Warehouse Management System

CMPT 308N

Section 200

The Big Boyz Team

Marist College

School Of Computer Science and Mathematics

Submitted to:
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Team Name

The Big Boys

Team Members:

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Descartes Tuyishime	descartes.tuyishime1@marist.edu (Team Leader)

Introduction of the group members

- My name is Saeed Abdilahi, and I am from Somaliland. I am Junior, studying computer science. The way I selected my current teammates was by asking them if we could be in a group team.
- My name is Ricky Junior Isheja, I am an international student from Rwanda, and I am a sophomore majoring in computer science, my general passions are coding, basketball, and soccer. I chose my teammates on the basis that we all believe in hard work, and we are all willing to invest in the necessary efforts to finish this project together and succeed in the course.
- My name is Descartes Tuyishime, and I am an international student from Rwanda. I am a senior, majoring in Computer Science and Data Analytics. I am interested in the use of machine learning to improve agricultural and medical field. I selected my team based on flexibility, motivation, and responsibility. I admire people who are flexible and motivated to do what needs to be done. I trust my team members to be responsible enough to take this course and project seriously.

Group Project Selected: Project 4 (Warehouse Management System)

The Big boys warehouse management system is a system that will help people to know, manage and maintain materials kept in the warehouse. The System will be managing details like the number of products, their store time, the price and the weight of the products, The system will also help the user to search a specific product. The system will make easier the accounting processes of the user's business which might in the overall increase the profit. The objective of the big boys is to make a warehouse management system by the end of this course that can help an admin user to enter the food types, books,

carts and any products, the store time in the warehouse, the pick out time, see the prices and search a product. And we shall also create a user's page for the user to buy and check out products.

Review the related work

- **Amazon Warehouse**

Amazon Warehouse works by label and packaging item and order that came through electronic orders that people who connect with Amazon made. The processes that the packages are labeled and boxed are physically by using human hands.

- **Target Warehouse**

Target Warehouses uses similar processes of packaging and distribution and then delivering to the right destination, the same as Amazon. However, the only difference is the brand of the item or product and its price sector

- **Apple Warehouse**

Apple Warehouse is the same as the other two warehouses above, but the difference is that apple mainly focuses on electronics whereas the two provide multiple products. All in all, Apple, Amazon, and Target use the same warehouse management system. All of these are held by humans.

Advantages of our Warehouse Management System

- Reduced Operating & Processing Expenses
- Reduced Mispacks
- Improved Customer Relations

Disadvantages of our Warehouse Management System

- Requires Expert Knowledge
- Requires Tight Security
- High Initial Investment

Merits Of our Project

1. Our Warehouse Management System (WMS) will lead to a drastic change in operating expenses since it reduces the manpower and other resources that are needed to manage and control the products that are in the warehouse.

