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INVENTORY AND STOCK MANAGEMENT SYSTEM

Project Proposal

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Tallinn 2025

Author's declaration of originality

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

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02.03.2025

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Introduction

Efficient inventory and stock management are critical for any business that deals with physical goods. A well-organized inventory system helps companies track stock levels, prevent shortages or overstocking, and maintain accurate records for financial and operational efficiency. However, many businesses, especially small and medium-sized enterprises, still rely on outdated methods such as spreadsheets and paper-based documentation to manage their inventory. These traditional methods often lead to errors, inefficiencies, and increased workload for employees.

In the author's workplace, inventory levels are maintained using an Excel spreadsheet. Throughout the month, stock deductions are recorded manually on paper. At the end of the month, these paper records are collected, and necessary adjustments are made in the Excel file. This process is time-consuming, prone to human error, and lacks real-time tracking capabilities. Additionally, misplacing physical records or entering incorrect data can lead to discrepancies in stock levels, which can result in operational setbacks and financial losses.

Recognizing these challenges, I aim to develop a web-based Inventory and Stock Management System to streamline this process. The proposed system will allow businesses to manage their inventory digitally, providing real-time updates, automated stock adjustments, and an organized record-keeping system. By eliminating the reliance on spreadsheets and manual entries, this system will enhance accuracy, reduce administrative burdens, and improve overall efficiency.

Many other businesses likely face similar issues with inventory management, making this solution highly applicable across various industries. With features such as user role management, automated reporting, and intuitive stock tracking, the web application will serve as a valuable tool for businesses seeking a more structured and reliable approach to inventory control. This project aims to modernize inventory management by leveraging technology to minimize errors, save time, and optimize stock handling operations.

1. Application Functionalities

This section offers an overview of the application's functionalities. This workplace utilizes a comprehensive inventory and stock management system that involves different user roles and various database tables to maintain the accuracy and consistency of all operations.

1.1 Users and Roles

There are five main user roles in the system:

Regular Employee: The Regular Employee is responsible for the following tasks:

- **Registering stock movements:** The employee removes products from the inventory.

Manager: The Manager is responsible for overseeing all stock-related operations and the system's overall functioning:

- **Approving actions:** The Manager has the authority to approve all stock-related actions, including adding or removing products, as well as any actions requiring approval (e.g., inventory movements).
- **Inventory oversight:** The Manager monitors the entire inventory process, ensuring accurate stock levels and proper handling of stock movements.
- **Managing users:** The Manager can assign and revoke roles from users, manage system users, and ensure that all users have the correct permissions for their roles.
- **Inventory auditing and reporting:** The Manager approves audit results and generates reports about inventory performance and stock movements.

Shift Leader: The Shift Leader is responsible for monitoring the inventory and approving actions during their shift:

- **Shift management:** The Shift Leader monitors inventory activity during their shift, ensuring smooth operations.
- **Approving stock-related actions:** The Shift Leader approves any stock-related actions, such as adding, removing, or moving items, within their shift.

Manager Assistant: The Manager Assistant supports the Manager in daily operations and has the authority to approve certain actions:

- **Supporting the Manager:** The Assistant helps the Manager with daily tasks, including reporting and inventory monitoring.
- **Approving certain actions:** The Assistant can approve certain inventory actions, such as adding or removing products, depending on the Manager's instructions.

Admin Role: The Admin is responsible for overseeing the entire system and ensuring its smooth operation:

- **Managing users:** The Admin can create and delete users, assign and revoke roles, and manage user permissions within the system.
- **Viewing system activity:** The Admin can oversee the overall system operation.

1.2 Tables and their functionalities

1. Users and Roles

The Users table contains all employees, their data, and the roles assigned to them. User roles determine what actions each user can perform within the system.

2. Action Table

The Action table acts as a log for all stock-related activities, including actions such as "stock addition" and "stock removal." Each entry in the log records the type of activity, the reason (in the case of stock removal), the supplier (for stock additions), the user who performed the action, the product name, the quantity, the date of the action, and the status (whether the action was accepted).

3. Supplier Table

The Supplier table contains information about the companies from which products are purchased. It includes details such as the company name, contact information, address, and other relevant data about the suppliers.

4. ApprovalRequest Table

Whenever a new action is recorded in the Action table, it requires approval from the Manager, Shift Leader, or Assistant. The ApprovalRequest table stores information about which actions need approval and who needs to authorize them.

5. Product Table

The Product table contains all products in the inventory, including their names, prices, and other essential details.

6. Inventory Table

The Inventory table shows the entire inventory, which contains multiple smaller storage rooms. Each inventory location has its own record, which links to various storage rooms where products are kept.

7. StorageRoom Table

The StorageRoom table describes smaller storage units within a larger inventory. Each storage room is linked to specific products stored in that space.

8. ProductsInStorageRoom Table

When a product is moved between storage rooms or added/removed, a record is created in the ProductsInStorageRoom table. For example, if the quantity of a product increases or decreases, these changes are logged here.

9. CurrentStock Table

The CurrentStock table displays the real-time inventory status for each product across different storage rooms. This helps track the actual stock level of each product and ensures the inventory is accurate.

1.3 The future

If the course's scope and time allow, the system may be extended with two additional tables:

- **StockAudit Table** – Monthly audits will be conducted to verify if the physical stock matches the quantities shown in the system. This is crucial for maintaining accurate stock levels and preventing discrepancies.
- **StockMovement Table** – Products may be transferred between different inventory locations. This table manages stock movements between different warehouses.

2. ERD

Figure 19 depicts the Entity-Relationship Diagram (ERD) of the application. Red entities signify tables that are not fully implemented within the current scope but are essential for a complete workforce application. Blue entities represent user system entities provided by the subject lecturer, while yellow entities serve as intermediary or guide tables. Green tables contain fundamental information.

2.1 Table semantics

Tabeli nimi	Semantika
User	Stores information about system users, such as name, email, contact details, and other user-specific data.
UserRole	Defines the roles assigned to users within the system, determining what actions each user can perform (e.g., Manager, Employee).
RoleClaim	Links user roles to specific claims or permissions within the system, enabling role-based access control.
UserLogin	Contains login information for users, including authentication details.
UserToken	Stores security tokens generated for user authentication.
UserClaim	Stores additional claims associated with users.
Action	Logs stock-related activities (e.g., stock addition, removal).
Supplier	Contains information about companies from which products are sourced.
ApprovalRequests	Stores requests for approval of stock-related actions that require managerial oversight, detailing which actions need approval and who is responsible for the approval.
Product	Stores details about each product in the

	inventory.
Inventory	Represents the overall inventory structure.
StorageRoom	Describes smaller storage units or rooms within the overall inventory, linking to specific products stored in that space.
ProductsInStorageRoom	Tracks product movements within the storage rooms, recording additions, removals, or stock level changes in different storage areas.
Reason	Contains predefined reasons for stock removal actions (e.g., damaged product, inventory correction), helping categorize and explain stock removal actions.
ActionType	Defines the types of stock-related actions (e.g., "Addition," "Removal," "Movement") to classify each entry in the Action table.
ProductCategory	Organizes products into categories for easier management and reporting.
CurrentStock	Represents real-time stock levels of products across various storage rooms, providing up-to-date information about product availability.
StorageRoomInInventory	Establishes the relationship between storage rooms and the overall inventory, linking specific rooms to their inventory records.
Address	Contains addresses for inventories and other relevant locations in the system.
StockAudit	Stores records of periodic audits to verify that physical stock levels match those recorded in the system, ensuring accuracy in inventory management.
StockMovement	Tracks the transfer of products between different inventory locations or warehouses, maintaining records of stock movements.

