Problem Set 1, Problem 16
Relational-algebra queries

Templates: Copy these templates as needed, and use them to form your queries.

$\pi_{\text{attributes}}$ (expression) $\qquad$ (expression1) X (expression2)

$\sigma_{\text{predicate}}$ (expression) $\qquad$ (expression1) $\bowtie_{\text{predicate}}$ (expression2)

(expression1) − (expression2) $\qquad$ (expression1) ⟕$_{\text{predicate}}$ (expression2)

variable ⟵ expression

Example: Find the name and year of all R-rated movies.

$\pi_{\text{name, year}}$ ($\sigma_{\text{rating = 'R'}}$ (Movie))

Example of breaking the above query into two steps:

RMovies ⟵ $\sigma_{\text{rating = 'R'}}$ (Movie)

$\pi_{\text{name, year}}$ (RMovies)

problem 16.1

$\pi_{\text{Movie.name, Oscar.type, Oscar.year}}$ ($\sigma_{\text{Movie.id = Oscar.movie\_id AND Oscar.person\_id = Person.id AND Person.name = ‘Jodie Foster’}}$(Movie X Oscar X Person))

problem 16.2

$\pi_{\text{Actor.actor\_id}}$ (Actor) - $\pi_{\text{Actor.actor\_id}}$ (($\sigma_{\text{Movie.id = Actor.movie\_id AND Movie.earnings\_rank <= 200}}$(Movie X Actor)))

problem 16.3

MoviesWithOscars ⟵ (Movie) ⟕$_{\text{Movie.id = Oscar.movie\_id}}$ (Oscar)

$\pi_{\text{Movie.name, Oscar.type}}$ ($\sigma_{\text{Movie.genre LIKE ‘\%B\%’}}$ (MoviesWithOscars))