COSC265 Lab 2 - Solutions

1. Find all types of movies in the database.
   select distinct type from movie;
   π_{Type}(MOVIE)
2. Find all the information about the star whose number is 4.
   *select * from star where snumber = 4;*
   $\sigma_{Number=4}$ (STAR)
3. Find the name, year and city of birth of the star whose number is 50.
   select fname, lname, born, city
   from star
   where snumber=50;
   $\pi_{FName,LName,Born,City}$ ($\sigma_{Number=50}$ (STAR))
4. List the names of all stars born in or after 1950.
   select fname, lname
   from star
   where born >= 1950;
   $\pi_{FName,LName}$ ($\sigma_{Born>=1950}$ (STAR))
5. List the numbers and titles of all movies made between 1965 and 1975.
   select mnumber, title
   from movie
   where year between 1965 and 1975;
   $\pi_{Number,Title}$ ($\sigma_{Year>=1965\ AND\ Year<=1975}$ (MOVIE))
6. List the numbers and titles of all movies whose type is fantasy or romance.
   select mnumber,title
   from movie
   where type = 'fantasy' or type='romance';
   $\pi_{Number,Title}$ ($\sigma_{Type='fantasy'\ OR\ Type='romance'}$ (MOVIE))
7. Find the name, year and city of birth for every star born in 1920s who is still living.
   select fname, lname, born, city
   from star
   where born between 1920 and 1929 and died is null;
   $\pi_{Fname,Lname,Born,City}$ ($\sigma_{Born>=1920\ AND\ Born\ <=1929\ AND\ Died=NULL}$ (STAR))
8. Produce a list of numbers of all stars that acted in movies number 85 to 91.
   select distinct star
   from stars
   where movie between 85 and 91;
   π_{Star} ($\sigma_{Movie>=85\ AND\ Movie<=91}$ (STARS))
9. For all directors who are deceased, list their names and how long they lived.
   select fname, lname, died-born
   from director
   where died is not null;
   $\pi_{Fname,\ Lname,\ died\text{-}born}$ ($\sigma_{Died\neq Null}$ (DIRECTOR))
10. Find the total number of awards won by comedies.
    select sum(aawon)

from movie
where type='comedy';

11. $\mathcal{F}_{\text{SUM AAWON}}(\sigma_{\text{Type='comedy'}}(\text{MOVIE}))$List the titles of all movies and the names of their directors.
select title, fname, lname
from movie, director
where director=dnumber;

$\pi_{\text{Title,FName,LName}}(\text{MOVIE} \bowtie_{\text{Director=Director.Number}} \text{DIRECTOR})$

12. Find the name of the star who played Vronsky in the movie entitled 'Anna Karenina'.
select fname, lname
from star, stars, movie
where title='Anna Karenina' and role='Vronsky' and movie=mnumber and snumber=star;

$\pi_{\text{FName,LName}}(((\sigma_{\text{Title='Anna Karenina'}}(\text{MOVIE})) \bowtie_{\text{Movie=Movie.Number}} (\sigma_{\text{Role='Vronsky'}}(\text{STARS}))$

$\bowtie_{\text{Star.Number=Star}} \text{STAR})$

The queries for the REGISTRATION database

1. Find the different types of vehicle in the database.
select distinct type from vehicle;
$\pi_{\text{Type}}(\text{VEHICLE})$
2. Get plate numbers, makes and models of all cars imported from Japan.
select vehicle.plates, make, model
from registration, vehicle
where registration.plates = vehicle.plates and country='Japan';
$\pi_{\text{Plates,Make,Model}}((\sigma_{\text{Country='Japan'}}(\text{REGISTRATION})) * \text{VEHICLE})$
3. Produce a list of all vehicles, showing only the plate numbers and the year of manufacture. Order the tuples by the year.
select plates, year
from vehicle
order by year;
$\pi_{\text{Plates,Year}}(\text{VEHICLE})$
4. List the names of all owners. Sort the output by last name descending and by first name ascending.
select fname, lname
from owner
order by lname desc, fname;
$\pi_{\text{Lname,Fname}}(\text{OWNER})$
5. For each car, show the plates number and the name of the current owner.
select plates, fname, lname
from owner join owns on ownerid=dr_lic
where datesold is null;

$\pi_{\text{Plates,Fname,Lname}}(\sigma_{\text{Datesold=NULL}}(\text{OWNS} \bowtie_{\text{Ownerid=Dr\_lic}} \text{OWNER}))$