2.2 Table specific semantics

2.2.1 Table User

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey		
UserName	STRING		
NormalizedUserName (UNIQ)	STRING		
Email	STRING		
NormalizedEmail (IDX)	STRING		
Email Confirmed	BOOLEAN		
Password Hash	STRING		
Security Stamp	STRING		
ConcurrencyStamp	STRING		
Phone Number	STRING		
Phone Number Confirmed	BOOLEAN		
TwoFactor Enable	BOOLEAN		
LockOutEnd	DATETIME		
LockOut Enabled	BOOLEAN		
Access	INT		

Failed Count			
FirstName	STRING		
LastName	STRING		

2.2.2 Table UserRole

Column Name	Data Type	Null / Not Null	Semantics
UserId (PK/FK)	TKey		
RoleId (PK/FK)	TKey		

2.2.3 Table Role

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey		
Name	STRING		
NormalizedName (UNIQ)	STRING		
ConcurrencyStamp	STRING		
Display Name	STRING		

2.2.4 Table RoleClaim

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	INT		
RoleId (FK)	TKEY		
ClaimType	STRING		

ClaimValue	STRING		
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2.2.5 Table UserLogin

Column Name	Data Type	Null / Not Null	Semantics
Login Provider (PK)	STRING		
ProviderKey(PK)	STRING		
Provider Display Name	STRING		
UserId (FK)	TKey		

2.2.6 Table UserToken

Column Name	Data Type	Null / Not Null	Semantics
UserId (PK/FK)	TKey		
Login Provider (PK)	STRING		
Name (PK)	STRING		
Value	STRING		

2.2.7 Table UserClaim

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	INT		
UserId (FK)	TKey		
ClaimType	STRING		
ClaimValue	STRING		

2.2.8 Table Action

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the Action table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
ActionType Id (FK)	TKey	NOT NULL	The foreign key refers to the ActionType table, indicating the type of action (e.g., purchase, sale, etc.).
ReasonId (FK)	TKey	NULL	The foreign key refers to the Reason table, specifying the reason for the action (e.g., replenishment, loss, etc.).
SupplierId (FK)	TKey	NULL	The foreign key refers to the Supplier table, indicating which supplier is associated with the action.
UserId (FK)	TKey	NOT NULL	The foreign key refers to the User table, identifying the user who performed the action.
ProductId (FK)	TKey	NOT NULL	The foreign key refers to the Product table, indicating which product the action is related to.
StockAudit Id (FK)	TKey	NULL	The foreign key refers to the StockAudit table, if the action is part of a stock audit process.
Quantity	DECIMAL	NOT NULL	The quantity of the product involved in the action.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the action was created.
Status	STRING	NOT NULL	The status of the action (e.g., pending, completed, canceled).
Comment	STRING	NULL	An optional field for additional comments or notes related to the action (e.g., special instructions, remarks).

2.2.9 Table Supplier

Column Name	Data Type	Null / Not	Semantics
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		Null	
Id (PK)	TKey	NOT NULL	The primary key of the Supplier table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
Name	STRING	NOT NULL	The name of the supplier (e.g., the company name).
TelephoneNr	STRING	NOT NULL	The telephone number of the supplier.
Email	STRING	NOT NULL	The email address of the supplier.
LocationId (FK)	STRING	NOT NULL	A foreign key referencing the Address table, indicating the address where Supplier is situated.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the supplier record was created.
Comment	STRING	NULL	An optional field for additional comments or notes related to the supplier (e.g., specific details about the supplier or their products).

2.2.10 Table ApprovalRequests

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the ApprovalRequests table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
ActionId (FK)	TKey	NOT NULL	A foreign key referencing the Action table, indicating the action (such as stock addition, removal, etc.) that is being requested for approval.
Requested ByUserId (FK)	TKey	NOT NULL	A foreign key referencing the User table, indicating the user who requested the action.
ApprovedByUserId (FK)	TKey	NULL	A foreign key referencing the User table, indicating the user who approved the action. This field is null

			until the action is approved.
Status	STRING	NOT NULL	The current status of the approval request (e.g., "pending," "approved," "rejected").
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the approval request was created.
ApprovedAt	DATETIME	NULL	The timestamp indicates when the approval request was approved. This field is null until approval is granted.
Comment	STRING	NULL	An optional field for additional comments or explanations related to the approval request (e.g., reasons for approval/rejection).

2.2.11 Table Product

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the Product table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
Product CategoryId (FK)	TKey	NOT NULL	A foreign key referencing the ProductCategory table, indicating the category to which the product belongs (e.g., electronics, groceries).
Unit	STRING (ENUM)	NOT NULL	A string column that represents the unit of measurement for a product. This can be an enumeration (ENUM), meaning that it is restricted to a set of predefined values such as "Piece", "Kg", "Liter", etc.
Code	STRING	NOT NULL	A unique code assigned to the product, used for identification and stock management.
Name	STRING	NOT NULL	The name of the product (e.g., Apple, Laptop).
Price	DECIMAL	NOT NULL	The price of the product, used for sales and inventory valuation.
Quantity	DECIMAL	NOT	The current stock quantity of the product in the

		NULL	inventory.
CreatedAt	DATETIME	NOT NULL	The timestamp indicating when the product was created or added to the system.
Comment	STRING	NULL	An optional field for additional remarks or explanations regarding the product (e.g., special handling instructions).

2.2.12 Table Inventory

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the Inventory table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
AddressId (FK)	TKey	NOT NULL	A foreign key referencing the Address table, indicating the physical location of the inventory (e.g., warehouse address).
Name	STRING	NOT NULL	The name of the inventory, used for identification (e.g., warehouse name).
LastUpdated	DATETIME	NOT NULL	The timestamp when the inventory information was last updated.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the inventory was created or added to the system.
EndedAt	DATETIME	NULL	The timestamp indicates when the inventory was deactivated or no longer in use, if applicable.
Comment	STRING	NULL	An optional field for additional remarks or explanations regarding the inventory.

2.2.13 Table StorageRoom

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the StorageRoom table. It is a surrogate key assigned when a new record is added

			by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
Name	STRING	NOT NULL	The name of the storage room, used for identification and organization within the system.
Location	STRING	NOT NULL	The physical location of the storage room (e.g., warehouse section, building number).
LastUpdated	DATETIME	NOT NULL	The timestamp when the storage room information was last updated.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the storage room was created or added to the system.
EndedAt	DATETIME	NULL	The timestamp indicates when the storage room was deactivated or no longer in use, if applicable.
Comment	STRING	NULL	An optional field for additional remarks or explanations regarding the storage room.

2.2.14 Table ProductsInStorageRoom

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the ProductsInStorageRoom table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
ActionId (FK)	TKey	NOT NULL	A foreign key referencing the Action table, indicating the action (e.g., addition, removal) related to the product in storage.
ProductId (FK)	TKey	NOT NULL	A foreign key referencing the Product being stored.
SupplierId (FK)	TKey	NULL	A foreign key referencing the Supplier from whom the product was acquired.
Stock MovementId (FK)	TKey	NULL	A foreign key referencing the StockMovement table, used if the stock was moved between storage locations.

Storage RoomId (FK)	TKey	NOT NULL	A foreign key referencing the StorageRoom where the product is stored.
Code	STRING	NOT NULL	A unique code assigned to the product in storage, used for identification.
Quantity	DECIMAL	NOT NULL	The quantity of the product currently in the specified storage room.
Manu Facturing Date	DATETIME	NOT NULL	The manufacturing date of the product.
ExpiryDate	DATETIME	NOT NULL	The expiry date of the product, if applicable.
CreatedAt	DATETIME	NOT NULL	The timestamp when the record was created.
Comment	STRING	NULL	An optional field for additional remarks or explanations regarding the product in storage.

2.2.15 Table Reason

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the Reason table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
Description	STRING	NOT NULL	A detailed description of the reason for a stock-related action, such as stock removal.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the reason was created.
EndedAt	DATETIME	NULL	The timestamp indicates when the reason was deactivated or no longer applicable, if applicable.
Comment	STRING	NULL	An optional field for additional remarks or explanations regarding the reason.

2.2.16 Table ActionType

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the ActionType table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
Name	STRING	NOT NULL	The name of the action type, describing the type of stock-related activity (e.g., stock addition, stock removal).
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the action type was created.
EndedAt	DATETIME	NULL	The timestamp indicates when the action type was deactivated, if applicable.
Comment	STRING	NULL	An optional field for additional remarks or explanations.

2.2.17 Table ProductCategory

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the ProductCategory table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
Name	STRING	NOT NULL	The name of the product category.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the category was created.
EndedAt	DATETIME	NULL	The timestamp indicates when the category was deactivated, if applicable.
Comment	STRING	NULL	An optional field for additional remarks or explanations.

