

28.12.

KOLOKVIJUM

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RELACIONA

ALGEBRA

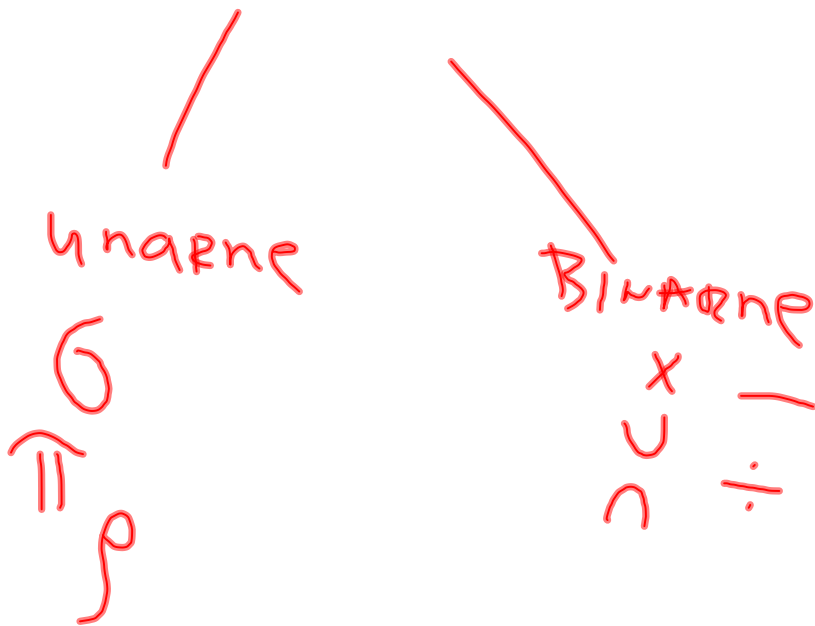


FORMAL

QUERY  
Language

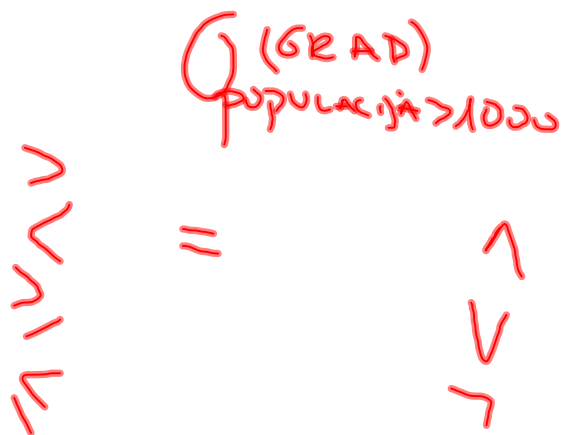
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OPERACIJE:



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GRAD (oznaka, ime, populacija)



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$\prod$  (GRAD)  
oznaka,  
ime  
↓  
jedinstveni

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X  
DEKARTOV  
PROJEKCIJA  
A = {1, 2, 3}  
B = {a, b}      A x B

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$\cup$  - unija

$\Gamma_1 \cup \Gamma_2$

$\Gamma_1 \Gamma_2$  - KOMPATIBILNE

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— (RAZLIKA)

$\Gamma_1 - \Gamma_2$

KOMPATIBILNE

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÷ (Dijeljenje)

$R_1 \div R_2$

$A_1$	$A_2$		
1	1	$\frac{A_2}{1}$	$\frac{A_1}{1}$
1	2	1	1
2	1	2	2
2	2		
3	1		

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G (grupisanje)

$A_1$	$A_2$
1	1
1	2
2	1
2	2
3	1

G ( $\Gamma_1$ )  
A1 | COUNT(\*)

AVG, SUM, MAX, MIN

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$$\int (R_1) \\ A(A-1, A-2)$$

$$\frac{R_1}{A_1 \quad A_2}$$

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### IX - PRIRODNO SPAJANJE

$r_1$	$r_2$	
$A_1$	$A_2$	$A_3$
1	1	'PLAVO'
1	2	'CRNO'
2	1	'BILO'

