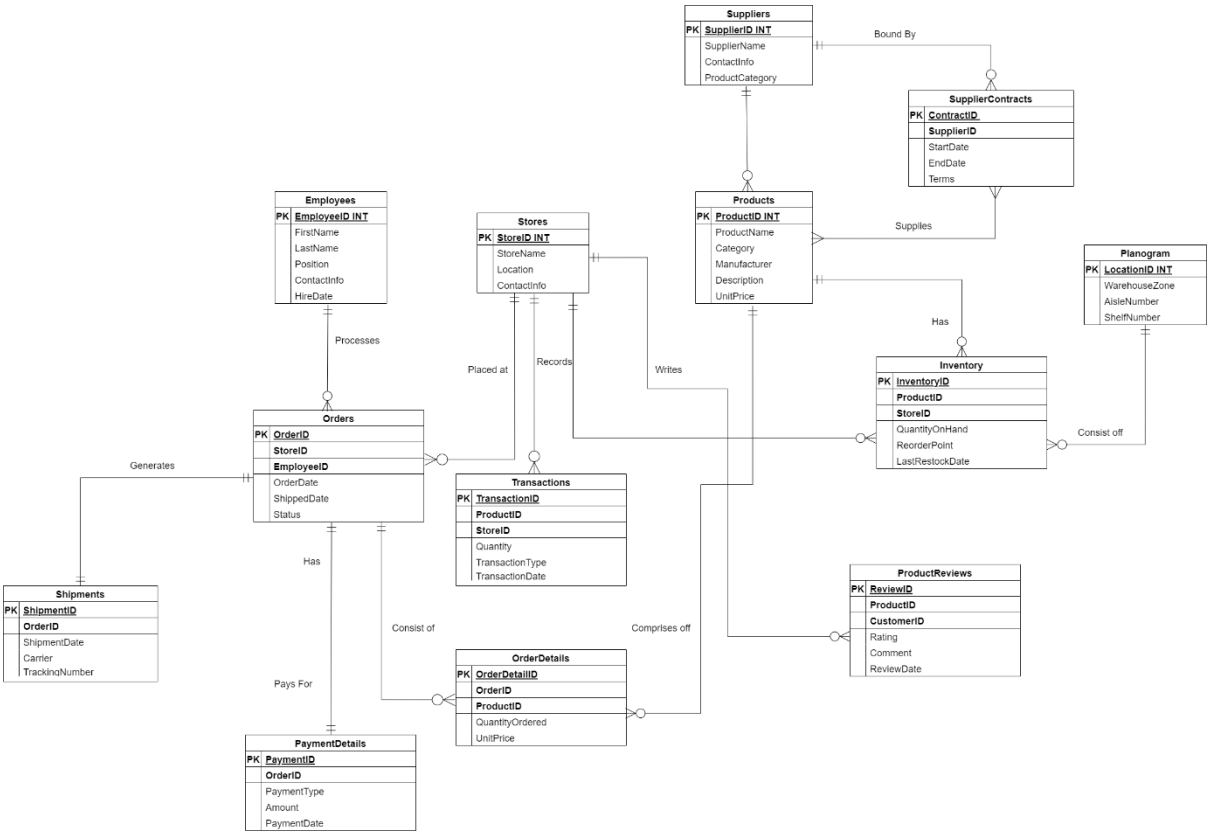
Group – 9 Initial ER Diagram and Documentation – Group Project



1) Business Problems the Project is trying to solve:

- It manages a supply chain operation.
- It handles inventory management, sales processing, order fulfilment and supplier relations.
- Efficient performance of employees, stores, products, suppliers, and transactions is ensured by this database.

2) Entities and Their Relationships:

- **Employees**: This entity contains information about the company's employees. It indicates which employee is assigned to which part of the warehouse.
- **Stores**: This represents the physical shops that the warehouse supplies to. The relationship with Employees will indicate where transactions take place and orders are executed. The relationship transaction between Orders and Stores showing how these transactions are made as well as how orders are shipped out.
- **Orders**: Store orders are controlled by this entity. It relates to Transactions implying that each order results into a transaction. Furthermore, it could relate with Shipments and Order Details controlling what items were ordered in an order and how it was sent out.
- **Transactions**: Sales transactions are represented by this entity. It's linked to Payment Details and perhaps Order Details indicating what was bought as well as payment options.
- **Suppliers**: This deals with suppliers' data. It's related to Supplier Contracts indicating the terms of agreement for every supplier.

- **Products**: This is an entity that stores information about the goods being sold by the enterprise. It is associated with Inventory and hence keeps track of the levels of stock as well as Product Reviews which has store feedback.
- **Inventory**: Stock level management for products. Perhaps connected to Shipments, so this suggests when new inventory gets in.
- **Product Reviews**: This entity contains reviews made by stores on products.
- **Supplier Contracts**: This is responsible for handling contracts between the warehouse and its suppliers.
- **Order Details**: Information about what is included in each order can be found here.
- **Payment Details**: This holds payment details meant for all transactions.
- **Shipments**: Could relate Orders and other entities as it serves a purpose of tracking product shipment.

3) Key Design Decisions:

- The design reflects a normalized database structure, which eliminates redundancy and ensures data integrity.
- It uses one-to-many and many-to-one relationships to connect entities such as Products to Inventory or Orders to Order Details.
- By separating payment details from transaction details into separate entities, stronger security measures are enabled like keeping sensitive financial information confidentially.
- An entity is also created for product reviews in order to provide store feedback which may be useful in business intelligence and marketing strategies.
- Supplier contracts being a separate entity allows the business to keep detailed records of the terms agreed upon with each supplier.