2.2.18 Table CurrentStock

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the CurrentStock table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
ProductId (FK)	TKey	NOT NULL	A foreign key referencing the Product whose stock is being tracked.
StorageRoomId (FK)	TKey	NOT NULL	A foreign key referencing the StorageRoom where the product is stored.
Quantity	DECIMAL	NOT NULL	The current amount of the product available in stock.
LastUpdated	DATETIME	NOT NULL	The timestamp indicates when the stock quantity was last updated.
Comment	STRING	NULL	An optional field for additional remarks or explanations regarding the stock.

2.2.19 Table StorageRoomInInventory

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the StorageRoomInInventory table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
StorageRoomId (FK)	TKey	NOT NULL	A foreign key referencing the StorageRoom that is linked to a specific inventory.
InventoryId (FK)	TKey	NOT NULL	A foreign key referencing the Inventory to which the storage room belongs.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the storage room was assigned to the inventory.
EndedAt	DATETIME	NULL	The timestamp indicates when the storage room was removed from the inventory, if applicable.

Comment	STRING	NULL	An optional field for additional remarks or explanations.
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2.2.20 Table Address

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the Address table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
StreetName	STRING	NOT NULL	The name of the street where the address is located.
BuildingNr	INT	NOT NULL	The number of the building at the specified address.
City	STRING	NOT NULL	The city where the address is located.
Province	STRING	NOT NULL	The province or state where the address is located.
Country	STRING	NOT NULL	The country where the address is located.
Name	STRING	NOT NULL	The name associated with the address, such as a business or recipient name.
UnitNt	INT	NOT NULL	The unit or apartment number, if applicable.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the address record was created.
Comment	STRING	NULL	An optional field for additional remarks or notes related to the address.

2.2.21 Table StockAudit

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT	The primary key of the StockAudit table. It is a

		NULL	surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
UserId (FK)	TKey	NOT NULL	A foreign key referencing the User who performed the stock audit.
StorageRoomId (FK)	TKey	NOT NULL	A foreign key referencing the StorageRoom where the stock audit took place.
CreatedAt	DATETIME	NOT NULL	The timestamp indicates when the stock audit was conducted.
Comment	STRING	NULL	An optional field for additional remarks or observations related to the stock audit.

2.2.22 Table StockMovement

Column Name	Data Type	Null / Not Null	Semantics
Id (PK)	TKey	NOT NULL	The primary key of the StockMovement table. It is a surrogate key assigned when a new record is added by taking the current maximum ID value in the table and incrementing it by one. This is a hidden key that is never displayed to the user.
ProductId (FK)	TKey	NOT NULL	A foreign key referencing the product being moved.
FromStorageRoomId (FK)	TKey	NULL	A foreign key referencing the StorageRoom from which the product is moved. Can be NULL if the product is not coming from a specific storage room.
ToStorageRoomId (FK)	FKey	NULL	A foreign key referencing the StorageRoom to which the product is moved. Can be NULL if the product is not moved to a specific storage room.
FromInventoryId (FK)	FKey	NOT NULL	A foreign key referencing the Inventory from which the product is moved.
ToInventoryId (FK)	FKey	NOT NULL	A foreign key referencing the Inventory to which the product is moved.
Amount	DECIMAL	NOT	The quantity of the product being moved.

		NULL	
CreatedAt	DATETIME	NOT NULL	The timestamp indicating when the stock movement was recorded.
Comment	STRING	NULL	An optional comment providing additional details about the stock movement.

3. User Flow

3.1 Login page

Figure 1 shows the application's login page. The user needs to enter an username or email along with a password for authentication. If they forget their password, they can reset it by selecting the 'Forgot password?' link.

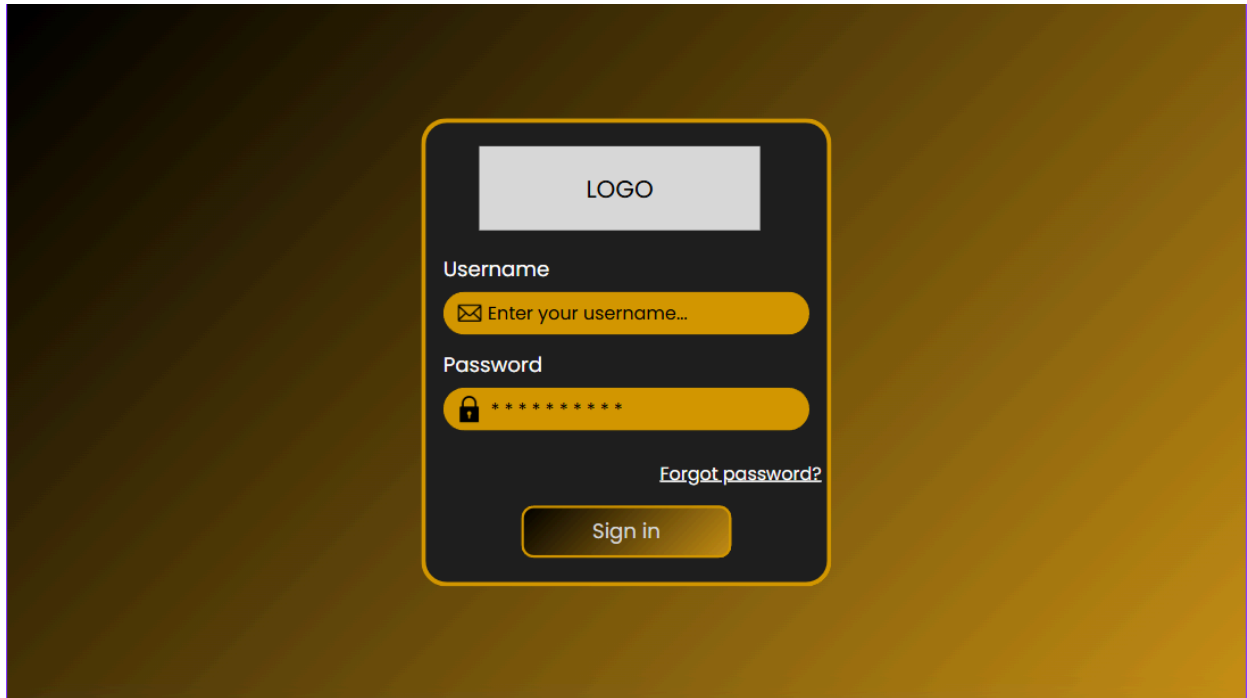


Figure 1. Login page

3.2 User Account - Manager view

Figure 2 shows the account page, where users can update their account information. They can modify details such as their firstname, lastname, username, email, phone number and password. If they need to save changes, they must confirm them by selecting the *Save data* button.