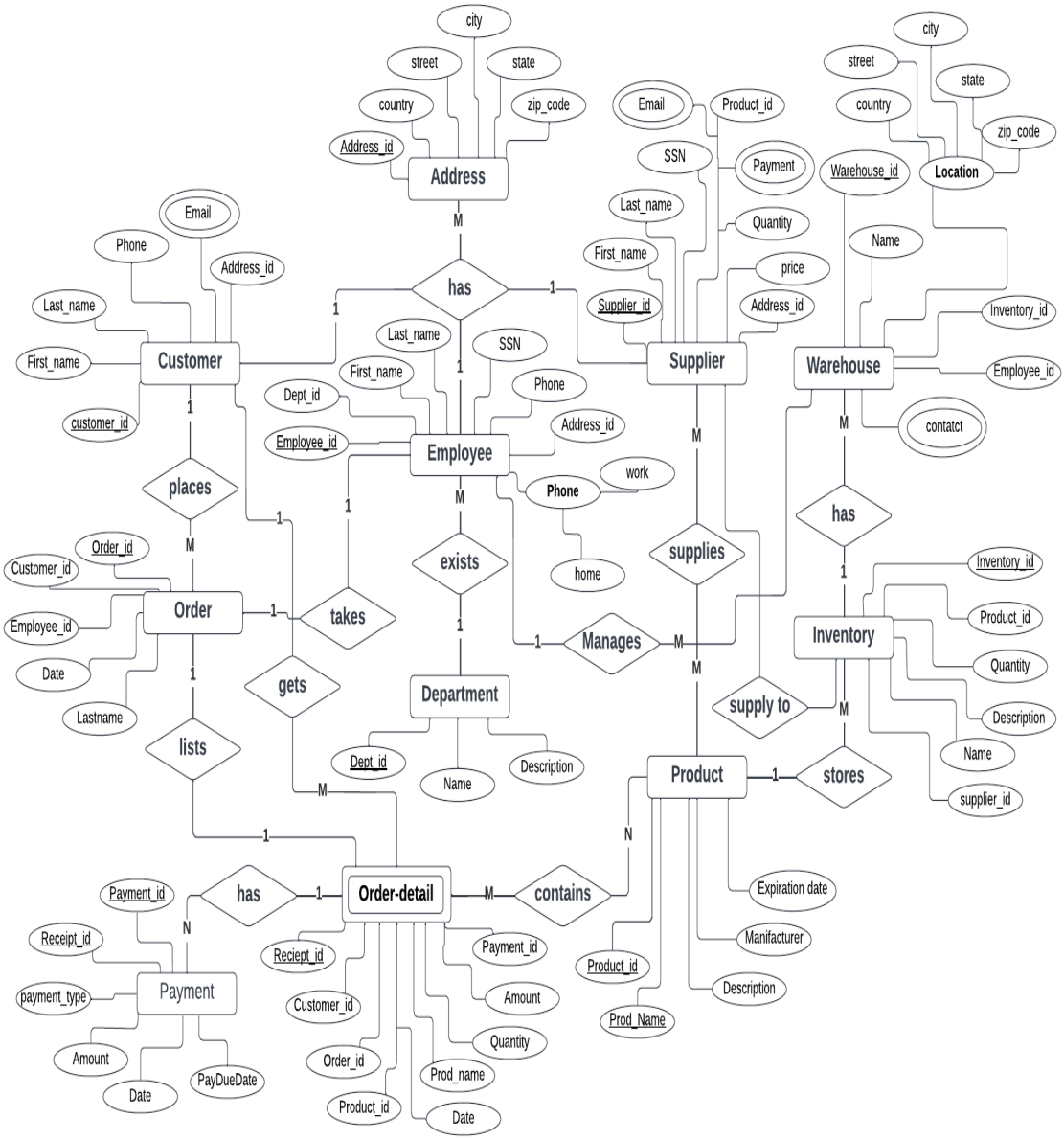
2. The Labor will be better allocated with our system since most of the work is done by the system so the labor will have time to do their work in a more effective way while also being efficient.
3. WMS will increase the overall customer satisfaction, since the Service provided will be faster and easier for both the seller and the buyer, which will also increase the customers loyalty to the business thus increased profitability on the businesses side.
4. WMS will facilitate and help to manage the inventory that comes in and gets out (2), which overall will facilitate the accounting process at the end of the fiscal year.

Entity Relationship Diagram (ER Diagram)

Our Warehouse Management System (WMS) consists of 11 entities. Below are the business rules that determined the entities in our WMS (Check out figure 1 below.).

A warehouse has a unique identification, a name, location, an inventory, a manager, and contacts for communications. A warehouse has one or more inventories, and an inventory belongs to one and only one warehouse. An inventory has a unique identification, name, product identification, product name, quantity, and product description, supplier identification. Inventory contains stores products, and products has unique identification, product name, description, weight, manufacturer, and expiration date. A warehouse is managed by an employee, and an employee has employee unique identification, department identification, first name, last name, Social Security number, Address identification, and phone number. Each employee belongs to a certain department, and a department has department unique identification, name, and Description. Each product is supplied by a supplier, and a supplier has unique identification, first name, last name, social security number, email, product identification, payment, quantity, and Address identification. Our WMS has customers, and a customer is represented by customer unique identification, first name, last name, email, and address identification. Customer, Employee, and Supplier all have address, and the Address has address unique identification, country, street, city, state, zip code. A Customer can place an order, and an order is taken by the employee. An order has a unique identification, customer identification, employee identification, and date. Each order has an order detail, and an order detail contains products. Each order detail list receipt unique identification, customer identification, order identification, product identification, date, product name, quantity, amount, and payment identification. Each detail has payment, and each payment consists of unique payment identification, payment type, amount, date, and pay due date. To

