

Alp Tugrul Agca / 21801799

Q1

a-) $\Pi_{name, nationality} (\sigma_{birth-year > 1998} (Singer \bowtie s-name = s-name Album))$

b-) $Albums \leftarrow \sigma_{year = 2022 \wedge rating > 4.0} (Album)$

$Songs \leftarrow Song \bowtie_{a-title = a-title} Albums$

$\Pi_{s-title, writtenby} (Song \bowtie_{s-title = s-title} Songs)$

c-) $Turkish \leftarrow \Pi_{s-name} (\sigma_{nationality = "Turkish"} (Singer))$

$Albums \leftarrow \sigma_{year = 2022} (Album)$

$Singers \leftarrow \Pi_{s-name} (\sigma_{nationality = "Turkish"} (Singer \bowtie s-name = s-name Albums))$

$Singers - Turkish$

d-) $Maxrate \leftarrow (\underset{max(rate) \text{ as } rate}{G} (Album)$

$\Pi_{a-title, s-name} (Album \bowtie Maxrate)$

e-) $Albums \leftarrow a-title \underset{count(s-title) \text{ as } s-amount}{G} (Album \bowtie_{a-title = a-title} Song \bowtie_{a-title = a-title} Album)$

$\Pi_{a-title} (\sigma_{s-amount > 10} (Albums))$

f-) $Shortest \leftarrow \underset{min(length) \text{ as } length}{G} (Song \bowtie_{s-title = s-title} \sigma_{a-title = "ABC"} (Song \bowtie_{a-title = "ABC"} (Album)))$

$\Pi_{title, track-number} (Shortest \bowtie_{Song s-title = s-title} \sigma_{a-title = "ABC"} (Song \bowtie_{a-title = "ABC"} (Album)))$

Q2-)

a-) $\Pi_{name, price} (\sigma_{production-year = 2022 \wedge company = "Pfizer"} (Drug))$

b-) $Patients \leftarrow Patient \bowtie_{TCK = patient-TCK} (\sigma_{date = 20/02/2023} (Prescription))$

$\Pi_{TCK, Name} (\sigma_{primary-doctor-TCK = doctor-tck} (Patients))$

c-) $Yest Pres \leftarrow \sigma_{date = 20/02/2023} (prescription)$

$Drugs \leftarrow Yest Pres \bowtie_{id = presc-id} DrugInPrescription$

$\Pi_{name, company} (Drugs_{name = name} Drug)$

d-) $Patients \leftarrow patient \bowtie_{TCK = patient-TCK} (\sigma_{Date = 20/02/2023} (prescription))$

$\Pi_{TCK, name} (\sigma_{birthyear < 1953} (Patient))$

e-) $t_1 \leftarrow productionyear \underset{max(price) as price}{G} (Drug)$

$t_1: \begin{array}{cc} year & price \\ \hline & \end{array}$

f-) $Yest Pres \leftarrow \sigma_{date = 20/02/2023} (prescription) \quad (Yesterday's prescription)$

$Drug Pres \leftarrow Yest pres \bowtie_{id = presc-id} DrugInPrescription$

$Drug Amount \leftarrow id, doctor-tck \underset{count(drug) as Drug Am}{G} (Drug Pres)$

$\Pi_{id, doctor-tck} (id, doctor-tck \underset{max(drug Am) as max}{G} (Drug Amount))$

g-) YesPres $\leftarrow \sigma_{date = 20/02/2023} (Prescription)$

DrugPres \leftarrow YesPres $\bowtie_{id = presc-id}$ DrugInPrescription

DrugAmount \leftarrow id ρ (DrugPres)
count (drug) as DrugAm

$\Pi_{name, company} (DrugAmount \bowtie_{id = id} Drug)$

k-) AllPres \leftarrow TCKname, birth year ρ (prescription)
count (name) as time

$\Pi_{TCK, name} \left(\rho_{(\sigma_{time \geq 10} (AllPres))} \right)$
 $\min (birth year) \text{ as oldest}$