Project 2

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1 ER Diagram

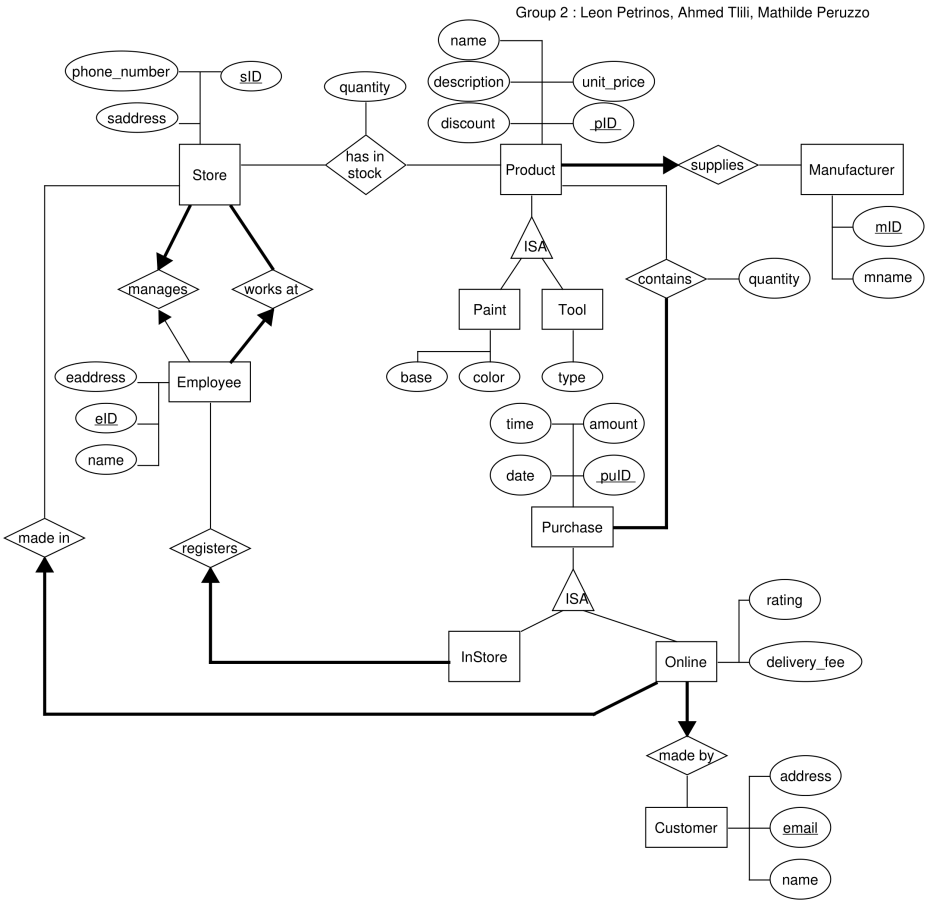

Figure 1: ER Diagram

2 Relational Schema

- **Store**(s_id, s_address, phone_number, manager_id UNIQUE NOT NULL)
  FOREIGN KEY(manager_id) REFERENCES Employee(employee_id)
- **Employee**(e_id, e_name, s_id)
  FOREIGN KEY(s_id) REFERENCES Store(s_id)
- **Manufacturer**(m_id, m_name)

- **Product**(p_id, p_name NOT NULL, unit_price NOT NULL, description, discount_percentage, m_id NOT NULL)
  FOREIGN KEY(m_id) REFERENCES Manufacturer(m_id)
- **Paint**(p_id, base, color)
  FOREIGN KEY(p_id) REFERENCES Product(p_id)
- **Tool**(p_id, type)
- **Has_in_stock**(p_id, s_id, quantity NOT NULL CHECK(quantity $\geq$ 0))
  FOREIGN KEY(p_id) REFERENCES Product(p_id)
  FOREIGN KEY(s_id) REFERENCES Store(s_id)
- **Customer**(email, c_name, c_address NOT NULL)
  PRIMARY KEY(email)
- **Purchase**(p_id, amount NOT NULL, p_date NOT NULL, p_time NOT NULL)
- **Contains_purchase**(p_id, product_id, quantity NOT NULL CHECK(quantity $\geq$ 0))
  FOREIGN KEY(p_id) REFERENCES Purchase(p_id)
  FOREIGN KEY(product_id) REFERENCES Product(p_id)
- **Instore**(p_id, e_id)
  FOREIGN KEY(p_id) REFERENCES Purchase(p_id)
  FOREIGN KEY(e_id) REFERENCES Employee(e_id)
- **Online**(p_id, rating CHECK(rating $\geq$ 0 AND rating $\leq$ 5 OR rating IS NULL), delivery_fee NOT NULL, email NOT NULL)
  FOREIGN KEY(p_id) REFERENCES Purchase(p_id)
  FOREIGN KEY(email) REFERENCES Customer(email)

3 Pending Constraints

- A store should have at least one employee. (TODO: might not be correct as a every store should have a manage which will work there as well)
- A purchase should have at least one product.
- Cannot have store manager_id referencing a row in the Employee table.
  As here we have two tables referencing each other (STORE, EMPLOYEE).
  One of them has to drop the foreign key constraint.

4 SQL Queries

Query 1

(a)

(b)

(c)

Query 2

(a)

(b)

(c)

Query 3

(a)

(b)

(c)

Query 4

(a)

(b)

(c)

Query 5

(a)

(b)

(c)