

Name : Evi Afiyatus Solihah

Departement : Computer Engineering

Institution : Indonesian University of Education (Kampus Daerah Cibiru)

## **HandsMen Threads: Elevating the Art of Sophistication in Men's Fashion**

### **ABSTRACT**

HandsMen Threads, an organization operating in the fashion sector, is developing a Salesforce-based system to improve operational efficiency and strengthen customer relationships. This project focuses on building a structured, secure, and business-oriented data model to support centralized information management. One of the key components of this system is the implementation of a data integrity maintenance mechanism directly from the user interface (UI), which ensures that all data entered remains accurate, consistent, and reliable. In addition, this project integrates several business automation processes, including automatic order confirmation via email, customer loyalty status updates based on purchase history, low stock notifications for the warehouse team, and scheduled bulk order updates every night. This implementation is expected to improve customer service quality, optimize the supply chain, and support more effective data-driven decision making.

### **OBJECTIVES**

- Build a comprehensive and standardized data model to store all business information centrally and seamlessly within the Salesforce platform.
- Maintain data integrity and quality through validation mechanisms applied directly at the user interface level, ensuring accuracy and consistency of stored data.
- Automate order confirmation processes so that customers receive email notifications upon order confirmation, enhancing customer experience and engagement.
- Develop a dynamic loyalty program that updates customer status based on purchase history, encouraging repeat purchases and strengthening customer retention.
- Implement proactive low-inventory notifications to the warehouse team when stock falls below a specified threshold, ensuring timely restocking and preventing stockouts.
- Execute scheduled nightly bulk order updates to refresh financial records and adjust inventory levels, ensuring accurate daily stock information across the organization.

## 1. Architecture and Design

The Salesforce system developed for HandsMen Threads is designed with a centralized data-based architecture to support structured and consistent business information management. The system design focuses on clear data modeling, validation rule implementation, and automation integration to improve operational efficiency and customer service quality. In the data model design, the system consists of several main objects, namely HandsMen Customer, HandsMen Order, HandsMen Product, Inventory, and Marketing Campaign. Each object has a number of fields designed to store important information according to business needs, such as customer identity data, order transaction details, product information, stock quantities, and customer loyalty status.

- Field HandsMen Customer: HandsMen Customer Name, Owner, Email, Phone, Loyalty Status, FirstName, LastName, Full\_Name\_\_c, Total Purchases, Created By, Last Modified By
- Field HandsMen Order: HandsMen OrderNumber, Owner, Customer, Status, Quantity, Total Amount, HandsMen Product, Customer Email, Created By, Last Modified By
- Field HandsMen Product: HandsMen Product Name, Owner, Order, SKU, Price, Stock Quantity, Created By, Last Modified By
- Field Inventory: Inventory Number, Product, Stock Quantity, Stock Status, Warehouse, Created By, Last Modified By
- Field Marketing Campaign

Relationships between objects are built using lookup and master-detail relationships to ensure consistent and integrated data links. In addition, several formula fields are used to perform automatic calculations, such as total transaction value and determining customer loyalty status based on purchase history. To maintain data quality and consistency, this system implements various validation rules at the user interface level. Validation rules are designed to ensure that data entered by users meets established business requirements, such as mandatory fields, input value restrictions, and prevention of data errors that could affect subsequent business processes. With this mechanism in place, data integrity can be maintained from the very beginning of the input process.

Business process automation in this system is implemented using Salesforce Flow and Apex Trigger. Salesforce Flow is used to handle declarative automated processes, such as updating customer status and sending notifications based on specific conditions. Meanwhile, Apex Trigger is used to handle more complex business logic that requires deeper programming

control. The combination of these two mechanisms enables the system to respond to data changes in real-time and execute business processes automatically without manual intervention. In addition to real-time automation, the system is also designed to support large-scale data processing through Batch Apex Job. These batch tasks are scheduled to run periodically, especially at night, to perform mass updates to order data and inventory adjustments. This approach was chosen to ensure optimal system performance while maintaining the accuracy of financial and inventory data on a daily basis.

To support communication with customers and internal teams, the system is equipped with email templates that are structured and consistent with the HandsMen Threads business identity. Email templates are used for various purposes, such as order confirmations to customers, loyalty status notifications, and low stock notifications. The design of these email templates allows for clear, professional, and timely delivery of information, thereby enhancing the customer experience and the effectiveness of internal communication.

## 2. Development

The system development phase is carried out based on the previously established architectural and design plans. At this stage, all system components are implemented gradually within the Salesforce platform with reference to the business needs of HandsMen Threads. The development process focuses on creating data structures, implementing automation, setting up data security, and configuring support mechanisms to ensure that the system can run stably and efficiently.

### a. Creation of Custom Objects and Fields

Development begins with the creation of custom objects and fields in accordance with the designed data model. This process ensures that all business data can be stored in a structured manner and easily accessed by the system and users according to their roles.

Fields & Relationships				
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Email	Email__c	Email		
Firstname	FirstName__c	Text(60)		
Full Name	Full_Name__c	Formula (Text)		
HandsMen Customer Name	Name	Text(60)		
Last Modified By	LastModifiedById	Lookup(User)		
Lastname	LastName__c	Text(60)		
Loyalty Status	Loyalty_Status__c	Picklist		
Owner	OwnerId	Lookup(User,Group)		
Phone	Phone__c	Phone		
Total Purchases	Total_Purchases__c	Number(18, 0)		

Figure 1. Object and Field HandsMen Customer

Fields & Relationships				
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Customer	Customer__c	Lookup(HandsMen Customer)		
Customer Email	Customer_Email__c	Email		
HandsMen OrderNumber	Name	Auto Number		
HandsMen Product	HandsMen_Product__c	Lookup(HandsMen Product)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		
Quantity	Quantity__c	Number(18, 0)		
Status	Status__c	Picklist		
Total Amount	Total_Amount__c	Number(18, 0)		

Figure 2. Object and Field HandsMen Order

Fields & Relationships				
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
HandsMen Product Name	Name	Text(60)		
Last Modified By	LastModifiedById	Lookup(User)		
Order	Order__c	Lookup(HandsMen Order)		
Owner	OwnerId	Lookup(User,Group)		
Price	Price__c	Currency(18, 0)		
SKU	SKU__c	Text(60)		
Stock Quantity	Stock_Quantity__c	Number(18, 0)		

Figure 3. Object and Field HandsMen Product

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Inventory Number	Name	Auto Number		
Last Modified By	LastModifiedById	Lookup(User)		
Product	Product__c	Master-Detail(HandsMen Product)		
Stock Quantity	Stock_Quantity__c	Number(18, 0)		
Stock Status	Stock_Status__c	Formula (Text)		
Warehouse	Warehouse__c	Text(60)		

Figure 4. Object and Field Inventory

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
End Date	End_Date__c	Date		
HandsMen Customer	HandsMen_Customer__c	Lookup(HandsMen Customer)		
Last Modified By	LastModifiedById	Lookup(User)		
Marketing Campaign Number	Name	Auto Number		
Owner	OwnerId	Lookup(User.Group)		
Start Date	Start_Date__c	Date		

Figure 5. Object and Field Marketing Campaign

## b. System automation with Salesforce Flow and Apex Trigger

Next, system automation was implemented to support recurring business processes that require quick responses. This automation was built using a combination of Salesforce Flow and Apex Trigger. The implementation of this automation aims to reduce manual processes, minimize human error, and improve operational efficiency.

