Projeto de BD – Parte 2

GRUPO 22
TURNO BD2L02
PROF: JOÃO CALDEIRA

Artur Martins (102503) (40%) (3 horas)
Francisco Fortunato (102938) (30%) (2 horas)
Duarte Marques (103262) (30%) (2 horas)

Modelo Relacional:

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

Order(order_no, date):
- IC-6:Every Order (*order_no*) must participate in the contains association

Sale(order_no):
- order_no: FK(Order.order_no)

Employee(ssn, TIN, bdate, name):
- UNIQUE(TIN)
- IC-5:Every Employee (*ssn*) must participate in the works association

Department(name)

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

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

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

Product(sku, name, description, price)
- IC-7:Every Product (*sku*) must participate in the supply-contract association

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

Supplier(TIN, address, name, sku, date)
- TIN: FK(Product.TIN)
- Sku: FK(Product.sku)

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

places(cust_no, order_no)
- cust_no: FK(Customer.cust_no)
- order_no: FK (Order.order_no)

pay(cust_no, order_no)
- cust_no: FK(Customer.cust_no)

- order_no: FK(Order.order_no)
- (IC-1) Customers can only pay for the Sale of an Order they have placed themselves

works(<u>address</u>, <u>ssn</u>, <u>name</u>)

- address: FK(Workplace.address)
- ssn: FK(Employee.ssn)
- name: FK(Department.name)

contains(<u>order_no</u>, <u>sku</u>, qty)

- order_no: FK(Order.order_no)
- sku: FK(Product.sku)

delivery(<u>TIN</u>, <u>address</u>)

- TIN: FK(Supplier.TIN)
- adress: FK(Warehouse.address)

Álgebra Relacional:

1. Listar nomes dos clientes que fizeram pedidos em 2023 cujo preço é superior a 50€.

$\pi_{Customer.name}(\sigma_{Order.date \geq '2023-01-01' \wedge Order.date \leq '2023-12-31' \wedge Product.price > 50}(Customer \bowtie places \bowtie Order \bowtie contains \bowtie Product))$

2. Listar nomes dos empregados que trabalham exclusivamente em armazéns e processaram encomendas em janeiro de 2023.

$\pi_{Employee.name}(\sigma_{Order.date \geq '2023-01-01' \wedge Order.date \leq '2023-01-31'}(Employee \bowtie process \bowtie Order \bowtie (Warehouse - Warehouse \cap Office)))$

3. Listar o nome do produto mais vendido.

$\pi_{Product.name}({}_{Product.sku}G_{MAX({}_{Product.sku}G_{Sum(contains.qty)})}(Sale \bowtie contains \bowtie Product))$

4. Indique o valor total de cada venda.

${}_{Sale.order\_no}G_{SUM(Product.price * contains.qty)}(Sale \bowtie contains \bowtie Product)$