ירון לוי 315148239

א.1.

π_{name} (Actors $\bowtie$ $\sigma_{character='George'}$ PlaysIn)

.2

$\pi_{movieId, title}$ ($\sigma_{year=dyear}$ ($\pi_{movieId, title}$ ($\sigma_{genre='Drama' \vee genre='Documentary'}$ Movies) $\bowtie$ ($\pi_{actorId, movieId}$ PlaysIn) $\bowtie$ ($\pi_{actorId, dyear}$ Actors)))

.3

$\pi_{actorId}$ ($\pi_{movieId}$ ($\sigma_{name='Charles Chaplin'}$ Actors $\bowtie$ PlaysIn) $\bowtie$ PlaysIn) $\cap$ $\pi_{actorId}$ ($\sigma_{duration>90}$ Movies $\bowtie$ PlaysIn)

.4

$\pi_{actorId}$ (PlaysIn) - $\pi_{actorId}$ (PlaysIn $\bowtie$ $\pi_{movieId}$ ($\sigma_{rating<=7}$Movies))

.5

$\pi_{name, movieId}$ ($\sigma_{actorId\neq100}$ PlaysIn) $\div$ $\pi_{movieId}$ ($\sigma_{actorId=100}$ PlaysIn)

.6

A = $\sigma_{year-byear>70}$ ($\rho_{C1(actorId1, byear1, movieId1, title1, year1}$ ($\pi_{actorId, byear}$ Actors) $\bowtie$ ($\pi_{actorId, movieId}$ PlaysIn) $\bowtie$ ($\pi_{movieId, title, year}$ Movies))

B = $\sigma_{year-byear>70}$ ($\rho_{C2(actorId2, byear2, movieId2, title2, year2}$($\pi_{actorId, byear}$ Actors) $\bowtie$ ($\pi_{actorId, movieId}$ PlaysIn) $\bowtie$ ($\pi_{movieId, title, year}$ Movies))

C = $\sigma_{year-byear>70}$ ($\rho_{C3(actorId3, byear3, movieId3, title3, year3}$ ($\pi_{actorId, byear}$ Actors) $\bowtie$ ($\pi_{actorId, movieId}$ PlaysIn) $\bowtie$ ($\pi_{movieId, title, year}$ Movies))

R = π_{title} ($\sigma_{movieId1=movieId2 \wedge actorId1\neq actorId2}$ (A × B))

L = π_{title} ($\sigma_{movieId1=movieId2=movieId3 \wedge actorId1\neq actorId2\neq actorId3}$ (A × B × C))

RESULT = L – R

ב.

.1