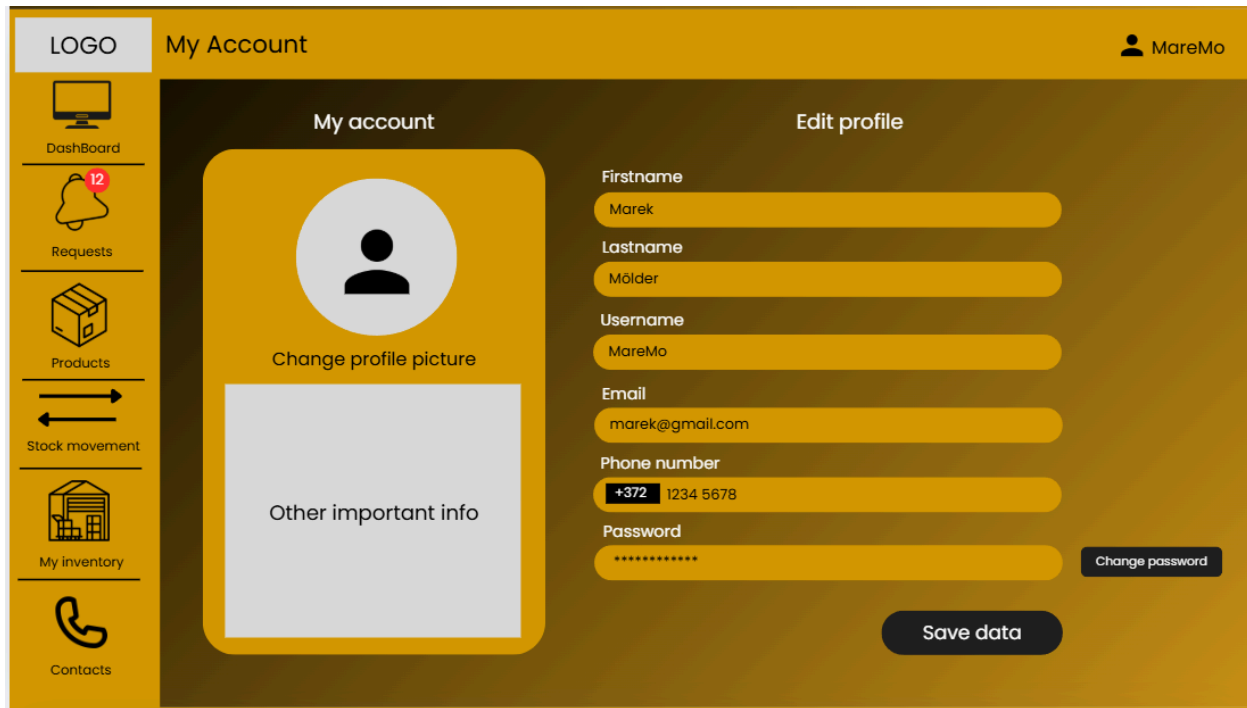


Figure 2. My Account page - Manager view

3.3 Create new Action

Figure 3 shows the action page, where users can fill out a pre-generated form to create an action, such as writing off a product. After entering the necessary details, they can confirm the action by selecting the 'Create' button.

LOGO + Create new Action — Inventory name MareMo

Dashboard

Requests 12

Products

Stock movement

My inventory

Contacts

Create Action

Choose action
Product disposal ↓

Choose Reason
Mistake ↓

Choose Product
Coca cola ↓

Quantity
0,75 l ↕

Comment
Write your comment

Create

Figure 3. Create new action page - Manager view

3.4 Dashboard

Figure 4 shows the dashboard page, where users can view statistics about their inventory. The page provides an overview of stock levels, recent transactions, and key metrics to help monitor inventory status.



Figure 4. DashBoard page - Manager view

3.5 Requests

Figure 5 and figure 6 show the Requests page, where managers can review and approve actions submitted by users. All pending requests are listed here, allowing managers to either approve or reject them.

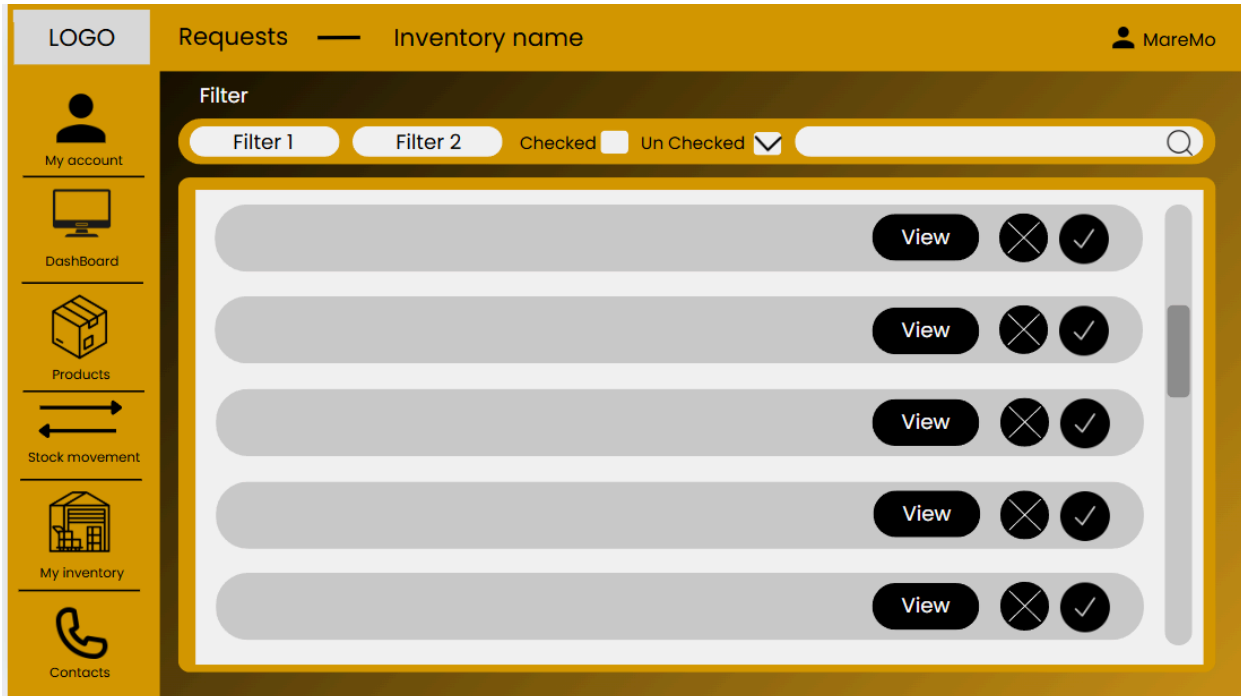


Figure 5. Requests page v1 - Manager view

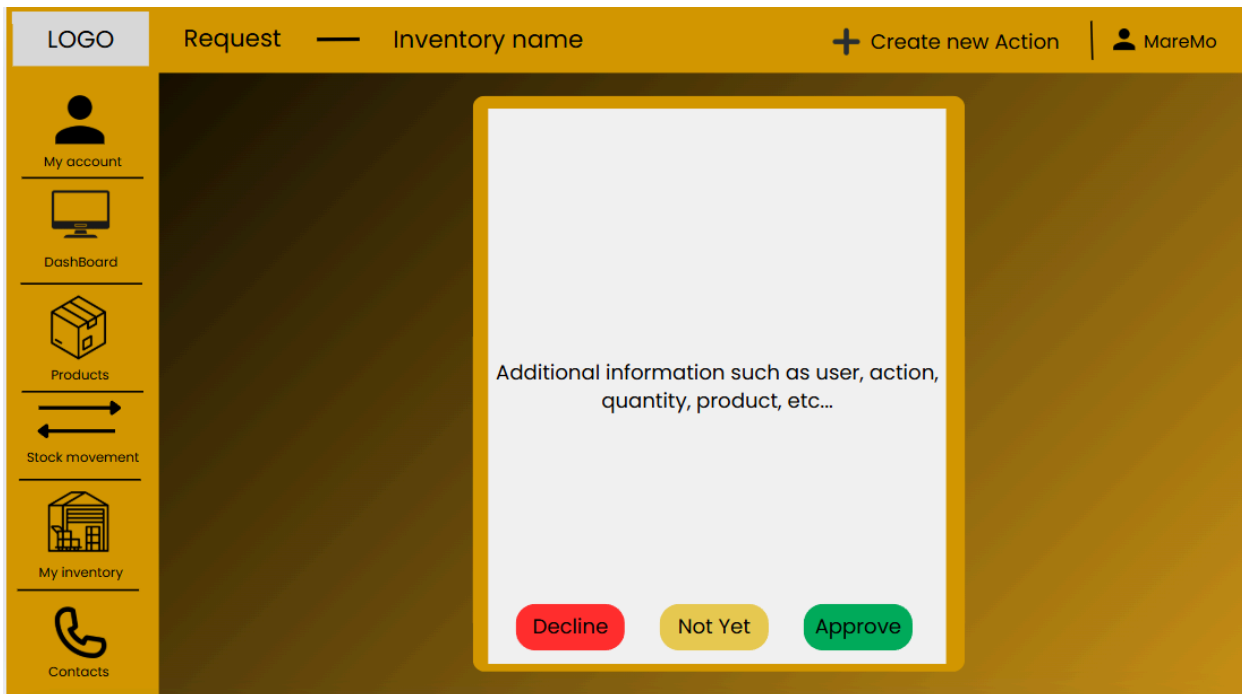


Figure 6. Request page v2 - Manager view

3.6 Products

Figure 7 shows the Products page, where all inventory products are listed along with their details which is displayed in figure 8. Each product entry includes information such as name, SKU/code, unit price, quantity, and supplier.

