

CISC 7610X, Homework 1 – Due 2/22/16

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1 Introduction

For this assignment, we will be building and querying a simple database for managing a TV news station's footage and programming. The assignment will consist only of writing SQL statements. Please use SQLite¹, so that it is easy for me to run your commands on my computer to validate them and to see the database that you have generated.

You will submit both a SQL script file containing all of the SQL statements you ran and the file generated by SQLite containing your final database.

2 Database requirements

The database should represent the following aspects of the TV station's footage and programming:

- At a given event, each camera person will record all footage they shoot to a single tape
 - The tape has a recording date, GPS latitude and longitude where it was recorded, the camera person who recorded it, and a brief textual description
- Shots are extracted from each tape
 - Shots can overlap with each other on the tape and need not be contiguous on it
 - Shots have a name, a description, the tape that they came from, and the start and end times within that tape.
- Shots are assembled into stories about a topic
 - Stories have a title and a reporter, in addition to the shots that are used in them
 - The start and end time of each shot within each story should be stored in the database
 - A shot can appear in multiple stories
- Stories are assembled into programs that air together
 - Programs have a date that they were first aired and a brief description, in addition to the stories that are used in them
 - The start and end time of each story within each program should be stored in the database
 - A story can appear in multiple programs

3 Design the database

Design the database by drawing a picture representing the tables in the database and their relationship to one another. You may use UML or entity-relationship

¹<http://www.sqlite.org>

diagrams if you are familiar with either of them, otherwise, any other representation that you like is acceptable. Make sure to specify the foreign key relationships. You might need to add additional tables for many-to-many relationships.

Write and run SQL CREATE statements in SQLite to create the tables that you have designed.

4 Populate the database

Consider an example database that includes the following elements:

- Two programs, each consisting of three stories
 - Program 1 contains Stories 1 and 2
 - Program 2 contains Stories 3 and 2
- The stories consist of the following shots
 - Story 1 contains Shots 1 and 2
 - Story 2 contains Shots 3 and 4
 - Story 3 contains Shots 1 and 5
- The shots come from the following tapes
 - Shots 1, 2, and 5 come from Tape 1. Shots 1 and 5 overlap on the tape, but not completely
 - Shots 3 and 4 come from Tape 2
- The rest of the fields (names, descriptions, timing, etc.) can be filled in however you would like. Give them meaningful and realistic values

Write and run SQL INSERT statements in your SQLite database to populate the tables with the data described above.

5 Query the database

Write and run SQL SELECT statements on your SQLite database to query the database for the following information:

- The name and description of every shot used in Program 1, in the order in which they appear
- The latitude and longitude at which every shot used in Story 3 was filmed, in the order in which they appear
- The tape number and start and end time on the tape of every shot used in Program 2, in the order in which they appear
- The dates when programs containing Shot 1 first aired

6 Submit this homework

Submit your SQL script and the SQLite database file via the dropbox on the course Blackboard site.