Projeto de Bases de Dados - Parte 2

Professor Pedro Leão Dias

Grupo 49 - Turno BD2L03 - segunda-feira 14:30

Aluno	Esforço Total
Bernardo Galante (102423)	8 horas
Daniel Pinto (102518)	8 horas
Henrique Machado (103266)	8 horas

Modelo Relacional

- Customer (cust_no, name, email, phone, address)
    - UNIQUE (email)

- Employee (ssn, TIN, bdate, name)
    - UNIQUE (TIN)
    - RI-1: Todo o ssn de **Employee** tem de existir em ssn de **works**

- Workplace (address, lat, long)
    - UNIQUE(lat, long)

- Office (address)
    - address: FK(Workplace)

- Warehouse (address)
    - address: FK(Workplace)

- Department(name)

- Product (sku, name, description, price)
    - RI-2: Todo o sku de **Product** tem de existir em sku de **supply-contract**

- EAN Product (sku, ean)
    - sku: FK (Product.sku)

- Supplier(TIN, name, address)
    - RI-3: Todo o TIN de **Supplier** tem de existir em TIN de **supply-contract**

- supply-contract (product_sku, supplier_TIN, date)
    - product_sku: FK (Product.sku)
    - supplier_TIN: FK (Supplier.TIN)

- Order (order_no, date, cust_no)
    - cust_no: FK (Customer)
    - RI-4: Todo order_no de **Order** tem de existir em order_no de **contains**

- process (ssn, order_no)
    - ssn: FK (Employee)
    - order_no: FK (Order)

- Sale (<u>order_no</u>)
    - order_no: FK (Order.order_no)

- Pay (cust_no, <u>order_no</u>)
    - order_no: FK (Sale)
    - cust_no: FK (Customer)
    - RI-5: Todo o cust_no de **pay** tem de existir em cust_no de **Order**

- works (<u>ssn</u>, <u>address</u>, <u>department_name</u>)
    - ssn: FK (Employee)
    - address: FK (Workplace)
    - department_name: FK (Department.name)

- contains (<u>order_no</u>, <u>sku</u>, qty)
    - order_no: FK (Order)
    - sku: FK (Product)

- delivery (<u>warehouse_address</u>, <u>supply-contract_TIN</u>)
    - warehouse_address: FK (Warehouse.address)
    - supply-contract_TIN: FK (supply-contract.TIN)

Álgebra Relacional

1. $\pi_{cust\_name}(\rho_{name \rightarrow cust\_name}(Customer) \bowtie (\sigma_{price > 50 \wedge date >= '01\text{-}01\text{-}2023' \wedge date <= '31\text{-}12\text{-}2023'}(Order \bowtie contains \bowtie Product)))$

2. WW = works ⋈ Warehouse
   WO = works ⋈ Office
   ORDERS = $\sigma_{date >= '01\text{-}01\text{-}2023' \wedge date <= '31\text{-}01\text{-}2023'}$(Order)

   π_{name}((WW - WO) ⋈ (Employee ⋈ process ⋈ ORDERS))

3. produtos ← $({}_{sku}G_{sum(qty) \rightarrow quantidade\_total}(Sale \bowtie contains \bowtie Product))$

   mais_vendido ← $G_{max(quantidade\_total)}$(produtos) ⋈ produtos

   resultado ← π_{name}(Produto ⋈ mais_vendido)

4. ${}_{order\_no}G_{sum(valor\_total)}(\pi_{order\_no,\ sku,\ (price*qty) \rightarrow valor\_total}(Sale \bowtie contains \bowtie Product))$