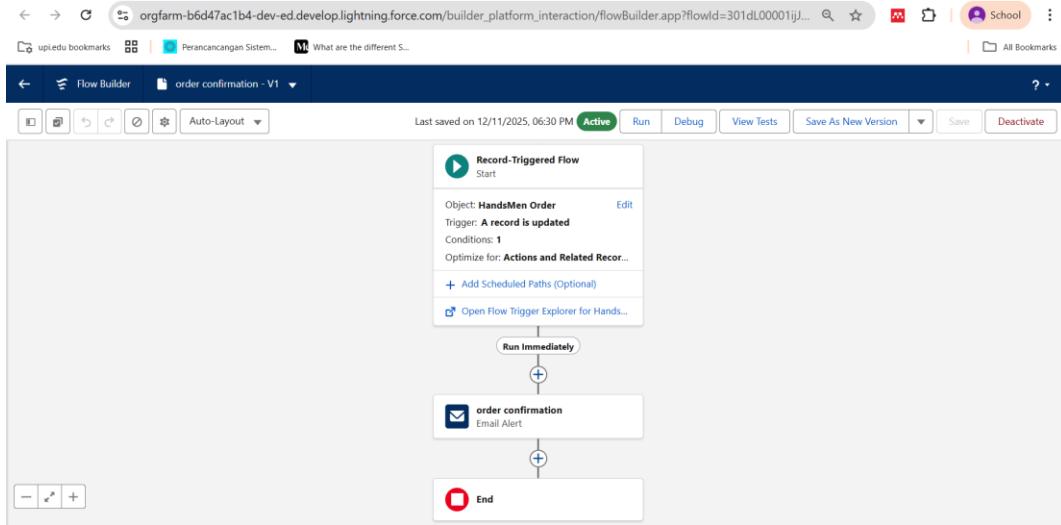


Figure 6. Flow Order Confirmation

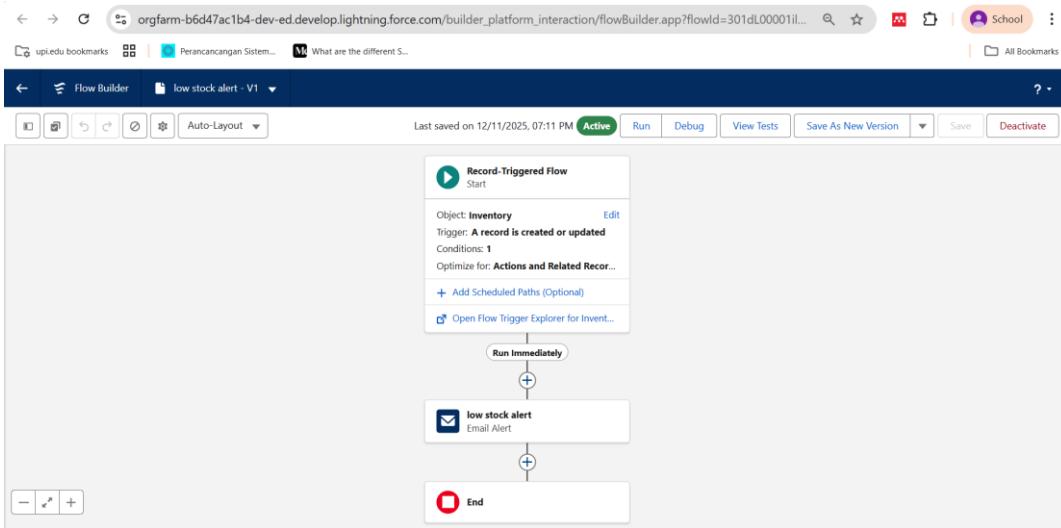


Figure 7. Flow Low Stock Alert

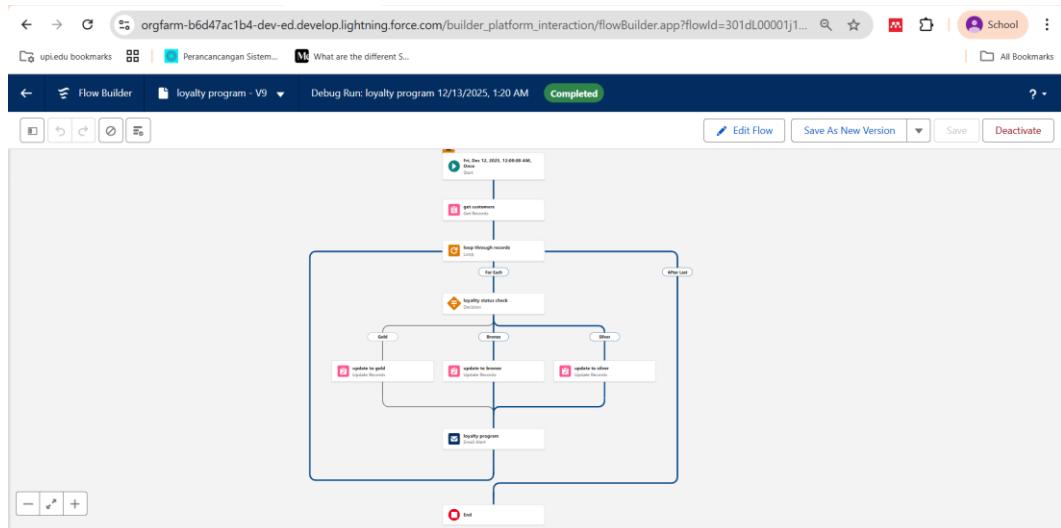


Figure 8. Flow Loyalty Program

```

trigger OrderTotalTrigger on HandsMen_Order__c (before insert, before update) {
    Set<Id> productIds = new Set<Id>();
    for (HandsMen_Order__c order : Trigger.new) {
        if (order.HandsMen_Product__c != null) {
            productIds.add(order.HandsMen_Product__c);
        }
    }
    Map<Id, HandsMen_Product__c> productMap = new Map<Id, HandsMen_Product__c>(
        [SELECT Id, Price__c FROM HandsMen_Product__c WHERE Id IN :productIds]
    );
}

```

User	Application	Operation	Time	Status	Read	Size
Evi Aflyatus Sollihah	Unknown	ApexTestHandler	12/13/2025, 1:51:22 AM	Success	Unread	2.22 KB
Evi Aflyatus Sollihah	Unknown	ApexTestHandler	12/13/2025, 1:51:22 AM	Success	Unread	528 bytes
Evi Aflyatus Sollihah	Browser	/aura	12/13/2025, 1:48:08 AM	Success	Unread	3 KB
Evi Aflyatus Sollihah	Browser	/aura	12/13/2025, 1:48:04 AM	Success	Unread	322 bytes
Evi Aflyatus Sollihah	Browser	/aura	12/13/2025, 1:47:54 AM	Success	Unread	322 bytes
Evi Aflyatus Sollihah	Browser	/aura	12/13/2025, 1:46:36 AM	Success	Unread	322 bytes

Figure 9. Order Total Trigger

```

trigger StockReductionTrigger on HandsMen_Order__c (after insert, after update) {
    Set<Id> productIds = new Set<Id>();
    for (HandsMen_Order__c order : Trigger.new) {
        if (order.Status__c == 'Confirmed' && order.HandsMen_Product__c != null) {
            productIds.add(order.HandsMen_Product__c);
        }
    }
    if (productIds.isEmpty()) return;
    // Query related inventories based on product
    Map<Id, Inventory__c> inventoryMap = new Map<Id, Inventory__c>(

```

User	Application	Operation	Time	Status	Read	Size
Evi Aflyatus Sollihah	Unknown	ApexTestHandler	12/13/2025, 1:51:59 AM	Success	Unread	2.2 KB
Evi Aflyatus Sollihah	Unknown	ApexTestHandler	12/13/2025, 1:51:57 AM	Success	Unread	527 bytes
Evi Aflyatus Sollihah	Unknown	ApexTestHandler	12/13/2025, 1:51:22 AM	Success	Unread	2.22 KB
Evi Aflyatus Sollihah	Unknown	ApexTestHandler	12/13/2025, 1:51:22 AM	Success	Unread	528 bytes
Evi Aflyatus Sollihah	Browser	/aura	12/13/2025, 1:48:08 AM	Success	Unread	3 KB
Evi Aflyatus Sollihah	Browser	/aura	12/13/2025, 1:48:04 AM	Success	Unread	322 bytes

Figure 10. Stock Deduction Trigger Trigger

### c. Configuration of profiles, permission sets, and validation rules

In terms of security, the system was developed with access control and data sharing in mind, to ensure that each user can only access data in accordance with their role and responsibilities. This approach is important for maintaining the confidentiality of business data and preventing unauthorized access to sensitive information.

- Configuration of Profiles

The screenshot shows the Salesforce Setup interface under the Profiles section. It lists numerous permissions for various objects such as Data Org Feature Allow Lists, Workflows, and Work Types. Below the main grid, there are sections for Custom Object Permissions, Session Settings, and Password Policies.

Figure 11. Configuration of Profile

The screenshot shows the Salesforce Setup interface under the Users section, specifically the User Detail page for a user named Niklaus Mikaelson. The page displays detailed user information, including Name, Alias, Email, and various role assignments. The sidebar on the left shows other user-related settings like Analytics Groups, Permission Set Groups, and Permission Sets.

Figure 12. User Role: Sales (Niklaus Mikaelson)

The screenshot shows the Salesforce Setup interface under the Users section, specifically the User Detail page for a user named Kofi Mikaelson. The page displays detailed user information, including Name, Alias, Email, and various role assignments. The sidebar on the left shows other user-related settings like Analytics Groups, Permission Set Groups, and Permission Sets.

Figure 13. User Role: Inventory (Kol Mikaelson)

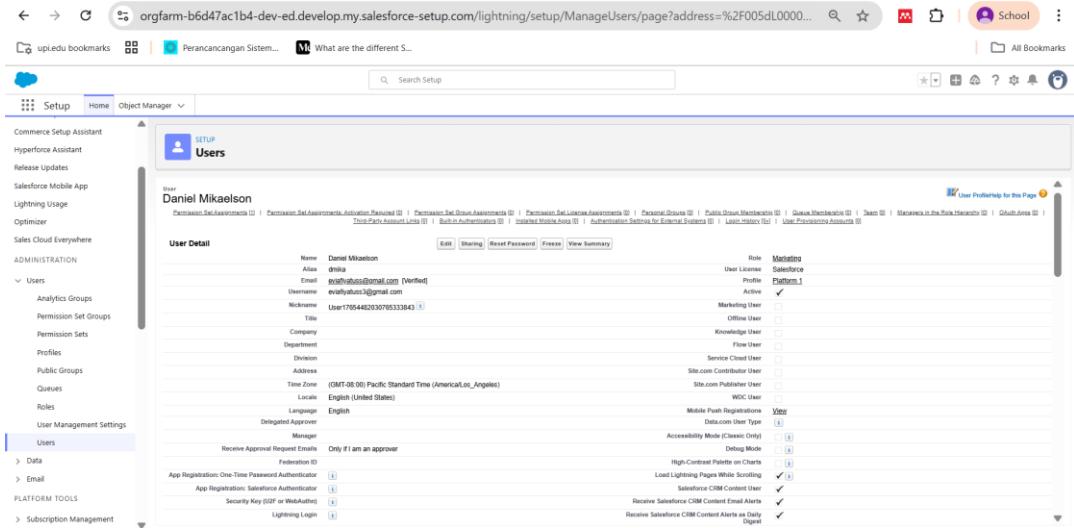


Figure 14. User Role: Marketing (Daniel Mikaelson)

