Database Project 2023:
Inventory Management System

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Introduction

In many organizations and companies, storage and distribution of materials and resources to their workforce is paramount to the functioning of its business. However, it can be difficult to keep track of the movement and location of these resources across all of its departments and divisions. This database was designed to regulate and track the flow and distribution of such materials and resources, and make inventory control much easier. Whether the organization in question is a manufacturing facility, in which the materials are tools and parts, or an office environment where the materials are paper and staples, this database allows for these materials to be tracked, distributed, and resupplied quickly and efficiently.

Problem Statement

The goal of this project was the creation of a database capable of managing the supplies of a corporation. It should be capable of handling office supplies, mechanical equipment, tools, materials, and anything else that can get a supplier. The project should be able to manage supply and inventory, and be able to resupply its inventory. Such a database should be able to handle the distribution of materials.

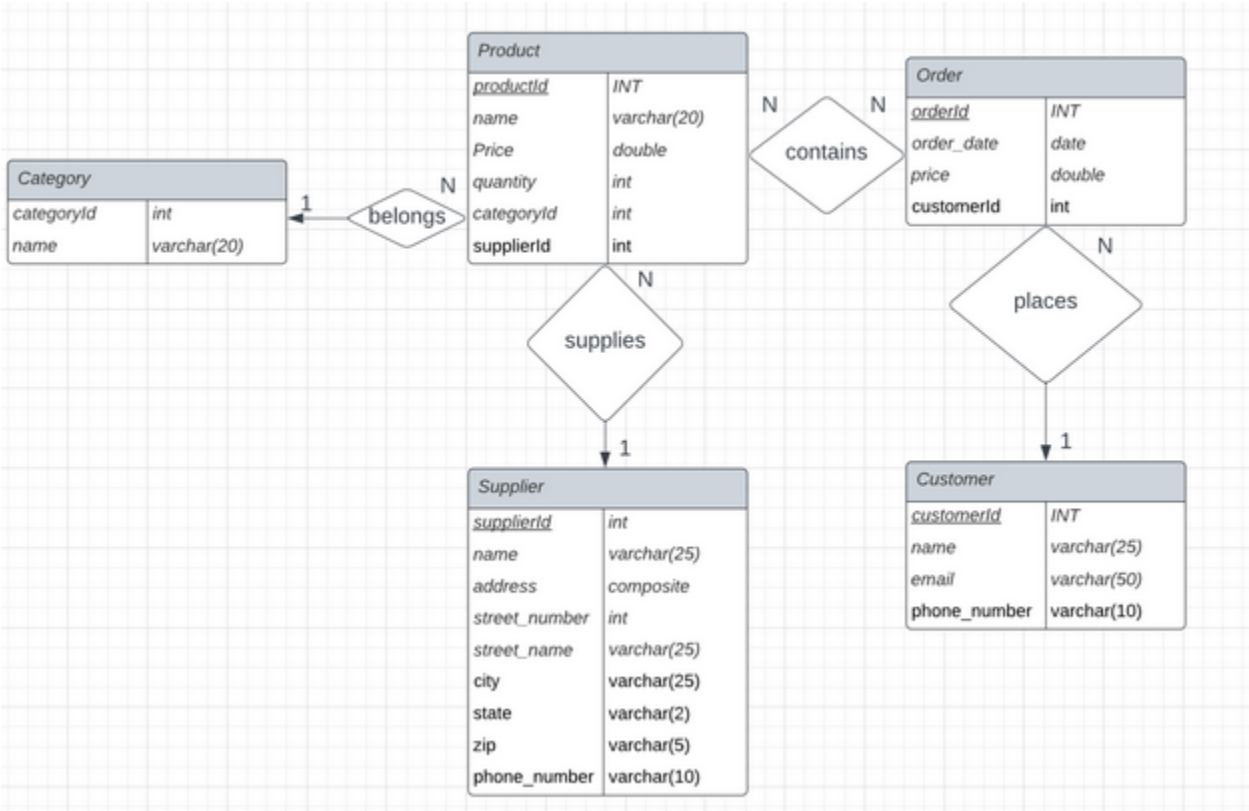
Goals of the Project

Our technology is made to track and distribute products more efficiently by carefully managing inventory. Among its abilities are:

- **Comprehensive Inventory Management:** All things in storage will be comprehensively logged by the system, which will classify them according to the department, product name, ID, and amount available.
- **Distribution Tracking:** It will keep track of how products are distributed to staff members and departments. This entails documenting the person or department making the request, the item's cost, the quantity sought, and the request's date and time.
- **Supplier Management:** The system will also maintain tabs on our suppliers, identifying which ones restock each product, how much is restocked, and when it will be restocked.

To ensure a smooth supply chain and operational efficiency, the system may also originate and handle order requests for replenishing inventory.

Entity-Relationship Model



SQL Queries

```
CREATE TABLE credentials(
	username VARCHAR(50) PRIMARY KEY,
	pswd VARCHAR(50) NOT NULL,
	rol VARCHAR(50) NOT NULL
);

CREATE TABLE Customer (
	customerID INT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,
	email VARCHAR(50) NOT NULL,
	firstName VARCHAR(50) NOT NULL,
	lastName VARCHAR(50) NOT NULL,
	username VARCHAR(25) NOT NULL,
	FOREIGN KEY (username) REFERENCES credentials(username) ON DELETE CASCADE ON UPDATE CASCADE
);
CREATE TABLE Supplier (
	supplierID INT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,
```

```
	supplier_name VARCHAR(25) NOT NULL,
	street_number INT NOT NULL,
	street_name VARCHAR(25) NOT NULL,
	city VARCHAR(25) NOT NULL,
	state VARCHAR(2) NOT NULL,
	zip VARCHAR(5) NOT NULL,
	phone_number VARCHAR(10) NOT NULL,
	username VARCHAR(25) NOT NULL,
	FOREIGN KEY (username) REFERENCES credentials(username) ON DELETE CASCADE ON UPDATE CASCADE
);

CREATE TABLE Ordr (
	orderID INT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,
	order_date DATE NOT NULL,
	total_price DOUBLE PRECISION NOT NULL,
	customerID INT NOT NULL,
	status VARCHAR(15),
	FOREIGN KEY (customerID) REFERENCES Customer(customerID)
);

CREATE TABLE Category (
	CategoryID INT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,
	CategoryName VARCHAR(20) NOT NULL
);

CREATE TABLE Product (
	productID INT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,
	product_name VARCHAR(20) NOT NULL,
	quantity INT NOT NULL,
	price DOUBLE PRECISION NOT NULL,
	supplierID INT NOT NULL,
	categoryID INT NOT NULL,
	FOREIGN KEY (supplierID) REFERENCES Supplier(supplierID) ON DELETE CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (categoryID) REFERENCES Category(categoryID) ON DELETE CASCADE ON UPDATE CASCADE
);


CREATE TABLE OrderDetail(
	orderDetailID INT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,
	orderID INT NOT NULL,
	productID INT NOT NULL,
	quantity INT NOT NULL,
	FOREIGN KEY (orderID) REFERENCES Ordr(orderID) ON DELETE CASCADE ON UPDATE CASCADE,
	FOREIGN KEY (productID) REFERENCES Product(productID) ON DELETE CASCADE ON UPDATE CASCADE
);
```

Scope of the Project

In the future, this project should be able to analyze and predict rates of distribution and how often something is requisitioned, so that when a supply or material needs to be resupplied, it can automatically submit an order for resupply. It could also be used in conjunction with RFID to get real time updates and tracking on the location of certain materials.

RECORDING OF THE DEMO (https://www.youtube.com/watch?v=YNfWMRFNxJg)