzing data. The customers of this system benefit greatly from these features.

For Seller:

Through the system that we invented, the seller can use automated procedures in place of human data entry. The system will update stock levels in real-time when new products are received, removing the need for human data entry and lowering the possibility of mistakes that come with keeping manual records. Moreover, predefined stock alert values will be set by the automated system. The system will sound an automated alert when an item's stock hits or drops below this limit. These notifications will notify the appropriate staff members immediately, enabling prompt reordering and avoiding stock shortages.

Therefore, it can reduce the possibility of unfulfilled customer orders and raises overall customer satisfaction by guaranteeing that replenishment orders are placed on time. By saving time and money by doing away with manual stock procedures, employees can concentrate on more strategically important areas of company operations.

11.0 Summary

The comprehensive improvements that are suggested for the VogueVerse system are carefully focused on addressing the operational issues that have been identified within the current business structure. These challenges include a variety of problems, such as maintaining manual stock records, poor interaction, processing orders slowly, and lacking centralized systems for financial and inventory management. The suggested solutions have been carefully planned to address each of these issues one by one, with the ultimate objective being the transformation of the VogueVerse system into a more efficient, focused on customers and flexible e-commerce platform.

Apart from that, it is believed that the suggested modifications to the operational procedures will result in a significant increase in VogueVerse system's overall efficiency and increase its value to more types of clients. The suggested improvements will have a major beneficial effect on the stakeholders, who are going to discover an interface that is more responsive, efficient, and easy to use. Upon successful implementation, the proposed enhancements will not only fix current problems but also position the platform for a higher level of operational excellence. The goal is to establish an environment where users can interact with the platform with ease, whatever their situation whether they are sellers managing their inventory or buyers looking for an ideal shopping experience.

In order to sum up, the suggested improvements signify an important advancement in transforming VogueVerse system's functional structure, resulting in a more enjoyable and effective shopping experience for customers. Through the resolution of present issues and the planning of future requirements, these improvements seek to strengthen the bond between the platform and the users it serves, establishing the VogueVerse system as a major force in the dynamic world of e-commerce. Moreover, the suggested modifications are a calculated risk investment in VogueVerse system's ability to grow and compete in the ever-changing e-commerce market.