## - Permission Sets

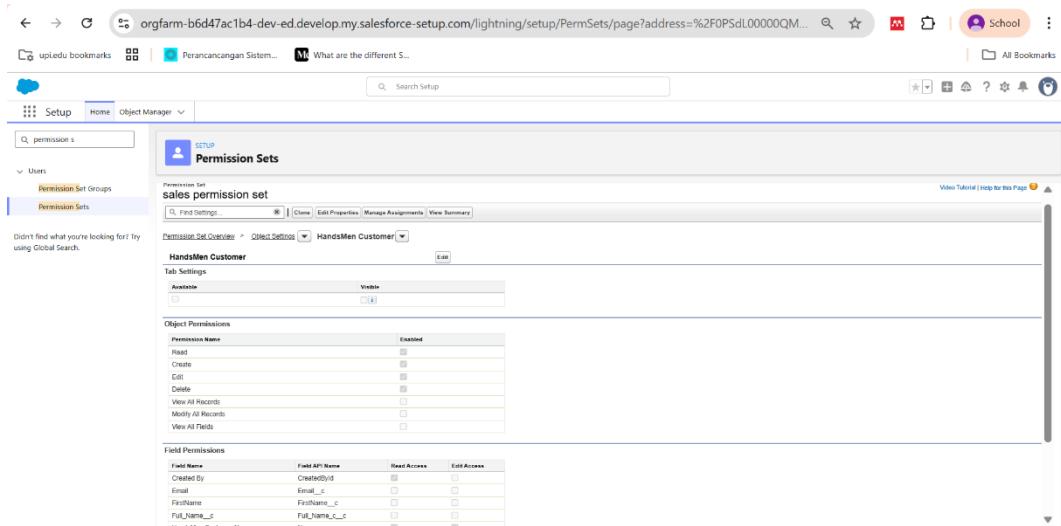


Figure 15. Sales Permission Set: HandsMen Customer

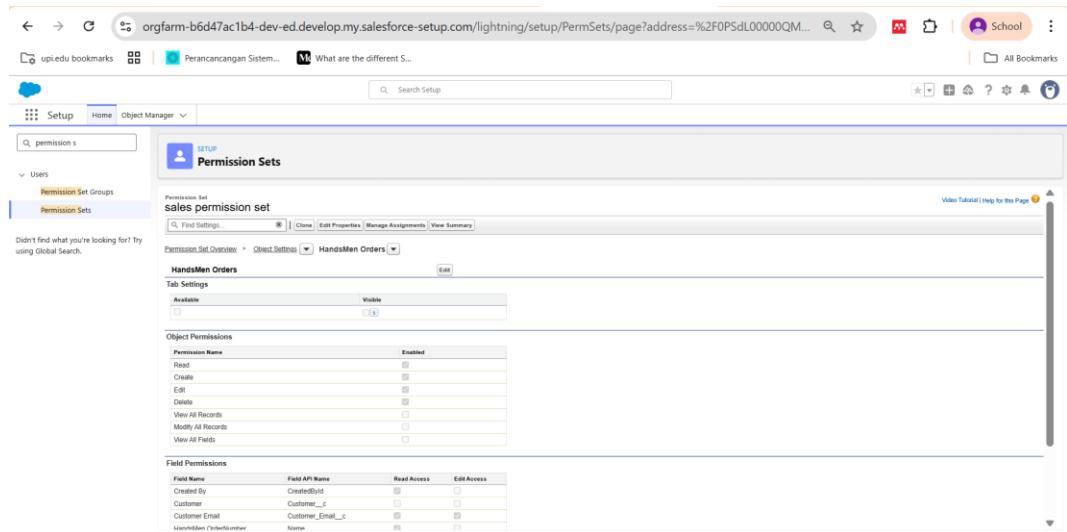


Figure 16. Sales Permission Set: HandsMen Orders

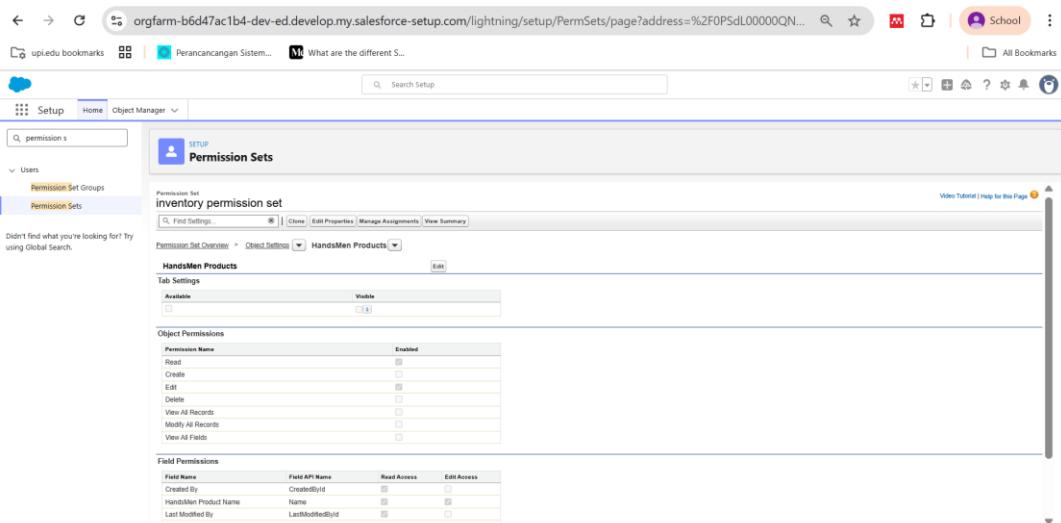


Figure 17. Inventory Permission Set: HandsMen Products

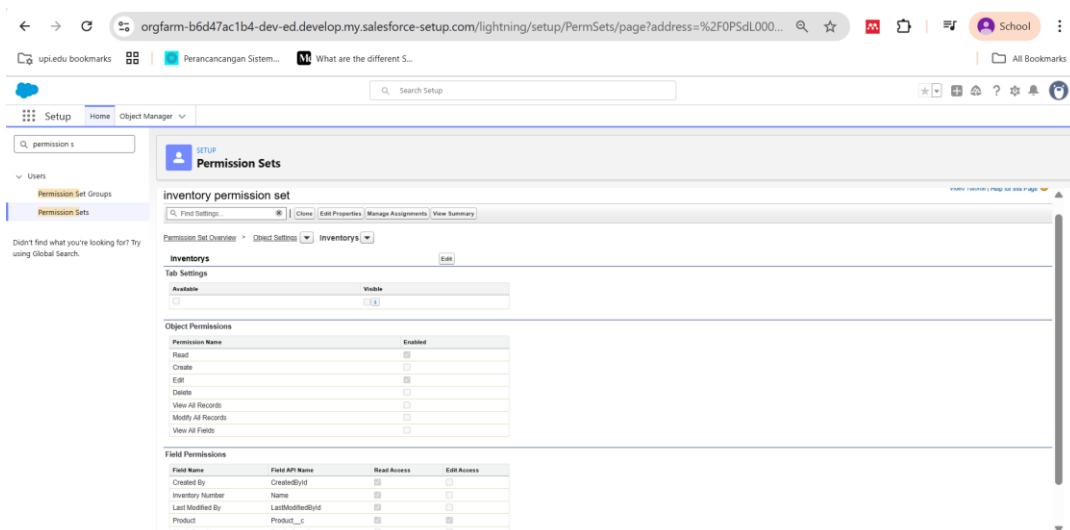


Figure 18. Inventory Permission Set: Inventories

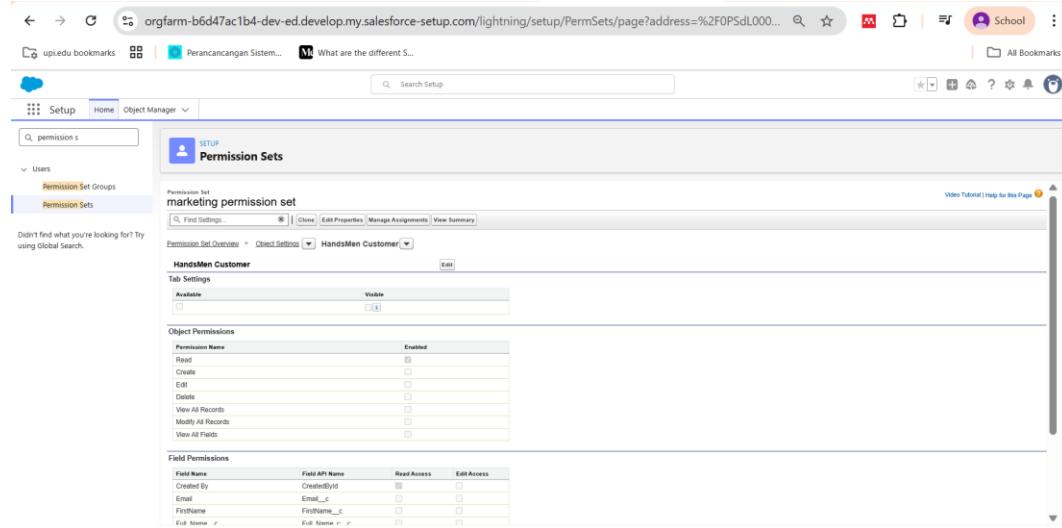


Figure 19. Marketing Permission Set: HandsMen Customer

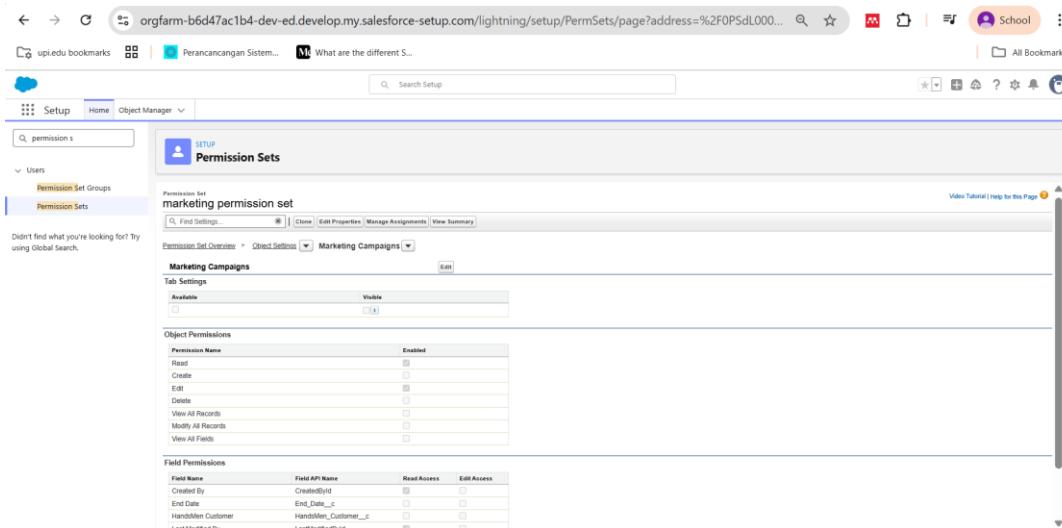


Figure 20. Marketing Permission Set: Marketing Campaigns

- Validation Rules

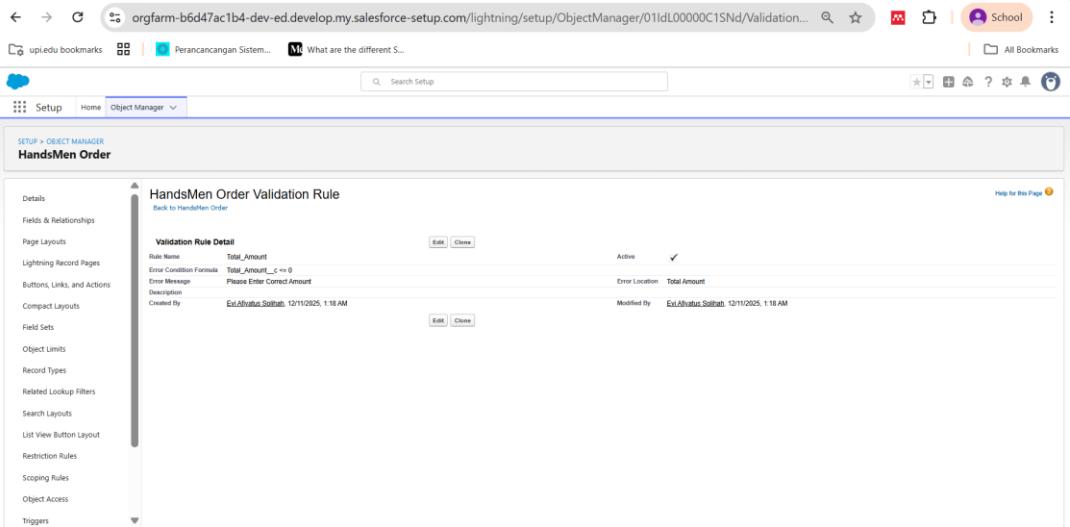


Figure 21. Validation Rule HandsMen Order

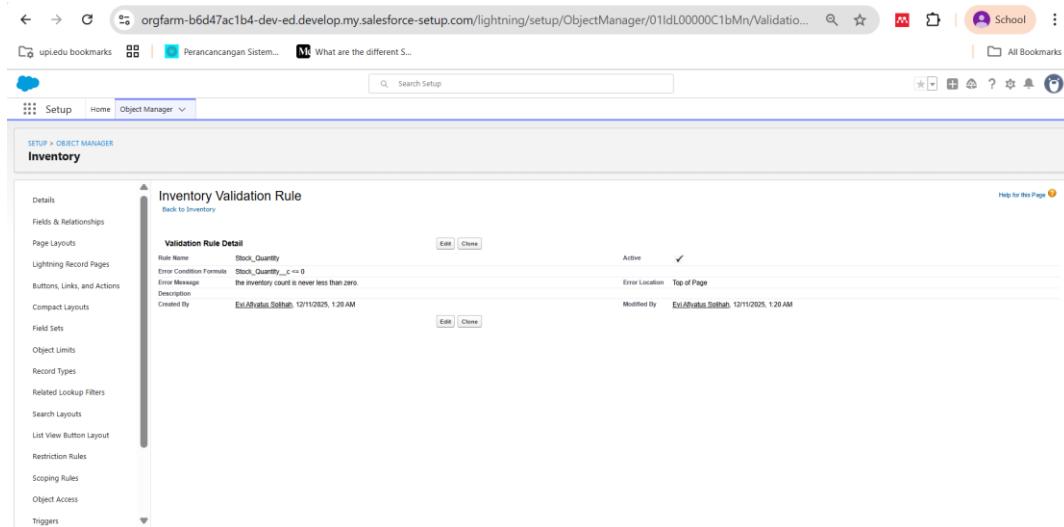


Figure 22. Validation Rule Inventory

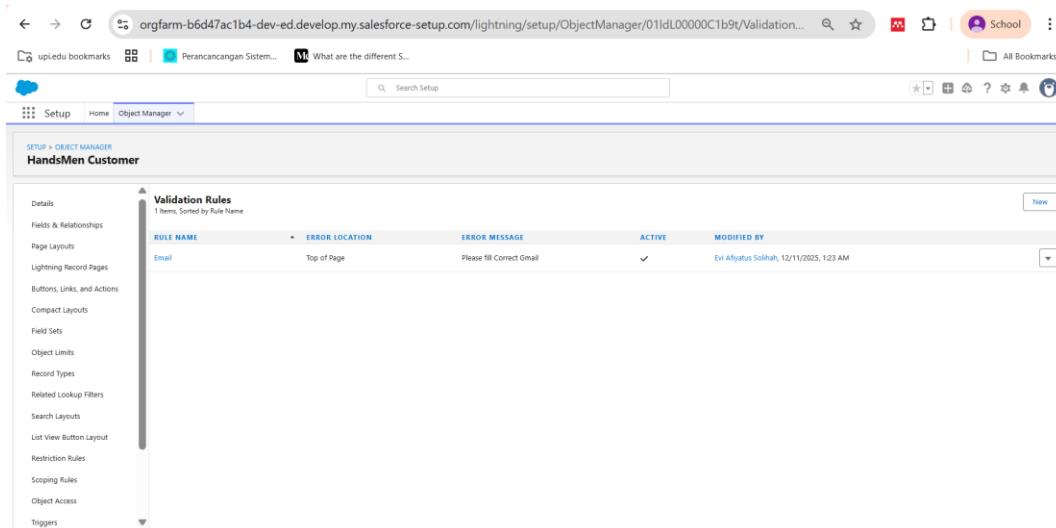
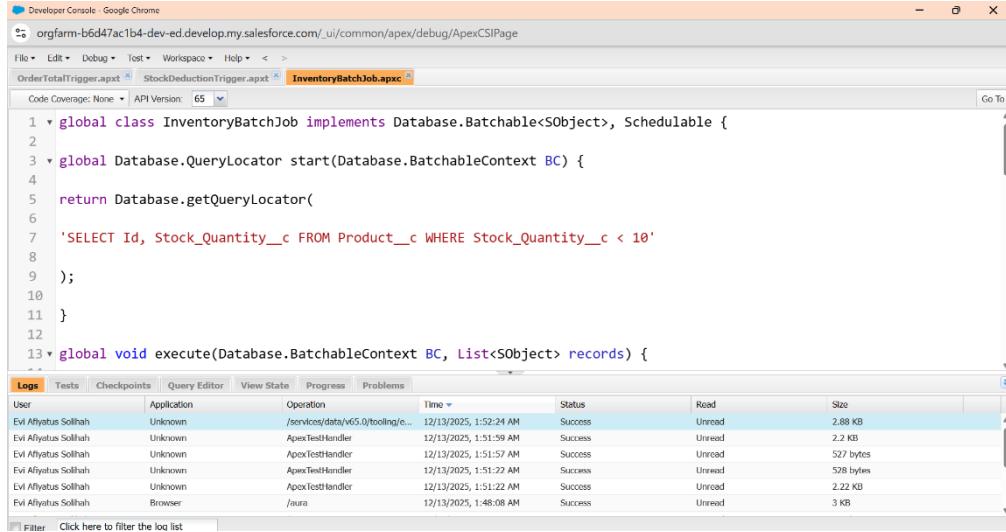


Figure 23. Validation Rule HandsMen Customer

#### d. Scheduled data processing with Batch Apex

This batch task is designed to handle large-scale data updates, such as stock adjustments and order data updates, which are run automatically at specific times. By using batch processing, the system is able to process data efficiently without disrupting daily operational performance.



The screenshot shows the Salesforce Developer Console in Google Chrome. The URL is orgfarm-b6d47ac1b4-dev-ed.develop.my.salesforce.com/\_ui/common/apex/debug/ApexCSIPage. The tabs at the top are OrderTotalTrigger.apxt, StockDeductionTrigger.apxt, and InventoryBatchJob.apxt. The code editor displays the following Apex code:

```
1 * global class InventoryBatchJob implements Database.Batchable<SObject>, Schedulable {
2
3     * global Database.QueryLocator start(Database.BatchableContext BC) {
4
5         return Database.getQueryLocator(
6             'SELECT Id, Stock_Quantity__c FROM Product__c WHERE Stock_Quantity__c < 10'
7         );
8
9     }
10
11 }
12
13 * global void execute(Database.BatchableContext BC, List<SObject> records) {
```

Below the code editor is a log table with the following data:

User	Application	Operation	Time	Status	Read	Size
Evi Aflyatus Solihah	Unknown	/services/data/v65.0/tooling/...	12/13/2025, 1:52:24 AM	Success	Unread	2.88 KB
Evi Aflyatus Solihah	Unknown	ApexTestHandler	12/13/2025, 1:51:59 AM	Success	Unread	2.2 KB
Evi Aflyatus Solihah	Unknown	ApexTestHandler	12/13/2025, 1:51:57 AM	Success	Unread	527 bytes
Evi Aflyatus Solihah	Unknown	ApexTestHandler	12/13/2025, 1:51:22 AM	Success	Unread	529 bytes
Evi Aflyatus Solihah	Unknown	ApexTestHandler	12/13/2025, 1:51:22 AM	Success	Unread	2.22 KB
Evi Aflyatus Solihah	Browser	/aura	12/13/2025, 1:48:08 AM	Success	Unread	3 KB

Figure 24. Inventory Batch Job

#### e. Email and notification template configuration

To support automated communication with customers and internal teams. Email templates are structured consistently and professionally, and integrated with the system's automation workflow. This configuration enables the system to send notifications automatically, such as order confirmations and low stock notifications, so that information can be received by the relevant parties in a timely manner.