Figure 1: The Big Boyz Warehouse Management System ER Diagram



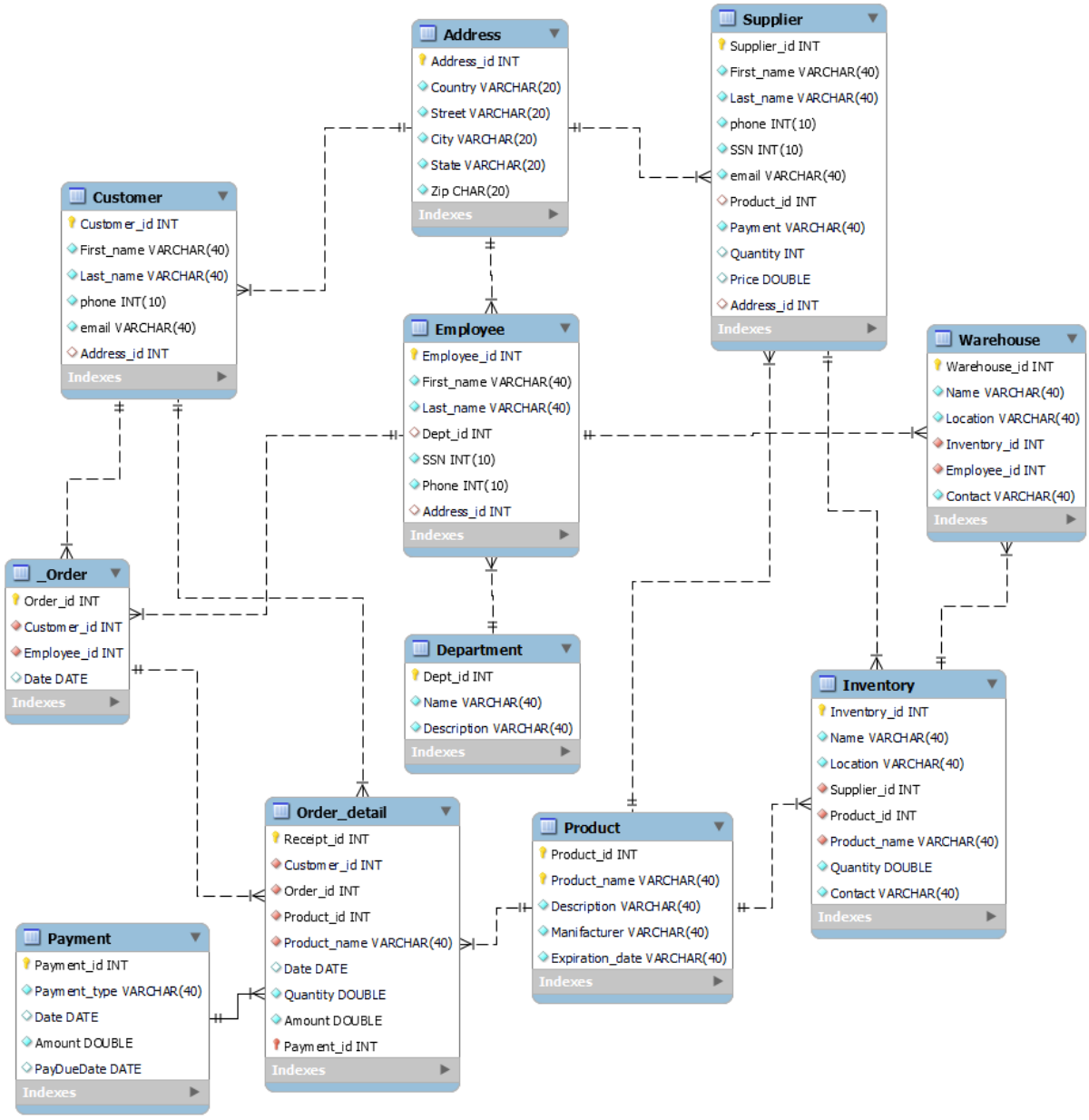
Designed using Lucid.app.

Enhanced Entity Relationship Diagram (EER diagram)

As described above, our warehouse management system is composed of 11 entities which are: Warehouse, inventory, supplier, product, employee, department, customer, address, order, order detail, and payment (Check figure 2).

A warehouse has many inventories, and an inventory belongs to one warehouse. A warehouse entity has warehouse identification (warehouse_id) as the primary key and has foreign keys inventory identification (inventory_id), and employee identification (employee_id) from inventory and employee respectively. The inventory stores may products, and a product is in an inventory. The suppliers supply products to one to more inventory. The inventory entity has primary key in inventory identification (inventory_id), and it has foreign keys in product identification (product_id), product name (product_name), and supplier identification(supplier_id). Supplier entity has supplier identification as a primary key, and it has foreign keys in product identification (product_id) and address identification (address_id). Product entity has product identification (product_id) and product name (product_name) as a composite primary key. Employee entity has employee identification (employee_id) as a primary key. Department entity has department identification (dept_id) as a primary key. Customer entity has customer identification (customer_id) as a primary key. Address entity has address identification (address_id) as a primary key. Order entity has order identification (order_id) as a primary key. Order detail has receipt identification (receipt_id) and payment identification (payment_id) as composite primary keys. Every order detail has payment, and every payment corresponds to one and only one order detail. Payment entity has payment identification (payment_id) as a primary key.

Figure 2: The Big Boyz Warehouse Management System EER Diagram



Reference

https://wdgcorp.com/request-more-information/?gclid=EAIaIQobChMI7q_xi5DM-gIVEr3ICh0r2gvBEAAYBCAAEgI8OfD_BwE

https://www.netsuite.com/portal/resource/articles/erp/warehouse-management.shtml

GitHub Resources

https://github.com/The-Big-Boys-Inc/Warehouse-Management-System.git

ER Diagram

https://lucid.app/lucidchart/0cd5589d-adbc-4fc7-8cde-2a64a2257a23/edit?viewport_loc=45%2C179%2C1897%2C1057%2C0_0&invitationId=inv_89f1f654-3612-447c-b252-7a72f98b60e0#