BD: Guião 5

Problema 5.1

a)

```
π Fname, Lname, Ssn, Pname (employee ⋈ Ssn = Essn works_on ⋈ Pno = Pnumber
project)
```

b)

```
π employee.Fname, employee.Lname, employee.Ssn, employee.Super_ssn ( σ Chefe.Fname
= 'Carlos' and Chefe.Lname = 'Gomes' (employee ⋈ employee.Super_ssn = Chefe.Ssn ρ
Chefe employee))
```

c)

```
γ Pname; THours←sum(Hours)
(
project
⋈Pnumber=Pno
works_on
)
```

d)

```
(π Fname, Minit, Lname σ Dnumber=3 ∧ Hours>20 ∧ Pname='Aveiro Digital'
(employee
⋈Ssn=Essn
(department
⋈Dnumber=Dnum
(
project
⋈Pnumber=Pno
works_on
))))
```

e)

```
π Fname, Lname σ Essn = null (employee ⟕ Ssn = Essn works_on)
```

f)

```
γ Dname;
avgSalary←avg(Salary) σ Sex='F'
(
department
⋈Dnumber=Dno
employee
)
```

g)

```
π Fname, Lname σ nDependentes > 2
(
γ Fname, Lname; count(Essn) -> nDependentes
(
employee
⋈Ssn=Essn
dependent
))
```

h)

```
π employee.Fname, employee.Minit, employee.Lname ( σ Essn = null (employee ⟕ Ssn
= Essn dependent) ⋈ employee.Ssn = Gestor_Department.Ssn ρ Gestor_Department
(employee ⋈ Ssn = Mgr_ssn department))
```

i)

```
π Fname, Minit, Lname, Address ( σ Dlocation ≠ 'Aveiro' (dept_location ⋈ Dnumber
= Dno σ Plocation = 'Aveiro' (employee ⋈ Ssn = Essn works_on ⋈ Pno = Pnumber
project)))
```

Problema 5.2

a)

```
π nome, nif
σ numero=null
(
fornecedor
```

```
⋈nif=fornecedor
encomenda
)
```

b)

```
(γ codProd; avg(unidades) -> nMed
(
encomenda
⋈numero=numEnc
item
))
```

c)

```
γ avg(produtos) -> mediaProd
(
γ numEnc; count(codProd) -> produtos
(
encomenda
⋈numero=numEnc
item
)
)
```

d)

```
γ fornecedor.nome, produto.nome; sum(item.unidades) -> unidades
(
produto
⋈codigo=codProd
item
⋈numEnc=numero
encomenda
⋈fornecedor=nif
fornecedor
)
```

Problema 5.3

a)

```
π nome ( σ prescricao.numPresc = null (paciente ⋈ paciente.numUtente =
prescricao.numUtente prescricao))
```

b)

```
γ especialidade; COUNT(especialidade)→Npresc (medico ⋈ numSNS = numMedico
prescricao)
```

c)

```
γ farmacia; COUNT(numPresc)→N_presc (prescricao ⋈ farmacia = nome farmacia)
```

d)

```
π farmaco.nome σ presc_farmaco.numPresc = null ( σ numRegFarm = 906 farmaco ⟕
presc_farmaco.nomeFarmaco = farmaco.nome (presc_farmaco ⋈ presc_farmaco.numPresc
= prescricao.numPresc prescricao))
```

e)

```
γ prescricao.farmacia, numReg; COUNT(farmaco.nome)→Number σ prescricao.farmacia ≠
null (farmaceutica ⋈ numReg = numRegFarm farmaco ⋈ farmaco.numRegFarm =
presc_farmaco.numRegFarm presc_farmaco ⋈ presc_farmaco.numPresc =
prescricao.numPresc prescricao)
```

f)

```
π nome σ medicoCount > 1 ( γ nome; COUNT(prescricao.numMedico)→medicoCount
(paciente ⋈ paciente.numUtente = prescricao.numUtente prescricao))
```