-١

١-

π m.language, num γ m.language; COUNT(*)→num σ m.did = d.did and m.mid = a.mid and a.arid = ar.arid and ar.first_name = d.first_name and ar.last_name = d.last_name (((ρ m Movie × ρ d Director) × ρ a Acting) × ρ ar Artist)

٢-

π name σ rate = t (ρ rates (ρ name←m.title, rate←r.avg_ratings π m.title, r.avg_ratings σ m.mid = r.mid and m.start_year > '٢٠١٦' and m.end_year < '٢٠١٩' (ρ m Movie × ρ r Rating)) × ρ top (π t γ ; MAX(rate)→t ρ rates (ρ name←m.title, rate←r.avg_ratings π m.title, r.avg_ratings σ m.mid = r.mid and m.start_year > '٢٠١٦' and m.end_year < '٢٠١٩' and m.is_adult = 'yes' (ρ m Movie × ρ r Rating))))٣-

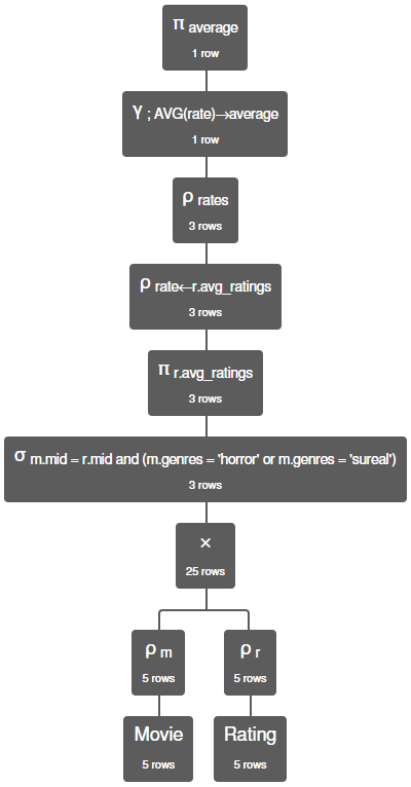
٤-

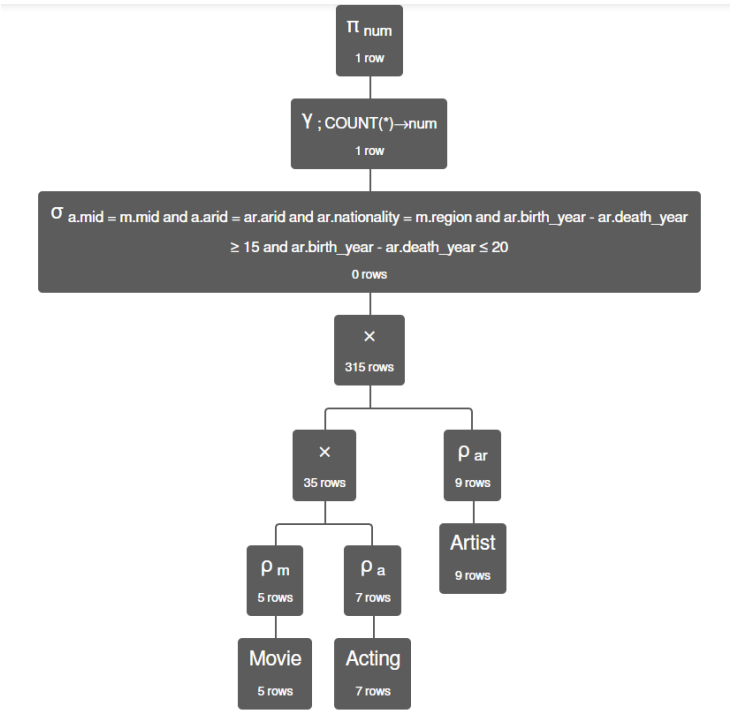
π average γ ; AVG(rate)→average ρ rates (ρ rate←r.avg_ratings π r.avg_ratings σ m.mid = r.mid and (m.genres = 'horror' or m.genres = 'sureal') (ρ m Movie × ρ r Rating))

٥-

π num γ ; COUNT(*)→num σ a.mid = m.mid and a.arid = ar.arid and ar.nationality = m.region and ar.birth_year - ar.death_year ≥ ١٥ and ar.birth_year - ar.death_year ≤ ٢٠ ((ρ m Movie × ρ a Acting) × ρ ar Artist)

-٢





π title, tot σ tot > ۰ γ Movie.title; COUNT(*)→tot σ Artist.gender = 'male' ((Movie ⋈ Movie.mid = Acting.mid Acting) ⋈ Acting.arid = Artist.arid Artist)

π title σ Movie.genres = 'Drama' and Director.last_name = 'Kubrick' (Movie ⋈ Movie.did = Director.did Director) ∪ π title σ Movie.genres = 'Mystery' and Director.last_name = 'Hitchcock' (Movie ⋈ Movie.did = Director.did Director)

π Artist.first_name, Artist.last_name σ Artist.last_name = Director.last_name (((Artist ⋈ Artist.arid = Acting.arid Acting) ⋈ Acting.mid = Movie.mid Movie) ⋈ Movie.did = Director.did Director)