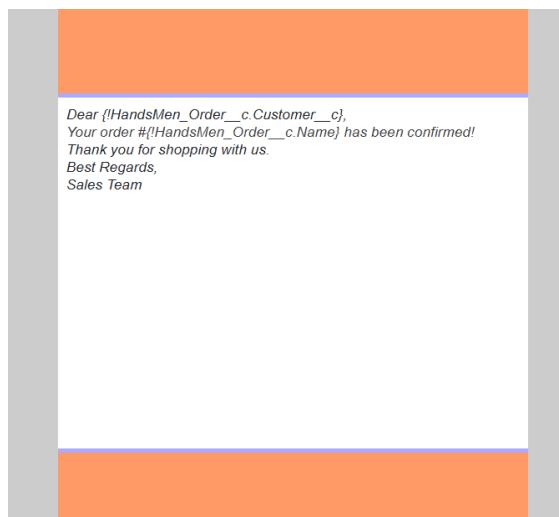


Figure 25. Template Email Order Confirmations

---

Dear Inventory Manager,  
This is to inform you that the stock for the following product is running low:  
Product Name: {!Inventory\_\_c.HandsMen\_Product\_\_c}  
Current Stock Quantity: {!Inventory\_\_c.Stock\_Quantity\_\_c}  
Please take the necessary steps to restock this item immediately.  
Best Regards,  
Inventory Monitoring System

Figure 26. Template Email Low Stock Alert

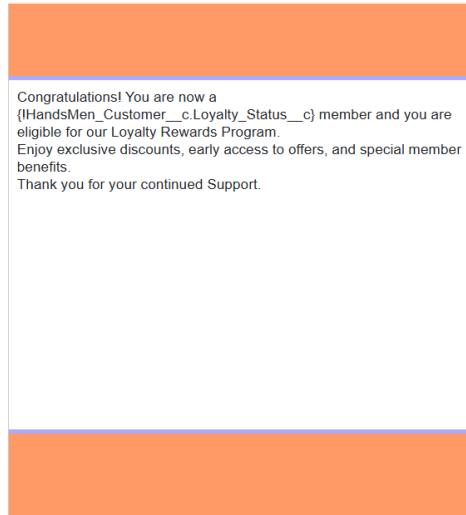


Figure 27. Template Email Loyalty Program

### 3. Testing & QA

Testing and quality assurance stages are carried out to ensure that the developed Salesforce system functions in accordance with business needs and established specifications. Testing is conducted in stages and systematically to minimize functional errors, maintain data quality, and ensure system reliability before implementation into the production environment. End-to-end testing is conducted to evaluate overall system performance. This testing is conducted using sample data that represents real business conditions, from the process of creating customer data, recording orders, updating inventory stock, to sending automatic notifications.