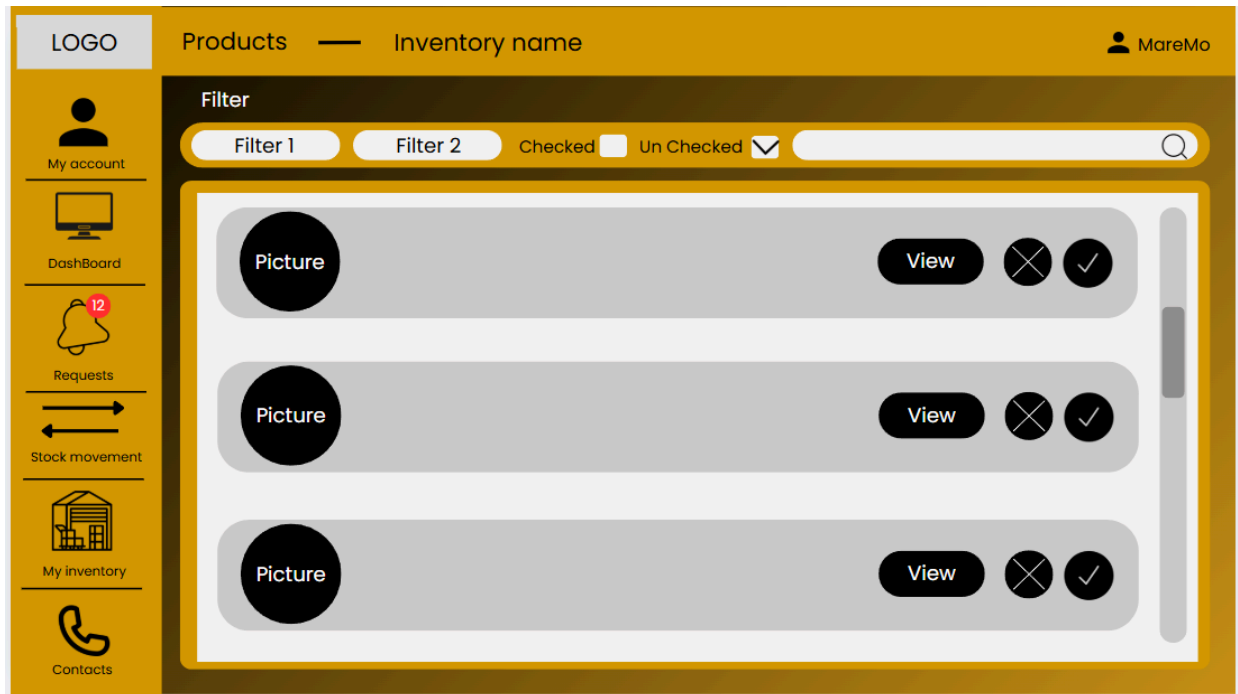


Figure 7. Product page v1 - Manager view

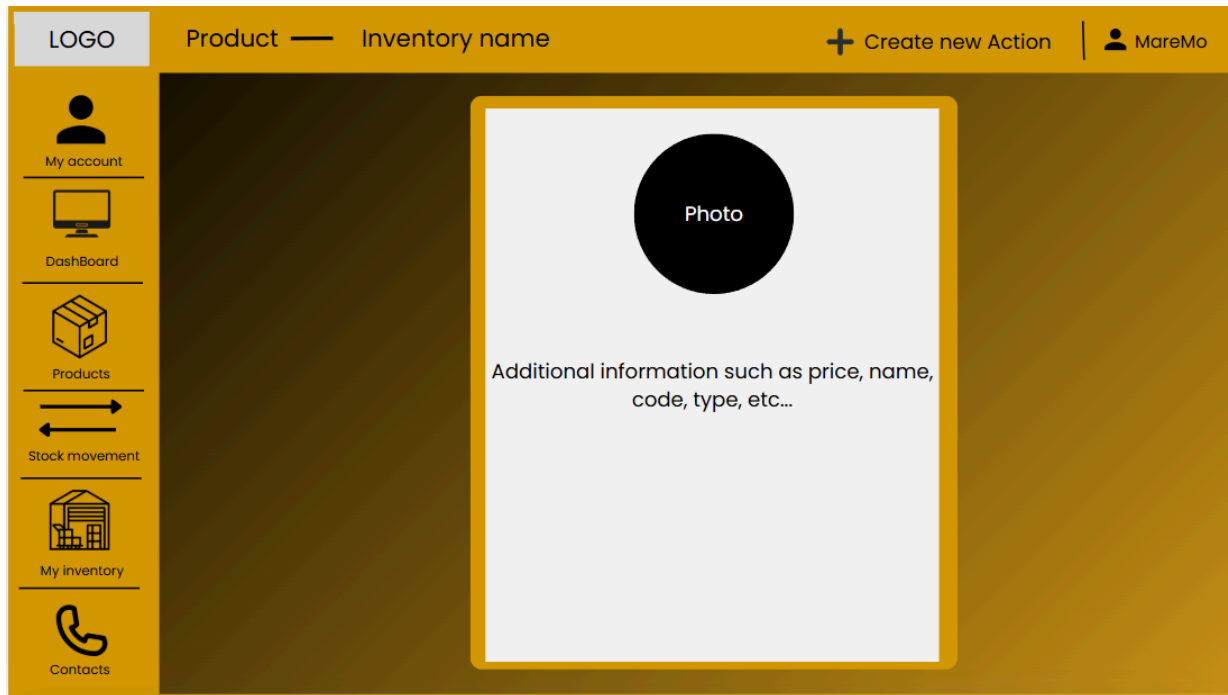


Figure 8. Product page v2 - Manager view

3.7 Stock Movement

Figure 9 shows the Stock Movement page, where all inventory actions are listed along with their status. Each entry includes details such as the type of action, product information, date, and status (e.g., approved, declined, or pending). This is displayed like in figure 10.

