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BÀI LÀM

Câu 1:

a.

- **SQL:**

```
Select NL.MANVL, NL.TENNVL
From NGUYENVATLIEU NL join CHITIETMONAN CTMA
                        on CTMA.MANVL = NL.MANVL
                        join MONAN MA
                        on MA.MAMONAN = CTMA.MAMONAN
Where MA.XUATXU = N'Việt Nam'
```

- **ĐSQH:**

$$R_1 \leftarrow \sigma_{XUATXU=N'Việt\ Nam'}(MONAN)$$
$$kQ \leftarrow \Pi_{MANVL, TENNVL}((CHITIETMONAN \bowtie NGUYENVATLIEU) \bowtie R_1)$$

b.

- **SQL:**

```
Select NL.MANVL, NL.TENNVL, count(distinct MA.MAMONAN)
From NGUYENVATLIEU NL join CHITIETMONAN CTMA
                        on CTMA.MANVL = NL.MANVL
                        join MONAN MA
                        on MA.MAMONAN = CTMA.MAMONAN
Where NL.TENNHACUNGCAP = N'Cà Mau' and MA.XUATXU = N'Việt Nam'
Group by NL.MANVL, NL.TENNVL
```

- **ĐSQH**

$$R_1 \leftarrow \sigma_{TENNHACUNGCAP=N'Cà\ Mau'}(NGUYENVATLIEU \bowtie CHITIETMONAN)$$
$$R_2 \leftarrow \Pi_{MAMONAN}(\sigma_{XUATXU=N'Việt\ Nam'}(MONAN))$$

$$R_{3(MaNL, TenNL, SLMon)} \leftarrow MANVL, TENNVL J_{count(MAMONAN)}(R_1 \bowtie R_2)$$

$$kQ \leftarrow \Pi_{MaNL, TenNL, SLMon}(R_3)$$

c.

- **SQL:**

```

Select MA.MAMONAN, MA.TENMON
From MONAN MA join CHITIETMONAN CTMA
                on CTMA.MAMONAN = MA.MAMONAN
Group by MA.MAMONAN, MA.TENMON
Having sum(CTMA.SOLUONGDUNG) >= ALL
                ( select sum(CT.SOLUONGDUNG)
                  From CHITIETMONAN CT join MONAN M
                        on M.MAMONAN = CT.MAMONAN
                  Group by M.MAMONAN, M.TENMONAN)

```

- **ĐSQH:**

$$R_{1(MaMon, TenMon, SLMon)} \leftarrow MAMONAN, TENMONAN J_{sum(SOLUONGDUNG)}(CHITIETMONAN \bowtie MONAN)$$

$$R_2 \leftarrow (MaMon, TenMon J_{max(SLMon)}(R_1))$$

$$kQ \leftarrow \Pi_{MaMon, TenMon}(R_2)$$

Câu 3:

3.1

- Bối cảnh: CHITHIETHUCDON, MONAN
- Nội dung:

$$(\forall td)(td \in CHITHIETHUCDON \wedge \exists mon(mon \in MONAN \wedge mon.MAMONAN = td.MAMONAN \wedge mon.NGAYBATDAU < td.NGAYSUDUNG))$$

- Bảng tầm ảnh hưởng:

	Thêm	Xóa	Sửa
MONAN	-	-	+(NGAYBATDAU)
CHITIETTHUCDON	+	-	+(NGAYSUDUNG)

3.2

- Bối cảnh: CHITIETMONAN, NGUYENVATLIEU, MONAN
- Nội dung:

$$\begin{aligned}
 (\forall mon)(mon \in MONAN \wedge \exists ctmon(ctmon \in CHITIETMONAN \wedge mon.MAMONAN \\
 &= ctmon.MAMONAN \wedge \exists nvl(nvl \in NGUYENVATLIEU \wedge nvl.MANVL \\
 &= ctmon.MANVL \wedge mon.DONGIA \\
 &= nvl.DONGIA * ctmon.SOLUONGDUNG)))
 \end{aligned}$$

- Bảng tầm ảnh hưởng:

	Thêm	Xóa	Sửa
MONAN	+	-	+(DONGIA)
CHITIETMONAN	-	-	+(SOLUONGDUNG)
NGUYENVATLIEU	-	-	+(DONGIA)