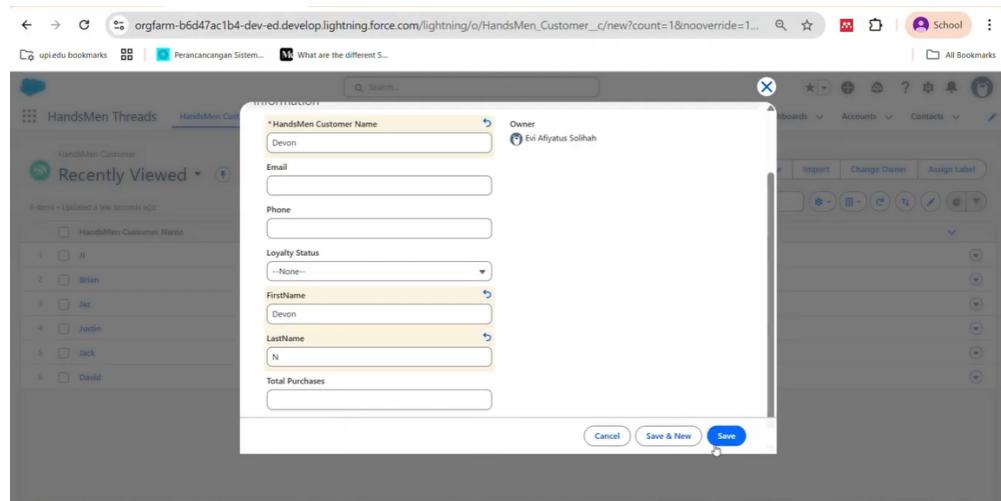


Figure 28. Create New Customer

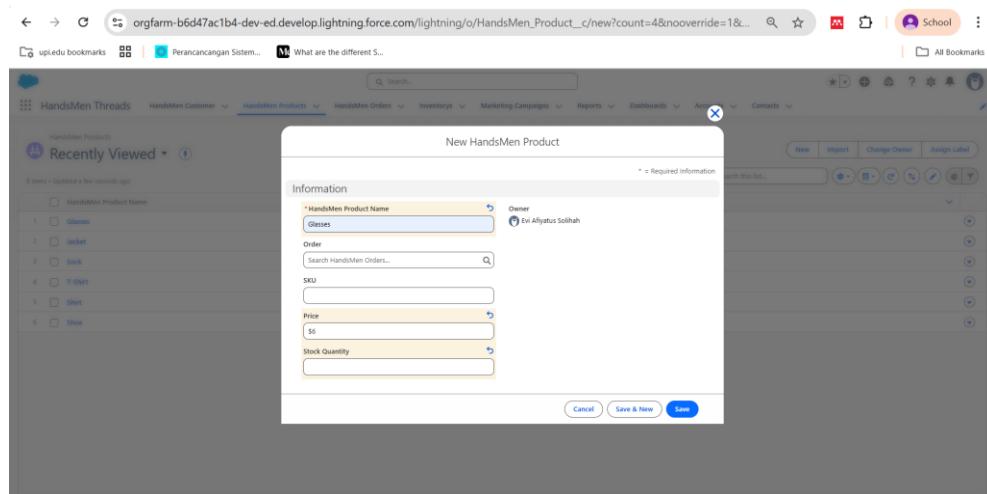


Figure 29. Create New Product

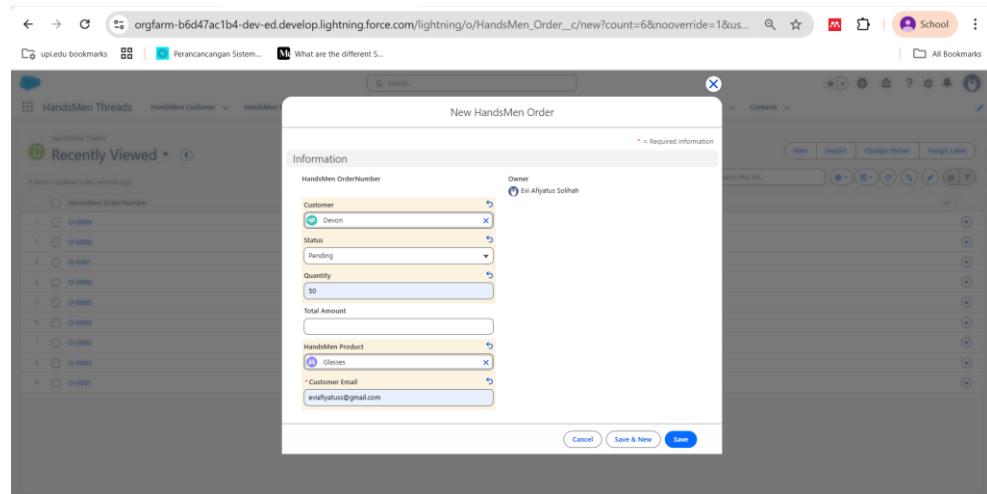


Figure 30. Create New Order

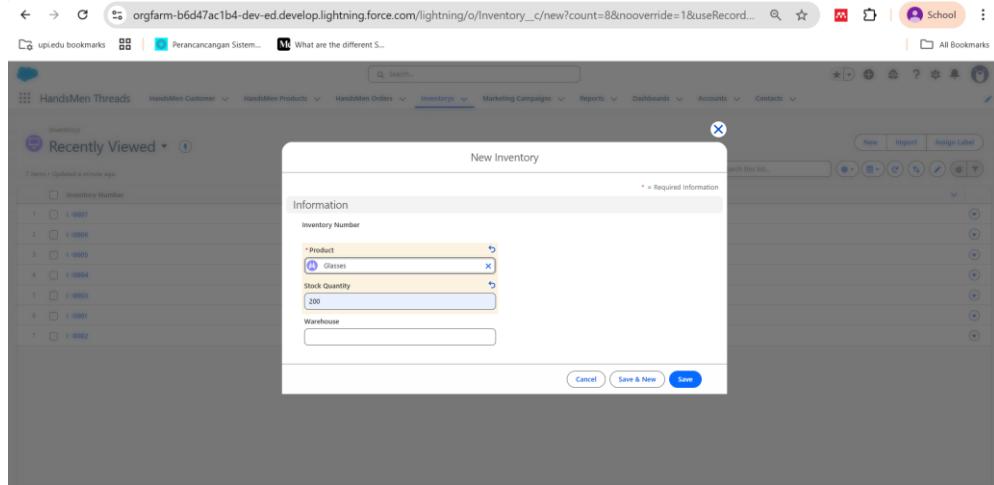


Figure 31. Create New Inventory

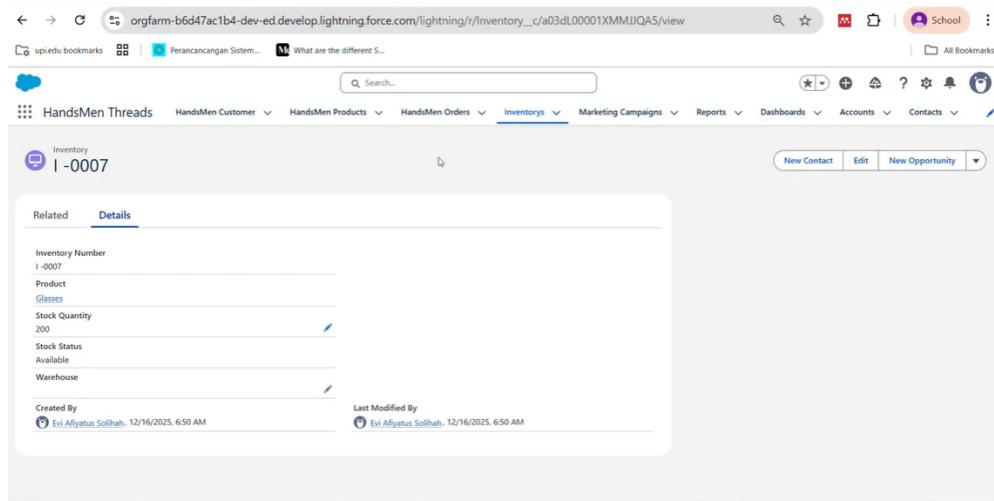


Figure 32. Inventory Quantity Before Order Placement

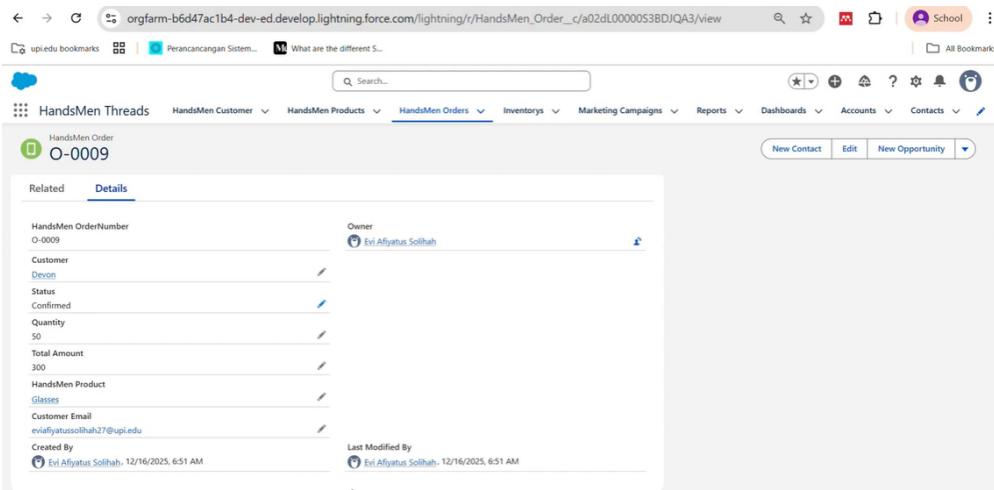


Figure 33. Order Quantity

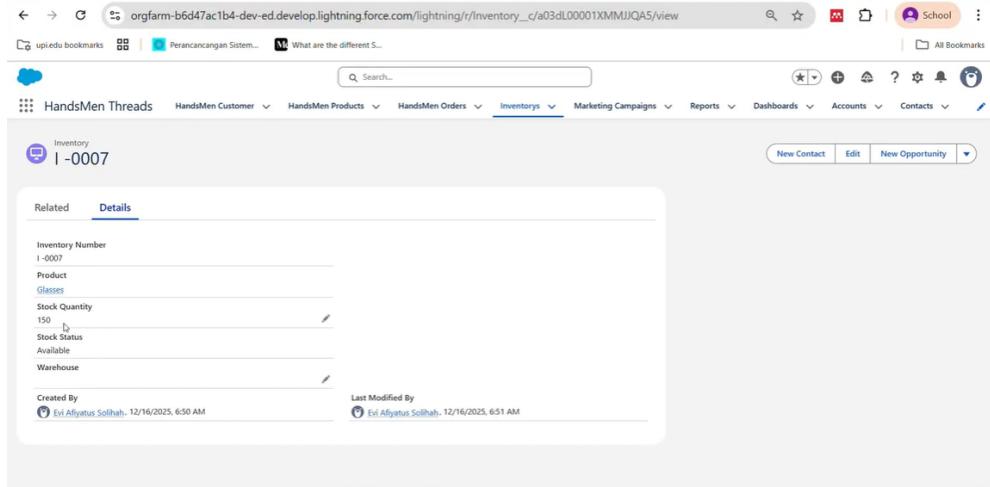


Figure 34. Inventory Quantity After Order Placement

Overall, the testing and quality assurance phase showed that the developed Salesforce system met functional and non-functional requirements.

#### 4. Deployment & Training

At this stage, the developed Salesforce system is prepared for operational use by ensuring that all configurations, data, and automation are running in accordance with HandsMen Threads' business needs. The system is implemented in the Salesforce production environment by activating all major components, including custom objects, validation rules, Salesforce Flow and Apex Trigger-based automation, and scheduled batch tasks.