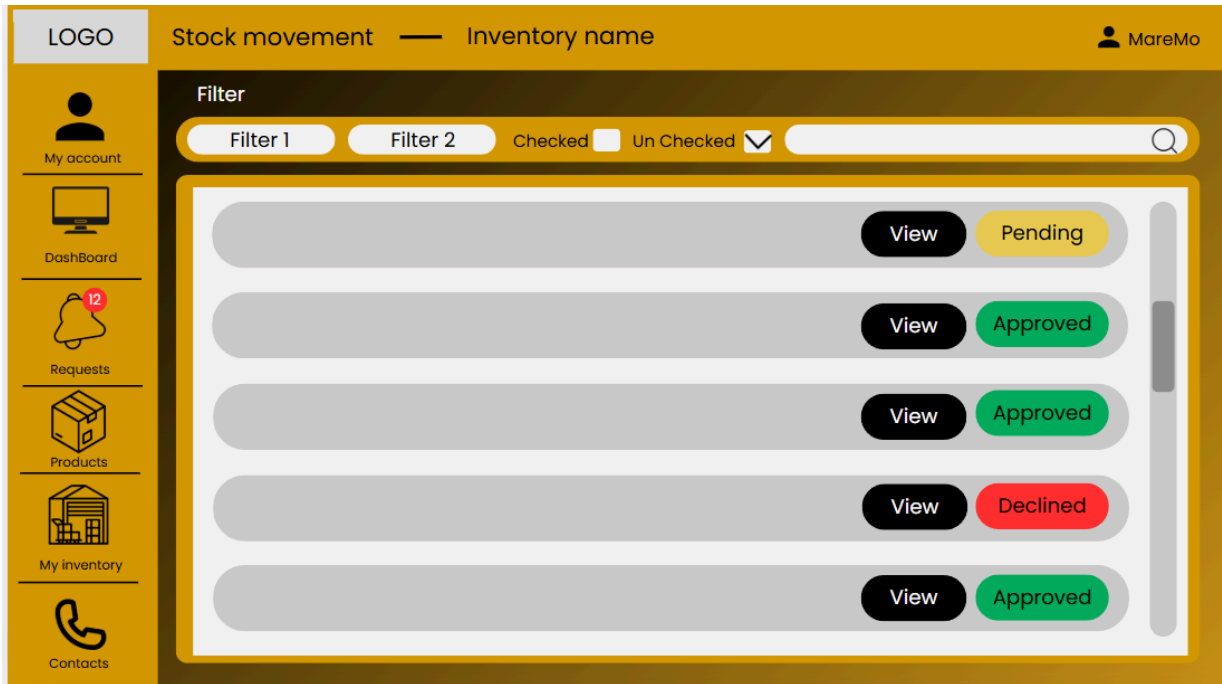


Figure 9. Stock movement page v1 - Manager view

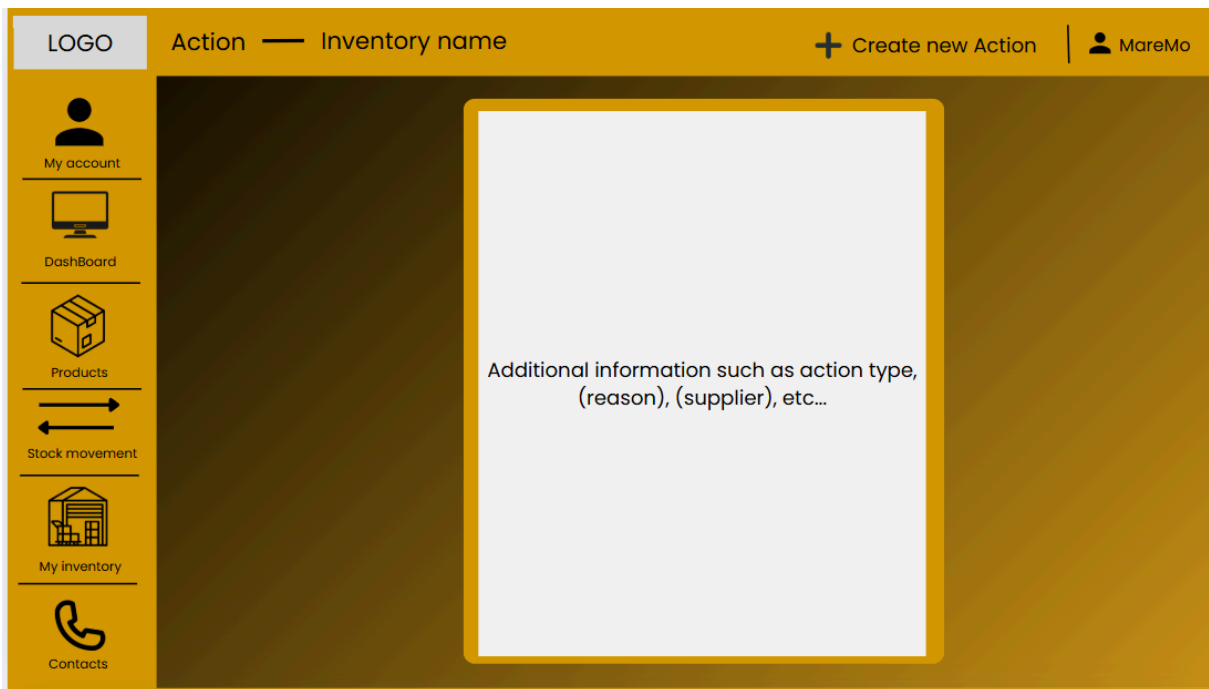


Figure 10. Stock movement page v2 - Manager view

3.8 Contacts

Figure 11 shows the Contacts page, where users can find supplier contact information. Each entry which is displayed in figure 12 includes details such as the supplier's name, phone number, email, and company details.

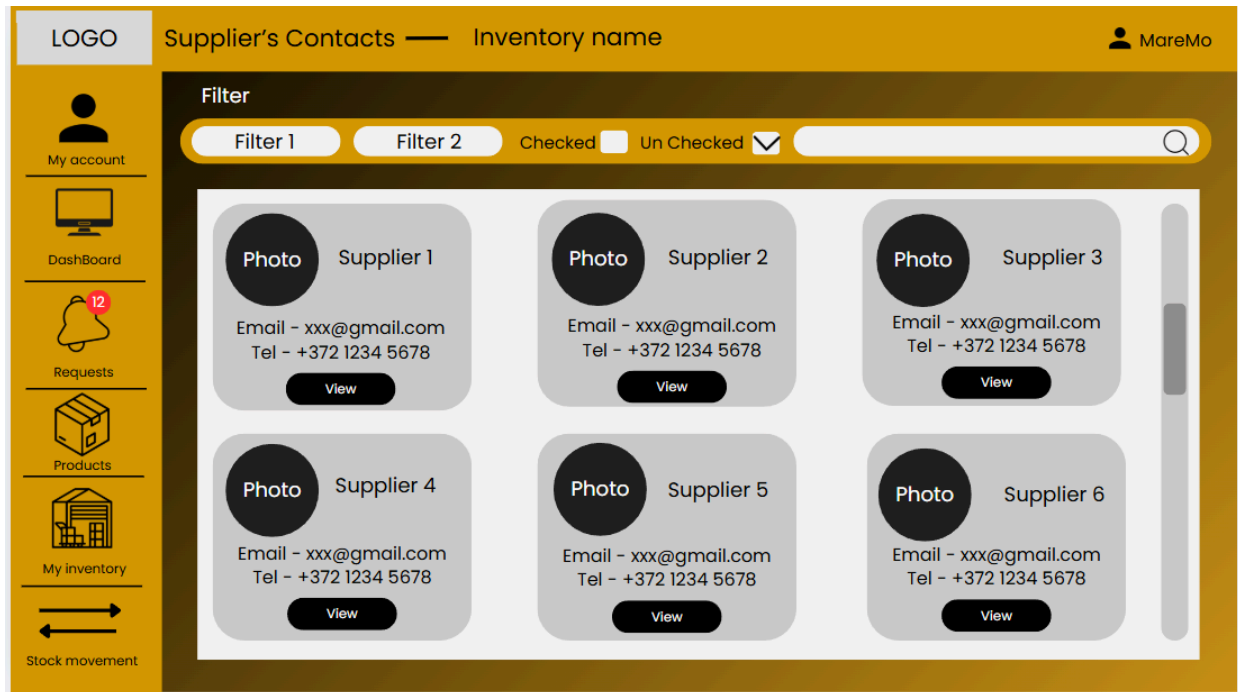


Figure 11. Supplier contacts page v1 - Manager view

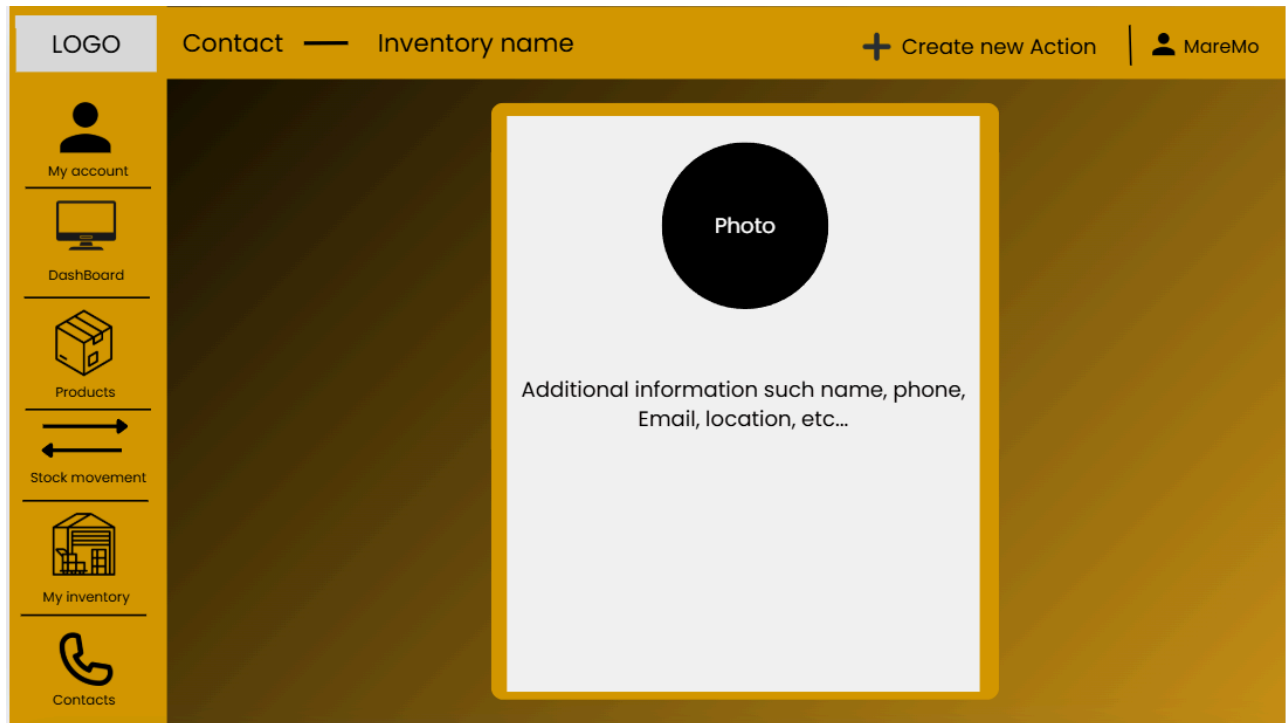


Figure 12. Supplier contacts page v2 - Manager view

3.9 My Inventory storage rooms

Figure 13 shows the Inventory Storage Room page, where users can view all storage rooms in the inventory. Each storage room displays details such as the number of products stored (figure 14), available capacity. Other relevant details for the product can be view when pressing on the product and it will be displayed like in figure 15 .

