

# DATABASE SYSTEMS

## Homework 2

**Submission instructions:** a printout has to be delivered to the ITO.

Your queries, in a single ascii file, must be submitted by the `submit` command (do `man submit` on a DICE machine for more info.)

All queries must be done either on PostgreSQL (available on dice machines at Informatics; also available on most of your notebooks) or any other commercial DBMS (e.g., IBM's db2). In the latter case, once your queries are done, please ensure they run on PostgreSQL as well.

**Schema.** We have 3 relations, all about movies:

- **MOVIES**[Title, Year, Director, Country, Rating, Genre, Gross, Producer]  
Title and Year form the primary key
- **ACTORS**[Title, Year, Character\_name, Actor]  
(Title, Year, Character\_name) form the primary key, (Title, Year) form a foreign key referencing MOVIES.
- **AWARDS**[Title, Year, Award, Result]  
(Title, Year, Award) form the primary key; the foreign key is the same as for MOVIES.  
The values of Award could be, e.g., Oscar, cinematography; Golden Globe, screenplay; Cesar; Palm d'Or, etc);  
the values of Result are 'won' or 'nominated'.

**Problem 1 (10 marks)** Create a database for this schema. Populate it. A good source for getting data is <http://www.imdb.com>. Each table must contain at least 5 tuples.

**Problem 2 (90 marks)** Write the following 15 queries in SQL. Each is worth 6 marks.

- (1) List actors who played more than one character in the same movie.
- (2) Find the average gross for movies directed by a director who won an Oscar.
- (3) List producers, and the total amount of money their movies made.
- (4) List producers who produced at least two movies that grossed more than \$50 million in a single year.
- (5) For each director, select his/her movies rated higher than 8, ordered by their gross.
- (6) Find movies made in the 90s that were nominated for at least two different awards (e.g, Oscar and Golden Globe) in the best actor category.
- (7) Find movies made in the 90s that won every award they were nominated for.
- (8) List all comedies that won major Oscars (best film or director) before 1960 and after 1990.
- (9) Find directors who directed a comedy and a drama, with the comedy having a higher rating than the drama.
- (10) Find actors who only act in high grossing (more than \$50 million) movies.
- (11) For each award category, find the average rating of movies that won that award.
- (12) Find the award category whose winners have the highest average rating.
- (13) Find all pairs of movies ( $m_1, m_2$ ) nominated for the same award, such that  $m_1$  has higher rating than  $m_2$ , but  $m_2$  won the award.
- (14) Find character names that appear in two movies produced in two different countries.
- (15) For every decade starting with 1950-59, calculate the percentage of all the awards won by US movies.

**TOTAL: 100 marks.**