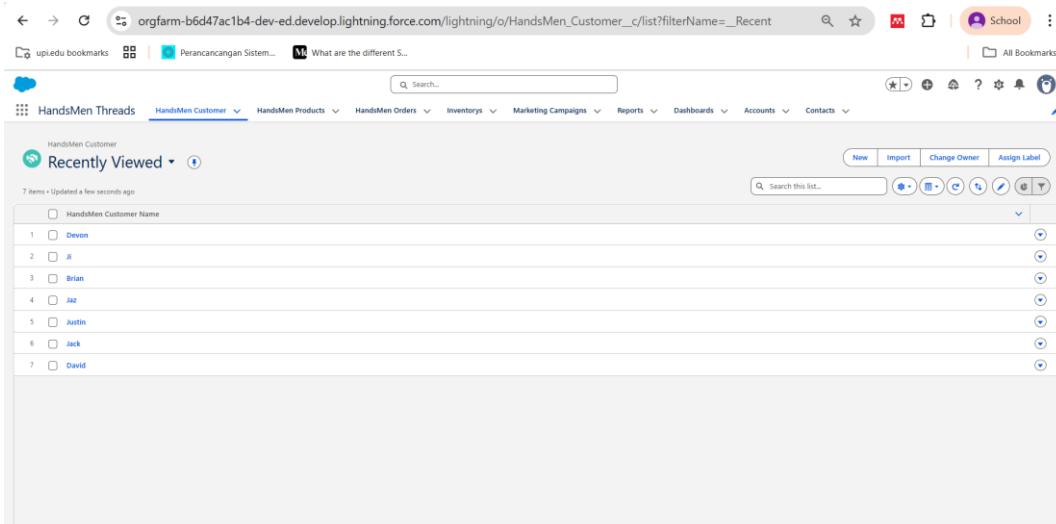


Figure 35. Dashboard HandsMen Threads

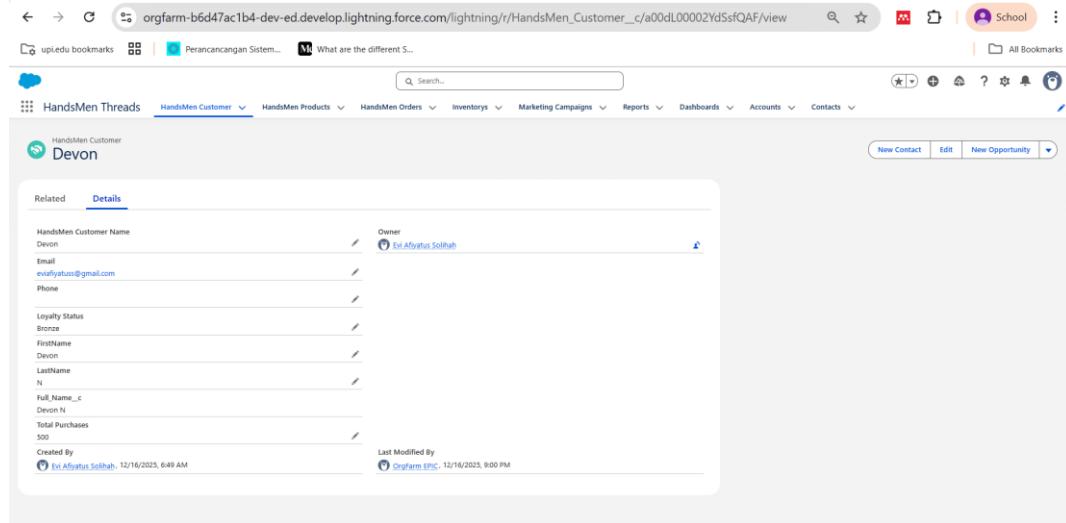


Figure 36. Example Detail HandsMen Customer

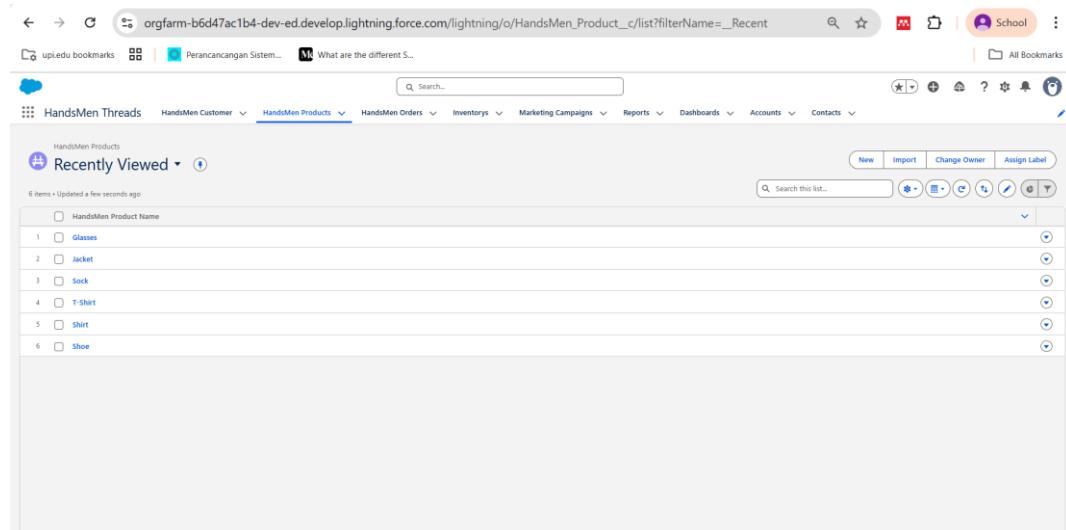


Figure 37. User Interface HandsMen Products

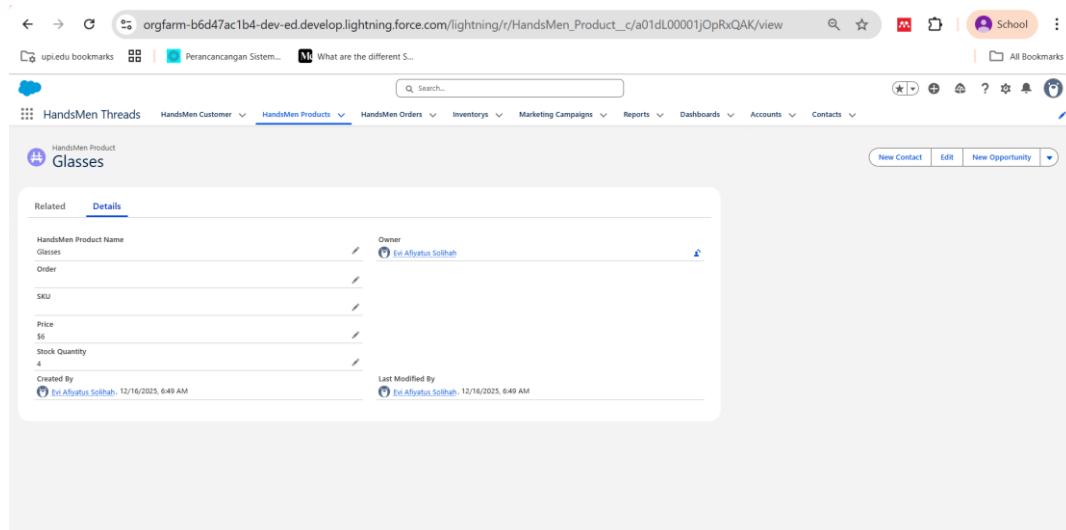


Figure 38. Example Detail HandsMen Products

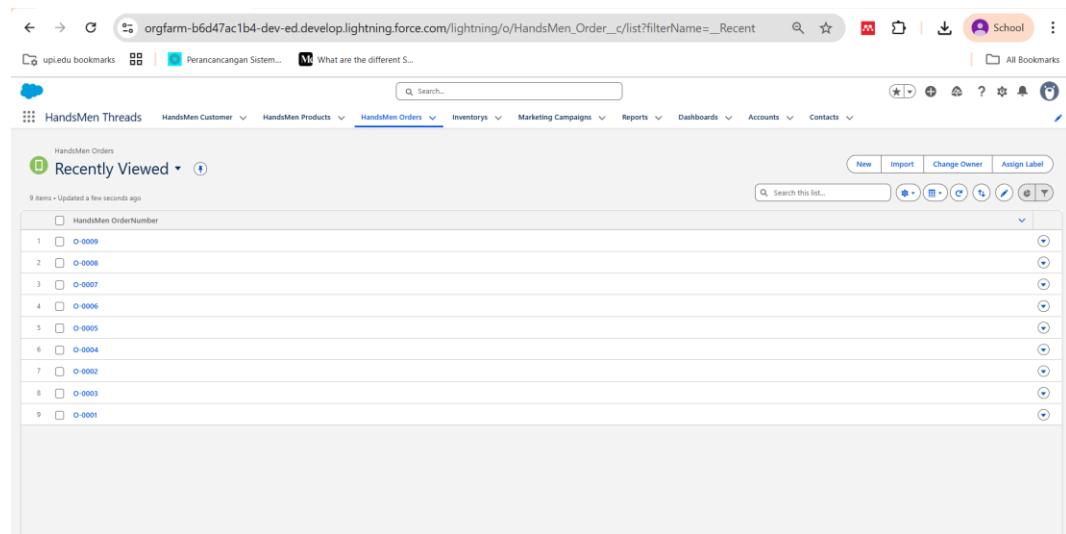


Figure 39. User Interface HandsMen Orders

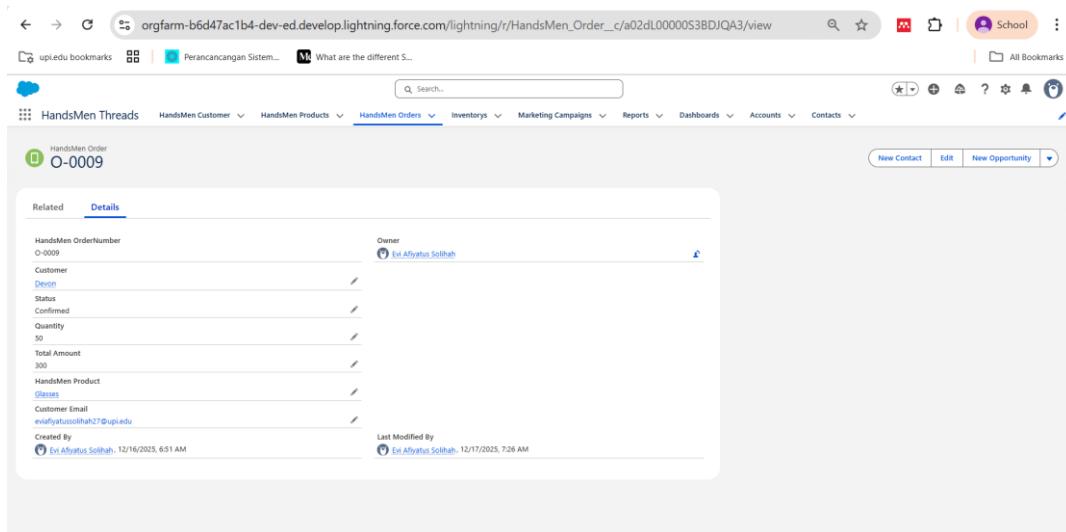


Figure 40. Example Detail HandsMen Orders

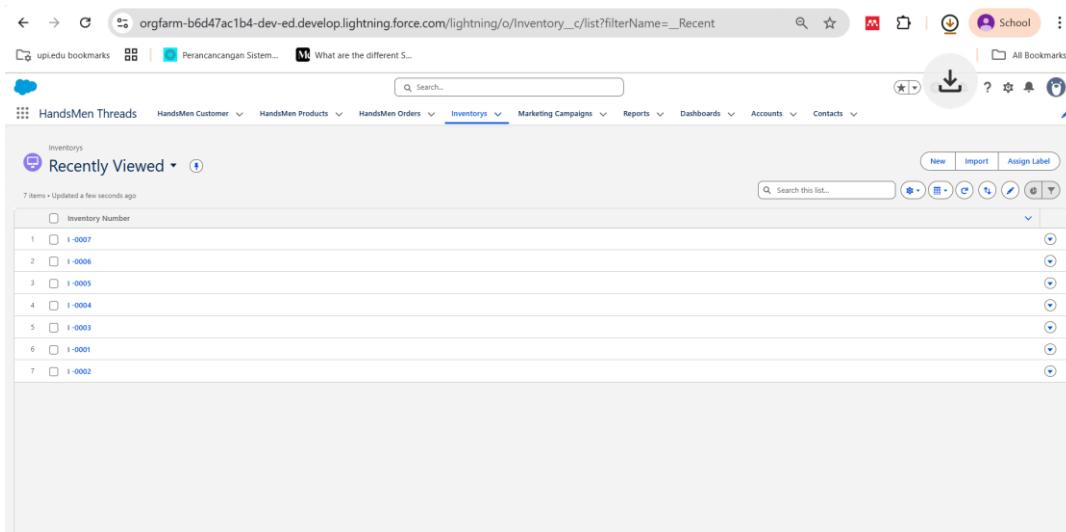


Figure 41. User Interface Inventories

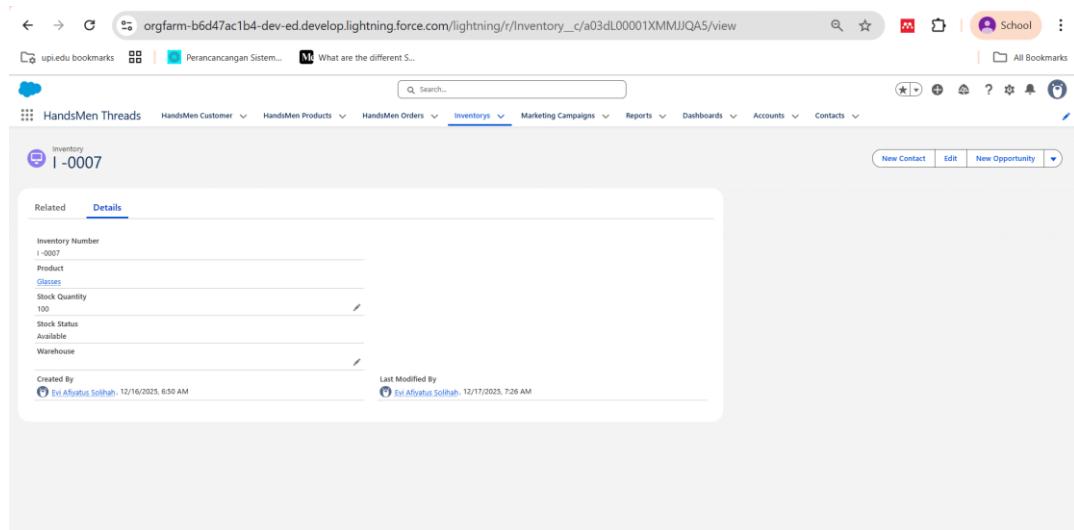


Figure 42. Example Detail Inventorys

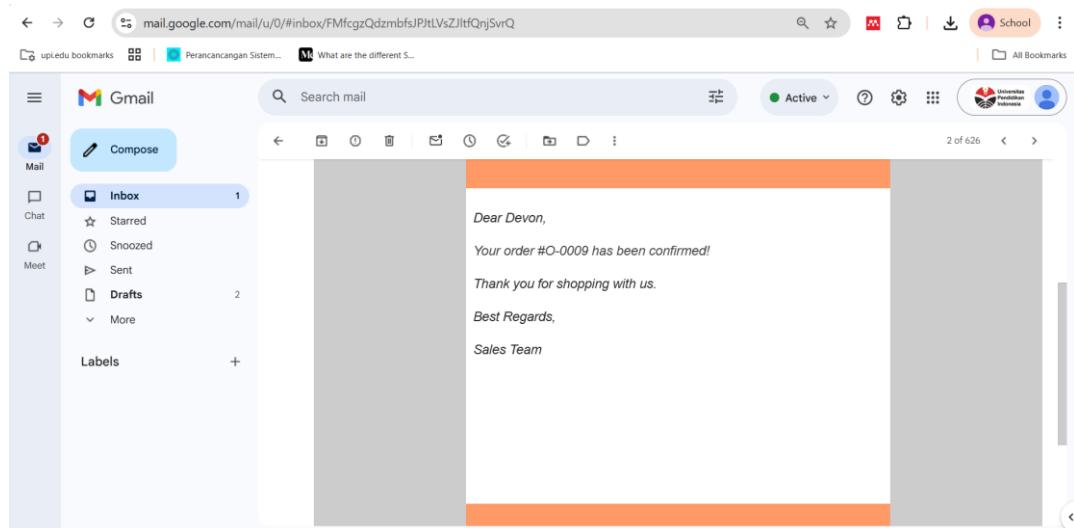


Figure 43. Notification Email Order Confirmation

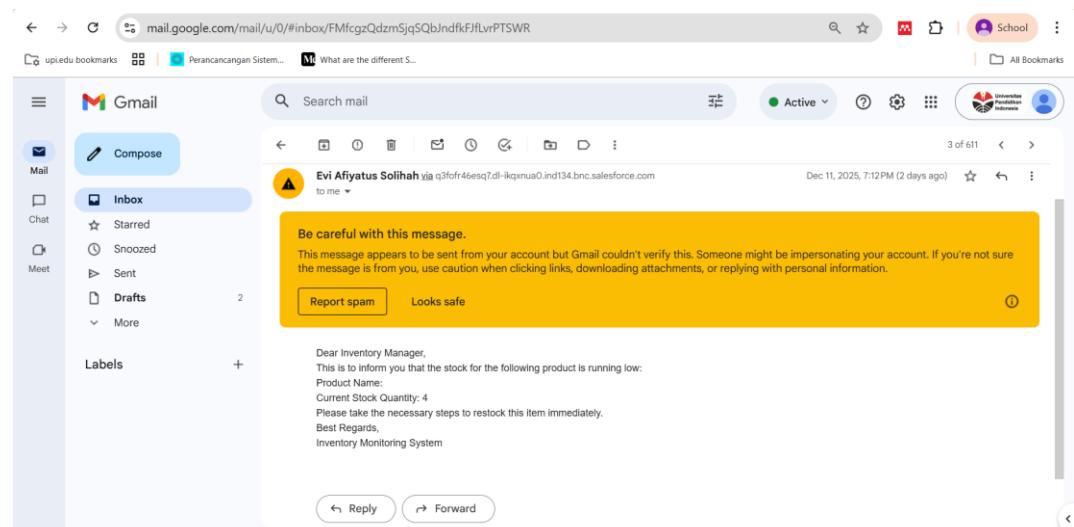


Figure 44. Notification Email Low Stock Alert

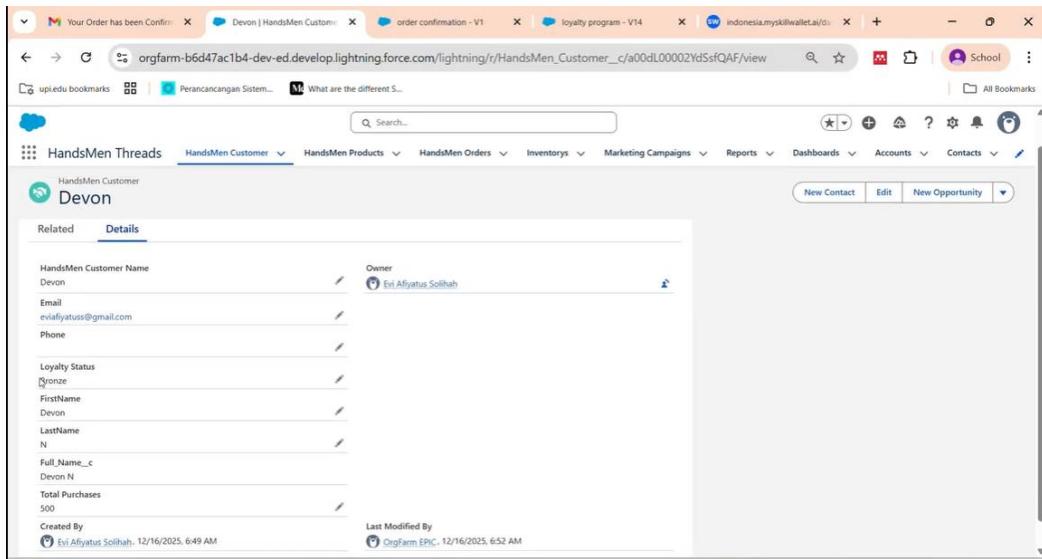


Figure 45. Update Loyalty Status

## 5. Results and Documentation

The results and documentation stage is a summary of the entire process of designing, developing, testing, and implementing the Salesforce system that has been carried out. Technical and visual documentation of each stage has been presented in detail in the previous section, covering system design, module configuration, and functional test results.

## CONCLUSION

Based on the results of the design, development, testing, and implementation that has been carried out, it can be concluded that the Salesforce system developed for HandsMen Threads has successfully provided a structured and integrated solution for data management and business process automation. This system is capable of centralizing customer, order, product, and inventory information in a single platform, thereby improving operational efficiency and data management quality.

