CSE 560
Inventory Management System

Introduction:

An inventory management system (or inventory system) is the process by which you track your goods throughout your entire supply chain, from purchasing to production to end sales. It governs how you approach inventory management for your business.

Example for Inventory Management:

Carlos starts a business selling food hampers. He has various suppliers who sell him food in bulk, some of which must then be split up and repackaged.
Carlos creates an Excel spreadsheet, which he updates whenever he orders more stock, assembles a hamper or completes a sale. This is his inventory management system, and he's entirely dependent on it to know how much stock he currently has, when his food products might expire, how many hampers he can sell and more.

Why do you specifically need some inventory system:

Any venture that handles stock will need a system to accurately track and control it. Without one, you'll be working on an entirely ad-hoc basis — and you'll quickly run into situations where your business is overstocked or understocked.
Inventory systems tell you the number of components or ingredients you need to create or assemble your final product. Without this information you may end up with excess stock, eroding your bottom line, or with insufficient stock to meet customer demand.
But while you will need an inventory management system, which one you choose is entirely up to you. There are countless different systems you can adopt, ranging from simple approaches to comprehensive solutions.

Tables in this Inventory Management System:

1. Order Table
2. Product Table
3. Customer Table
4. Summary Table
5. Employee Table
6. Supplier Table

A Brief Summary of the tables:

1. In Customer Table we have attributes like Customer_number, Address, Customer_id,Fname, Last name

.

2. In this table customerID is the primary key. We store complete details about customer with respective that attribute. In table Order we have attributes like order_id, customer_id, Employee_id, Product_id, Brandid, Order Date.

3. In this table orderID is the primary key and customerId is the foreign key. We store the details about the order and the related information within those attributes. In table Employee we have attributes like emp_id, name, contact_number, position.

4. In this table emp_id is the primary key. We store the details about the Employee and the related information within those attributes. In the product table, we have attributes like productid, BrandID,Model,CustomerID, in this table productid is the primary key.customer_id is the foreign key. We store the details about the product and the related information within those attributes.

5. In the Supplier table, we have attributes like supplierid, supplier_name, supplier_address, contact_number, brand_id. Supplier_id is the primary key in this table. Brand_id is the foreign key.

6. In the Summary Table, we have orders like Order_Id, Invoice_number, Brand_name, SerialNumber, Price. Here we store information about details of order,invoices and purchase of brand along with its serial number and price of that product

7. All the above tables does not violate **BCNF**

SQL Queries and their following outputs:

Below are the sample queries that are helpful for an end user while managing inventory,

- This query is used to get data from both the order table and employee table, the table obtained shows the details of the employee with respect to an order.

select O.order_id,O.customer_id,O.order_date,E.emp_id,E.emp_name from Order_tbl O, Employee E where
O.emp_id=E.emp_id

Below is the output for the above query.

	order_id integer	customer_id integer	order_date date	emp_id integer	emp_name character varying (50)
1	1	1	2021-04-29	1	Curr
2	2	2	2021-08-26	2	Chuck
3	3	3	2021-09-20	3	Carmelina
4	4	4	2021-11-29	4	Zack
5	5	5	2021-08-10	5	Mal
6	6	6	2021-08-27	6	Shurwood
7	7	7	2021-04-23	7	Betsy
8	8	8	2021-03-21	8	Bo
9	9	9	2021-03-29	9	Zacharias

- Below query is to pull product details and their corresponding supplier details.

select P.product_id,P.model,S.supplier_id,S.supplier_name,P.supplier_id from Supplier S, Product P where
P.supplier_id=S.supplier_id

Below is the output for the above query.

	product_id integer	model integer	supplier_id integer	supplier_name character varying (50)	supplier_id integer
1	1	23	1	Gabriellia	1
2	2	50	2	Gabey	2
3	3	68	3	Peggy	3
4	4	28	4	Bernardine	4
5	5	50	5	Marjie	5
6	6	47	6	Reiko	6
7	7	36	7	Jorry	7
8	8	1	8	Rhea	8
9	9	62	9	Yul	9

- Below query is to get order details for the corresponding order details.

select C.first_name as Customer_name,C.customer_id,O.order_id,O.Order_date from Customer C,Order_tbl O where C.customer_id=O.customer_id

Below is the output for the above query.

	first_name character varying (50)	last_name character varying (50)	customer_id integer	order_id integer	order_date date
1	Gamaliel	Crabbe	1	1	2021-04-29
2	Nigel	Donett	2	2	2021-08-26
3	Caz	Alcide	3	3	2021-09-20
4	Emilia	Gemmill	4	4	2021-11-29
5	Phillie	Confait	5	5	2021-08-10
6	Othello	Gulvin	6	6	2021-08-27
7	Doralynne	Iamittii	7	7	2021-04-23

- Below query is to get the product and supplier details for the corresponding order and customer details for a particular date. Here we are trying to find what are all the products that are being ordered for a given date.

select O.order_id,O.order_date,C.first_name,C.last_name,C.contact_number,P.model,S.supplier_id, S.supplier_name from customer C,order_tbl O,product P,supplier S where O.customer_id=C.customer_id and O.product_id=P.product_id and P.supplier_id=S.supplier_id and O.order_date='2021-01-31'

Below is the output for the above query.

	order_id integer	order_date date	first_name character varying (50)	last_name character varying (50)	contact_number character varying (50)	model integer	supplier_id integer	supplier_name character varying (50)
1	24	2021-01-31	Esmaria	Hassen	8307335016	23	1	Gabriellia
2	41	2021-01-31	Padriac	Leonardi	8336912185	24	84	Gwendolen
3	225	2021-01-31	Temple	Bizzey	8439091538	25	75	Jerrold
4	300	2021-01-31	Trescha	Dobbyn	4923042073	15	79	Rodrique

- Below query is to get complete details of an order which is the complete summary of an order for a particular customer. Here, we pull the details from the summary table, Order_tbl table, Customer table, product table and supplier table using customer ID.

select S1.invoice_number,S1.price,O.order_id,O.order_date,C.customer_id,C.first_name, C.last_name,C.contact_number,P.product_id,P.model,S.supplier_id, S.supplier_name from customer C,order_tbl O,product P,supplier S,summary S1 where O.customer_id=C.customer_id and O.product_id=P.product_id and P.supplier_id=S.supplier_id and S1.invoice_number=O.invoice_number and C.customer_id=2

Below is the output for the above query.

	invoice_number integer	price integer	order_id integer	order_date date	customer_id integer	first_name character varying (50)	last_name character varying (50)	contact_number character varying (50)	product_id integer	model integer	supplier_id integer	supplier_name character varying (50)
1	2	4387	2	2021-08-26	2	Nigel	Donett	7748363385	60	89	60	Darbee