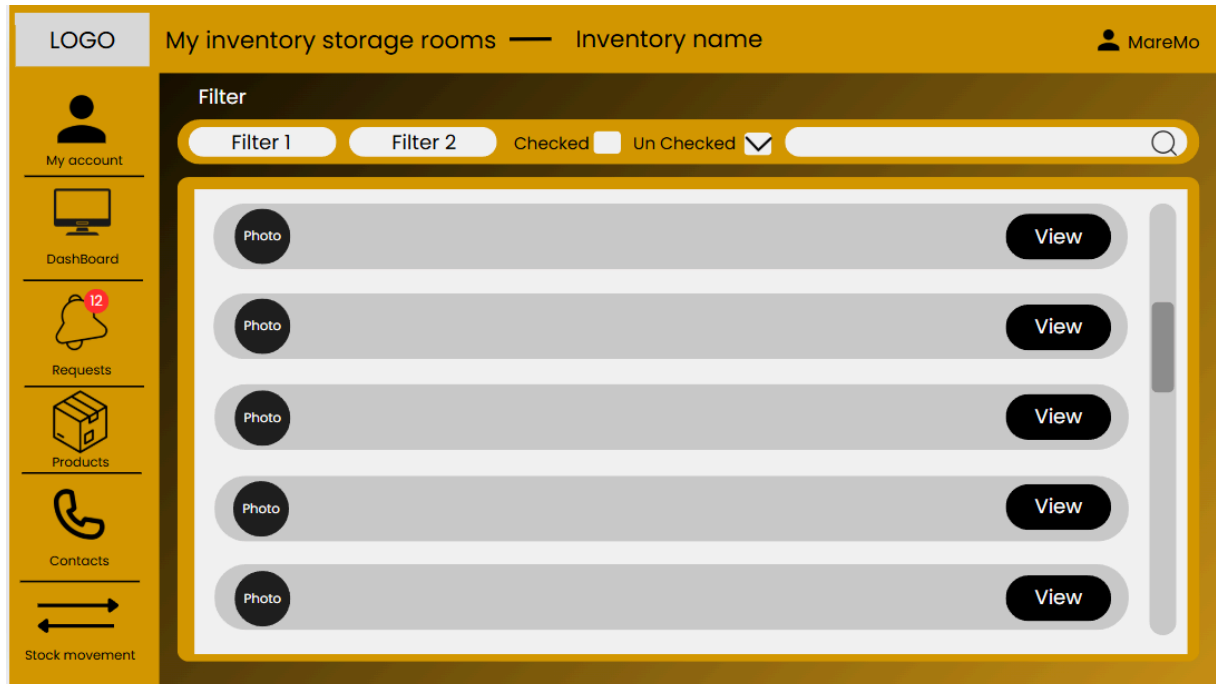


Figure 13. My inventory page v1 - Manager view

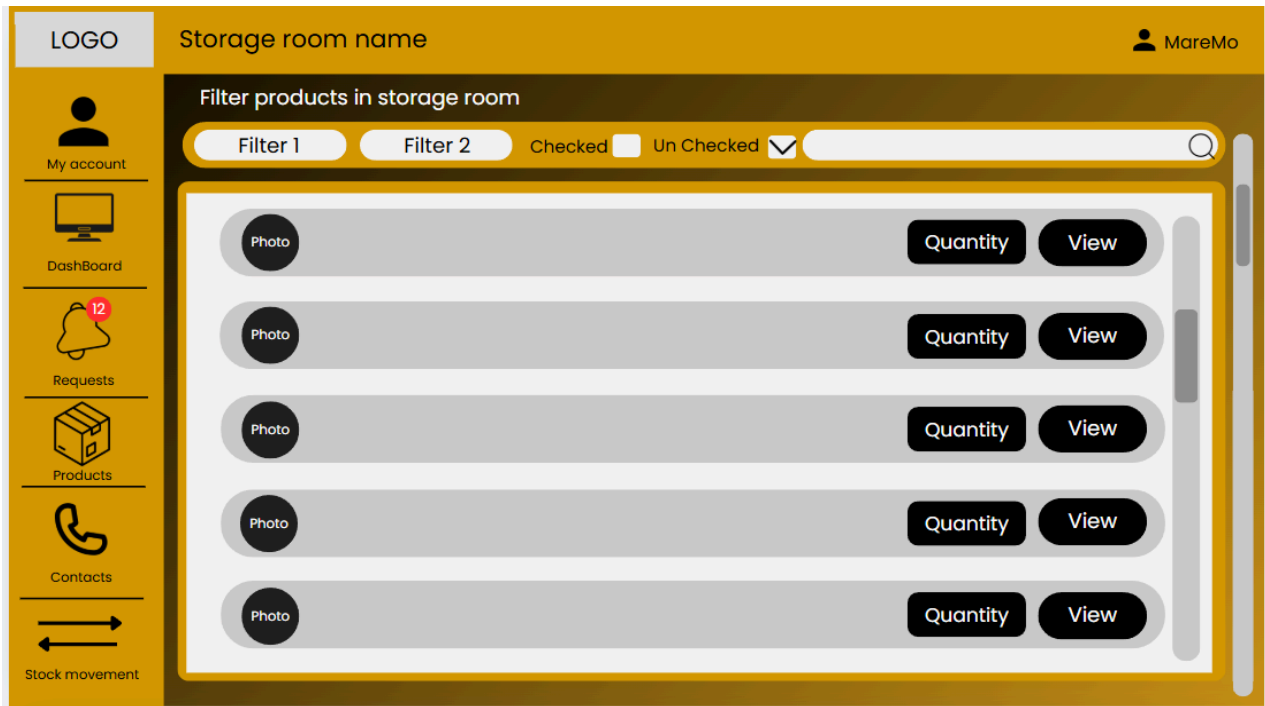


Figure 14. My inventory page v2 - Manager view

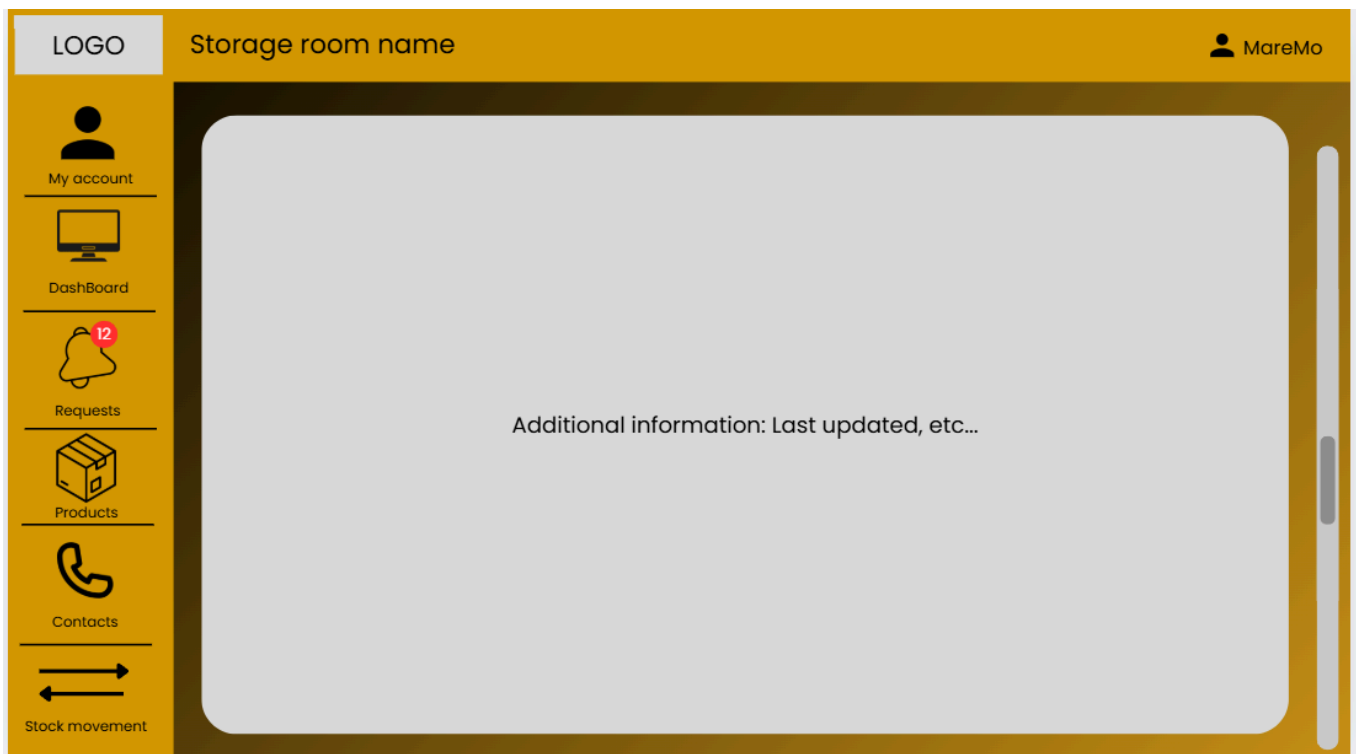


Figure 15. My inventory page v3 - Manager view

3.10 Worker view

Figure 16, 17, 18 show the Worker View, which displays the pages accessible to regular employees. Workers can update their account details, create new actions, and view the dashboard, which only shows actions they have submitted.

The screenshot displays the 'My Account' page for a worker. The interface features a yellow header bar with a 'LOGO' placeholder, the title 'My Account', and a '+ Create new Action' button. A sidebar on the left includes a 'DashBoard' icon and a '+ Create new Action' button. The main content area is split into two sections: 'My account' and 'Edit profile'. The 'My account' section shows a profile picture placeholder with the text 'Change profile picture' and a larger placeholder for 'Other important info'. The 'Edit profile' section contains several form fields: 'Firstname' (Marek), 'Lastname' (Molder), 'Username' (MareMo), 'Email' (marek@gmail.com), 'Phone number' (+372 1234 5678), and 'Password' (masked with asterisks). There are also 'Change password' and 'Save data' buttons.

Figure 16. My Account page - Worker view

LOGO + Create new Action — Inventory name MareMo

DashBoard

My account

Create Action

Choose action
Product disposal ↓

Choose Reason
Mistake ↓

Choose Product
Coca cola ↓

Quantity
0,75 l ↕

Comment
Write your comment

Create

Figure 17. Create new action page - Worker view

LOGO Dashboard — Inventory name + Create new Action MareMo

My account

Create new Action

Filter My Actions

Filter 1 Filter 2 Checked ☐ Un Checked ☒ Search

	View	Approved
	View	Pending
	View	Pending
	View	Declined
	View	Approved

Figure 18. DashBoard page - Worker view

References

OpenAI. (2025). ChatGPT (6. veebruari versioon), suur keelemudel, <https://chat.openai.com/>.

ActionType				
PK	Id	Name	Tkey	string(128)
		CreatedAt	datetime	datetime
		EndedAt	datetime	string(256)
		Comment		

Reason				
PK	Id	Description	Tkey	string(256)
		CreatedAt	datetime	datetime
		EndedAt	datetime	datetime
		Comment		string(256)

ApprovalRequests						
PK	Id	ActionId	Tkey			
		RequestedByUserId	Tkey			
		ApprovedByUserId	Tkey			
		Status	string (50)			
		CreatedAt	datetime			
		ApprovedAt	datetime			
		Comment				string(256)

Supplier						
PK	Id	Location	Tkey	string(256)		
		Name	string(50)			
		TelephoneNr	string(50)			
		Email	string(50)			
		CreatedAt	datetime			
		Comment				string(256)

Action										
PK	Id	ActionTypeId	Tkey							
		ReasonId	Tkey							
		SupplierId	Tkey							
		UserId	Tkey							
		ProductId	Tkey							
		StockAuditId	Tkey							
		Quantity	decimal							
		CreatedAt	datetime							
		Status	string?							
		Comment								string(256)

User															
PK	Id	UserName	Tkey	string(256)											
	uniq	NormalizedUserName	string(256)												
	idx	Email	string(256)												
