Projeto BD - Parte 2

Grupo 89

L10

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Modelo Relacional

IVM(serial number, manuf)

Point of Retail(address, name)

installed-at(serial number, manuf, address, nr)

- serial number, manuf: FK(IVM)
- address: FK(Point of Retail)

Retailer(TIN, name)

- UNIQUE(name)

Category(name)

- IC -1: A Category cannot be contained within itself.
- IC -2: Category hierarchy cycles cannot exist.
- IC -8: name must exist in Simple and/or Super Category
- IC -9: name cannot exist in Simple and Super Category

Simple Category(simple_name)

- name: FK(Category.name)

Super Category(super_name)

- name: FK(Category.name)
- IC -10: Every Super Category(name) must participate in the has-other association

has-other(name, super_name)

- name: FK(Category)
- super_name: FK(Super Category)

responsible-for(TIN, serial number, manuf, name)

- TIN: FK(Retailer)
- serial number, manuf: FK(IVM)
- name: FK(Category)

Product(ean, descr)

- IC -7: A Product does not exist if it is not associated with a Category.

has(ean, name)

- ean: FK(Product)
- name: FK(Category)

Shelve(<u>ean</u>, <u>serial number</u>, <u>manuf</u>, <u>name</u>, <u>nr</u>, height)

- ean: FK(Product)
- serialnumber: FK(IVM); manuf: FK(IVM)
- name:FK(Category)
- IC -5: A Product can only be replenished in a Shelve where its Category is displayed
- IC -6: A Product can only be replenished by the Retailer responsible for the Category of the Product

Ambient temp shelf(<u>nr</u>)

- nr: FK(shelve.nr)

Warm shelf(<u>nr</u>)

- nr: FK(shelve.nr)

Cold shelf(<u>nr</u>)

- nr: FK(shelve.nr)

planogram(<u>ean</u>, <u>nr</u>, faces, units, loc)

- ean: FK(Product)

Replenishment Event(<u>TIN</u>, <u>ean</u>, <u>instant</u>, units)

- TIN: FK(Retailer)
- ean: FK(Product)
- IC -4: The number of replenished units in a Replenishment Event cannot exceed the number of units specified in the Planogram

Álgebra Relacional

1) $\pi_{ean,\ descr}(\sigma_{name\ =\ 'Barras\ Energéticas',\ instant\ >\ '2021/12/31',\ units\ >\ 10}(Category \bowtie Replenishment\ Event \bowtie Product))$
2) $\pi_{serial\ number}(\sigma_{ean\ =\ 9002490100070}(Shelve))$
3) $\pi_{subcategories}(G_{count()\ ->\ subcategories}(\sigma_{super\_name\ =\ 'Sopas\ Take\text{-}Away'}(has\text{-}other))$
4) $\pi_{ean,\ descr}(\sigma_{\ max(units)}(Product \bowtie_{ean} G_{sum(units)}(Replenishment\ Event)))$

SQL

1) SELECT ean, descr
   FROM Product, Category, Replenishment Event
   WHERE instant > 2021/12/31
   AND units > 10
   AND name = “Barras Energéticas”

2) SELECT serial number
   FROM Shelve
   WHERE ean = 9002490100070

3) SELECT COUNT(name)
   FROM has-other
   WHERE super_name = ‘Sopas Take-Away’

4) SELECT ean, descr
   FROM Product, Replenishment Event
   GROUP BY ean
   HAVING SUM(units) >= ALL(
   SELECT SUM(units)
   FROM Replenishment Event
   GROUP BY ean)