$r_1$	$r_2$	
$A_1$	$A_2$	$A_3$
1	1	'PLAVO'
1	2	'CRNO'
2	1	'PLAVO'

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GLUMAC (GID, ime, STAROST)

FILM ( FID, NASLOV, GODINA)

ČLAN ( CID, ime, STAROST, GRAD)

učestvuje ( FID, GID, tip)

PRIMJERAK ( FID, PRUM, KATEGORIJA)

Iznajmljivanje ( CID, FID, PRUM, DANI, Cijena)

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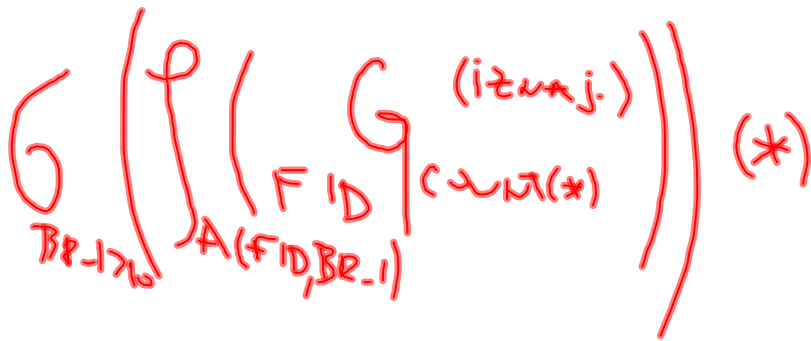
1) imena članova iz PG  
koji su iznajmili BAR 1 FILM

$\prod_{CID, ime} ( \sigma_{GRAD='PG'} ( \text{ČLAN} ) \bowtie \text{iznajm.} )$

$\begin{array}{c} CID \\ 1 \\ 2 \\ 3 \end{array} \bowtie \begin{array}{cc} izn & \\ CID & FID \\ 1 & 1 \\ 1 & 2 \\ 2 & 1 \end{array} = \begin{array}{cc} CID & FID \\ 1 & 1 \\ 1 & 2 \\ 2 & 1 \end{array}$

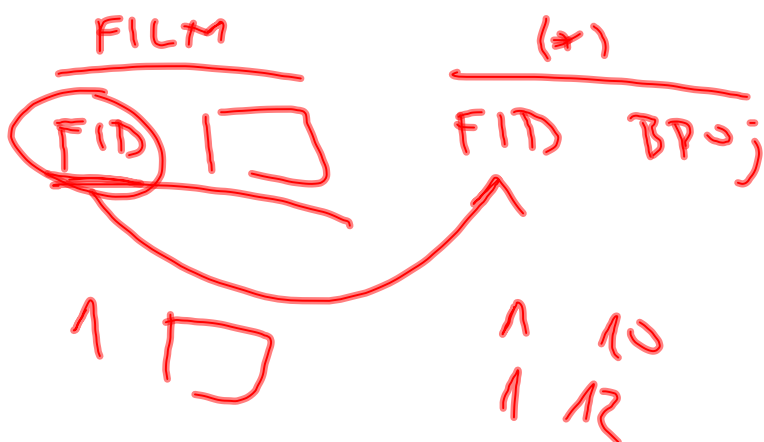
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2) ZA SVAKI FILM IZLISTATI IME, I  
 KOLIKO JE PUTA BIO IZNAJMLJIVAN POD  
 USLOVOM DA JE TAJ BROJ > 10



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$\Pi_{ime}(FILM \bowtie (*)$



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3) Imena FILMOVA koji imaju više primjeraka kategorije 'A' nego onih kategorije 'B'

$$P \left( G \left( G \begin{array}{l} \text{(PRIMJERAK)} \\ \text{KAT='A'} \end{array} \right) \right) (*)$$

$$A(FID, BR-A)$$

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$$P \left( G \left( G \begin{array}{l} \text{(PRIMJERAK)} \\ \text{KAT='B'} \end{array} \right) \right) (**)$$

$$B(FID, BR-B)$$

$$Imp \left( Film \bowtie \left( G \left( (*) \bowtie (**) \right) \right) \right)$$

$$BR-A > BR-B$$

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4) NAĆI PARNE GLUMACA KOJI SU GLUMILI U BAR 2 FILMA ZAJEDNO

$$\int \left( \prod_{\text{FID, GID}} (\text{unesli.}) \right)_{B(\text{FID}_B, \text{GID}_B)} \times \int \left( \prod_{\text{FID, GID}} (\text{unesli.}) \right)_{A(\text{FID}_A, \text{GID}_A)} (*)$$