		NormalizedEmail	boolean												
		EmailConfirmed	string												
		PasswordHash	string												
		SecurityStamp	string												
		ConcurrencyStamp	string												
		PhoneNumber	string												
		PhoneNumberConfirmed	boolean												
		TwoFactorEnabled	boolean												
		LockoutEnd	datetime												
		LockoutEnabled	boolean												
		AccessFailedCount	int												
		FirstName	string(128)												
		LastName	string(128)												

StockAudit					
PK	Id	UserId	Tkey		
		StorageRoomId	Tkey		
		CreatedAt	datetime		
		Comment			string(256)

StorageRoom						
PK	Id	Name	Tkey	string(128)		
		Location	string(128)			
		LastUpdated	datetime			
		CreatedAt	datetime			
		EndedAt	datetime			
		Comment				string(256)

StorageRoomInventory						
PK	Id	StorageRoomId	Tkey			
		InventoryId	Tkey			
		CreatedAt	datetime			
		EndedAt	datetime			
		Comment				string(256)

Inventory							
PK	Id	AddressId	Tkey				
		Name	string(128)				
		LastUpdated	datetime				
		CreatedAt	datetime				
		EndedAt	datetime				
		Comment					string(256)

StockMovement										
PK	Id	ProductId	Tkey							
		FromStorageRoomId	Tkey							
		ToStorageRoomId	Tkey							
		FromInventoryId	Tkey							
		ToInventoryId	Tkey							
		Amount	decimal							
		CreatedAt	datetime							
		Comment								string(256)

ProductsInStorageRoom											
PK	Id	ActionId	Tkey								
		ProductId	Tkey								
		SupplierId	Tkey								
		StockMovementId	Tkey								
		StorageRoomId	Tkey								
		Code	string(128)								
		Quantity	decimal								
		ManufacturingDate	datetime								
		ExpiryDate	datetime								
		CreatedAt	datetime								
		Comment									string(256)

Product									
PK	Id	ProductCategoryId	Tkey						
		Unit	enum						
		Code	string(128)						
		Name	string(128)						
		Price	decimal						
		Quantity	decimal						
		CreatedAt	datetime						
		Comment							string(256)

ProductCategory				
PK	Id	Name	Tkey	string(128)
		CreatedAt	datetime	datetime
		EndedAt	datetime	datetime
		Comment		string(256)

CurrentStock					
PK	Id	ProductId	Tkey		
		StorageRoomId	Tkey		
		Quantity	decimal		
		LastUpdated	datetime		
		Comment			string(256)

UserRole			
PK/FK	UserId	Tkey	
PK/FK	RoleId	Tkey	

Role					
PK	Id	Name	Tkey	string(256)	
	uniq	NormalizedName	string(256)		
		ConcurrencyStamp	string(256)		
		DisplayName	string(256)		

RoleClaim				
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		ClaimType	string	
		ClaimValue	string	

UserLogin				
PK	LoginProvider	string(128)		
PK	ProviderKey	string(128)		
	ProviderDisplayName	string		
	UserId	Tkey		

UserToken				
PK/FK	UserId	Tkey		
PK	LoginProvider	string(128)		
PK	Name	string(128)		
	Value	string		

UserClaim				
PK	Id	Tkey		
	UserId	int		
	ClaimType	string		
	ClaimValue	string		

Address									
PK	Id	StreetName	int	string(50)					
		BuildingNr	int	string(50)					
		City	string(50)						
		Province	string(50)						
		Country	string(50)						
		Name	string(50)						
		UnitNr	int	string(50)					
		CreatedAt	datetime						
		Comment							string(256)