The application of a standardized data model, validation rules, and automation mechanisms based on Salesforce Flow, Apex Trigger, and Batch Apex has helped maintain data integrity and reduce dependence on manual processes. In addition, the configuration of automatic notifications and emails supports faster and more consistent communication with customers and internal teams. Overall, the developed system has met the main objectives of the project and provides a strong foundation for the future development of Salesforce-based business information systems.

## ATTACHMENT

### Sign In Account

The screenshot shows a web browser window with the URL [salesforce.com/form/developer-signup/?d=pb](https://salesforce.com/form/developer-signup/?d=pb). The page has a dark blue header with the Salesforce logo. Below it, there's a large white section containing text and a list of features. To the right, there's a form for signing up for the Developer Edition.

**Build enterprise-quality apps fast and get hands-on with Agentforce and Data Cloud.**

Sign up for your Developer Edition.

- ✓ Build apps fast with drag-and-drop tools
- ✓ Go further with Apex code
- ✓ Build AI agents with Agentforce
- ✓ Harmonize your data with Data Cloud
- ✓ Ground Agentforce with structured and unstructured data
- ✓ Integrate with anything using APIs

**Sign up for your Developer Edition**

A free Salesforce Platform environment with Agentforce and Data Cloud

First name	Last name
Evi Afiyatus	Solihah
Job title	Work email
Developer	eviafiyatussolihah@
Company	Country/Region
Universitas Pendi	Indonesia

Your org may be provisioned on or migrated to Hyperforce, Salesforce's public cloud infrastructure.

I agree to the [Main Services Agreement – Developer Services](#) and [Salesforce Program Agreement](#). I acknowledge, as described in the Developer Documentation: (1) the Developer Edition includes autonomous and other generative AI features; and (2) Salesforce may limit use of those features and the org.