

Database Homework 2

Database Design & SQL Programming

Deliverables:

- SQL Code
 - Designing a database [15p]
 - SQL statements (creating tables and inserting data) [5p]
 - Designing indexes and implementing them [5p]
 - Selecting the data [15p]
 - Stored procedures code [15p]
- Report

The points will be given according to answers given to the teacher.

Task:

I. Designing a database

Prepare a data model for the scenario below. The solution should be presented as a database diagram.

- a. Internet movie catalog stores data about thousands of movies.
- b. Main movie characteristics are: title (original and English), production start day, expected number of production days, release date, description, status flag (released or no), delay flag (when production took longer than expected), and original language of the movie.
- c. Movies are classified based on the following categories: action, cartoon, comedy, drama, fantasy, horror, mystery, romance, thriller, western. A movie can belong to more than one category. The list of categories is not fixed and can be changed.
- d. Each movie is assigned to one out of three categories according to the age limit. Those categories are marked as colours: green - no limits, yellow - children can watch under adults supervision, red - movie only for adults.
- e. For each movie there should be a possibility to store list of actors and creators. The list with actors should contain name, surname, and the name of the character in the movie. The creators list should contain name, surname, phone number, email, and the job title (e.g. director, actor). The movie can have more than one director.
- f. The same person can be on actors list and creators list. The actor can play more than one role. The creator can have more than one function.

II. SQL statements

Prepare SQL commands for

- a. Creation of data model described above.
- b. Insert of sample rows into each table (min. 50 rows)
- c. Modification of a movie table (insert new row, update one, and delete one)

III. Designing indexes

Design indexes for a created tables with specification of indexing key, uniqueness, type of index, and state the reason for indexing.

IV. Selecting the data

Prepare SQL reports for:

- a. Total number of movie releases by actors on a monthly window.
- b. A list of actors that can play in more than 2 languages.
- c. A list of actors that spent more than an average time on a production plan in a yearly window.
- d. A list of directors with the number of movies in each age category.
- e. Three movie genres with the highest number of actores.

V. Stored procedure

Prepare a stored procedure for automatic detection of production delays.

- a. The procedure accepts the duration of a movie production (input parameter).
- b. It selects all movies and validates if the duration limit was reached.
- c. If yes, then the procedure should automatically set the delay flag to 1 and assign a second director.
- d. Next, it verifies which movie has the worst duration % indicator relative to the average from last 3 years.
- e. The procedure prints a summary of delayed movies including director(s) name(s).

Report:

- a. Prepare a report using LaTeX in IEEE Conference template ([overleaf.com](https://www.overleaf.com) is highly recommended). [1]
- b. Your report should include:
 - a. Your details (name, surname, email, index number),
 - b. Abstract - the summary of you work,
 - c. Introduction - Description of your solution and chosen language/software,
 - d. List of indexes with the reason of selection
 - e. List of tests confirming the correctness of the solution (including SQL queries results)
 - f. At the end of the report please include the following statement: *'I certify that this assignment is entirely my own work, performed independently and without any help from sources which are not allowed'*.

[1] <https://www.overleaf.com/latex/templates/ieee-conference-template-example/nsnscsyjfmpxy>