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(\*\*)

$$\int_{\text{Broj.F} \geq 2} \left( \int_{\text{GID-A, GID-B}} \text{COUNT} (*) \right) \left( \int_{\text{FID-A}=\text{FID-B} \wedge \text{GID-A} < \text{GID-B}} \right)$$

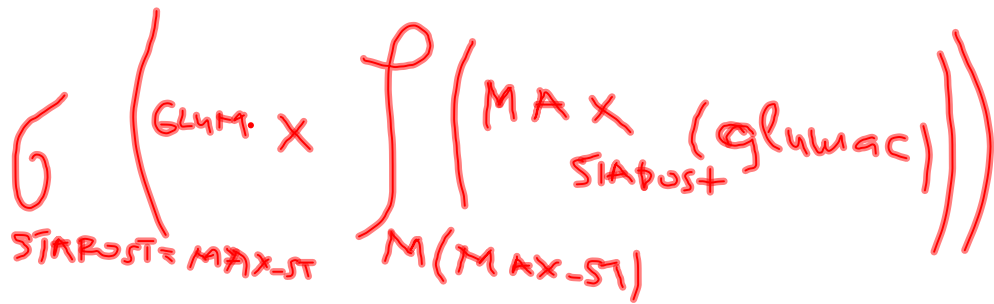

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1	1, 2
1	2, A

$\prod_{\text{GID-A, GID-B}} (**)$

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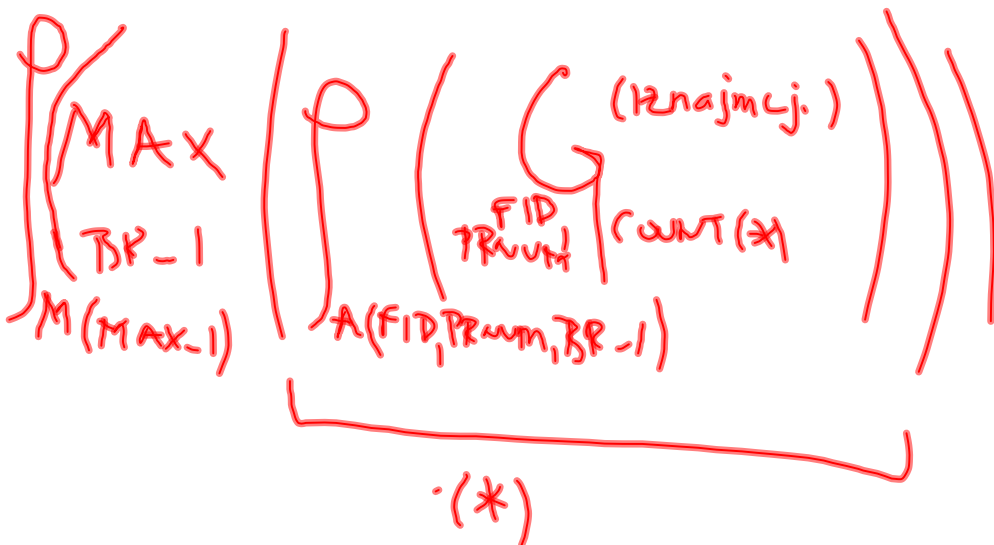
5) NAĆI NAJSTARIJEC GLUMCA



1	.	50	70	70
2	.	30	70	
3	.	90	70	

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6) FID i PRUM koji je BRU NAJVIŠE IZDAT



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$$\left( \begin{matrix} (*) \\ \vdots \end{matrix} \right) \times M$$

BR-1 = MAX-1

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7) NAĆI FILM SA NAJSTARIJOM  
PUBLIKOM, TJI FILM ČIJI JE PROSJEK  
STAROSTI GLEDALACA NAJVEĆI

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