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Section-2

Homework 1 Answers

Q1)

a) Names of the instructors that teaches CS102 in 2022 Spring semester.
b) Names of the all instructors except instructors who teach a CS course in 2022 Spring semester.
c) Number of instructors that teach the same CS course in Spring 2022 semester for each CS course.
d) Name of the course that has been taught by more instructors than other courses

Q2)

a) $\Pi_{\text{Title}}(\sigma_{\text{City="Ankara"}}(\text{Theater}) \bowtie \sigma_{\text{Date} \geq 01.01.2021 \wedge \text{Date} \leq 31.12.2021}(\text{Schedule}))$
b) $\Pi_{\text{TName}}(\sigma_{\text{City="Ankara"}}(\text{Theater}) \bowtie \text{Schedule} \bowtie \sigma_{\text{Year="2021"}}(\text{Movie}))$
c) $\Pi_{\text{TName}}(\sigma_{\text{City="Ankara"}}(\text{Theater}) \bowtie \text{Schedule} \bowtie \sigma_{\text{Year="2021"}}(\text{Movie})) - \Pi_{\text{TName}}(\sigma_{\text{City="Ankara"}}(\text{Theater}) \bowtie \text{Schedule} \bowtie \sigma_{\text{Year} \neq \text{"2021"}}(\text{Movie}))$
d) $\Pi_{\text{TicketPrice}}(\sigma_{\text{Rating} > 4.0}(\text{Movie}) \bowtie \sigma_{\text{Date} \geq 01.02.2022 \wedge \text{Date} \leq 28.02.2022}(\text{Schedule}) \bowtie \sigma_{\text{City="Ankara"}}(\text{Theater}))$
e) $\Pi_{\text{Name, Byear}}(\sigma_{\text{Rating} > 2.5 \wedge \text{Year="2021"}}(\text{Movie}) \bowtie \text{Acts} \bowtie \text{Actor})$
f) $\Pi_{\text{Name}}(\sigma_{\text{Rating} > 3.0}(\text{Movie}) \bowtie \sigma_{\text{Date} \geq 01.01.2021 \wedge \text{Date} \leq 31.12.2021}(\text{Schedule}) \bowtie \sigma_{\text{City="Ankara"}}(\text{Theater}) \bowtie \text{Acts} \bowtie \sigma_{\text{Byear} > 1972}(\text{Actor}))$
g) $P1 \leftarrow \Pi_{\text{Title}}(\text{Movie} \bowtie \text{Acts} \bowtie \sigma_{\text{Name="Anthony Hopkins"}}(\text{Actor}))$
$\Pi_{\text{TName}}((\text{Schedule} \bowtie \sigma_{\text{City="Ankara"}}(\text{Theater}))/P1)$
h) $P2 \leftarrow \Pi_{\text{Title}}(\text{Movie} \bowtie \text{Acts} \bowtie \sigma_{\text{Name="Jodie Foster"}}(\text{Actor}))$
$\Pi_{\text{TName}}(\text{Schedule} \bowtie \sigma_{\text{City="Ankara"}}(\text{Theater})) -$
$\Pi_{\text{TName}}(\text{Schedule} \bowtie \sigma_{\text{City="Ankara"}}(\text{Theater}) \bowtie P2)$

i) Schedule ← $\Pi_{\text{TName, Title, Date, Time, TicketPrice*1.1}}$(Schedule ⋈ $\sigma_{\text{City="Ankara"}}$(Theater)) ∪ $\Pi_{\text{TName, Title, Date, Time, TicketPrice}}$(Schedule ⋈ $\sigma_{\text{City≠"Ankara"}}$(Theater))

j) mvs ← $\sigma_{\text{Year="2021"}}$(Movie)
notBest ← $\Pi_{\text{p1.Title}}(\rho_{\text{p1}}(\text{mvs}) \bowtie_{\text{p1.Rating < p2.Rating}} \rho_{\text{p2}}(\text{mvs}))$
Π_{Title}(mvs) - notBest

k) Best ←$G_{\text{max(Rating)}}$($\sigma_{\text{Year="2021"}}$(Movie))
Π_{Title}(Best⋈ $\sigma_{\text{Year="2021"}}$(Movie))

l) $_{\text{Year}}$ G $_{\text{max(Rating)}}$(Movie)

m) Temp1 ← $_{\text{Year}}$ G $_{\text{count(*) as cnt}}$(Movie)
Π_{Year} ($G_{\text{max(cnt) as cnt}}$ (Temp1) ⋈Temp1)