Project One
Netflix Database

Due Date: March 9, 2016
Cutoff Date: March 14, 2016
Projects are due on the due date. No projects will be accepted after the cutoff date.
5 points will be deducted for each day a project is submitted after the due date.

Objective

- Identify the business requirements
- Design a database for Netflix
- Create an ER diagram
- Create searches using relational algebra

Your design must track the at least following categories in your Netflix database

- Movies
- TV Shows
- Cast
- Director
- Genre
- Format
- Rating
- Feeling
- Language
- User Rating
- User Comments
- Customers
- Billing
- DVD inventory
- Queue

A few examples of domain values

- Format: DVD, Blue-ray, streaming
- Feeling: exciting, imaginative, scary, suspenseful, chilling, dark, ominous, heartfelt, emotional, etc.
- Genre: TV Shows, Action & Adventure, Sci-Fi, Courtroom Drama, Tearjerkers, Drama, Rock & Pop, etc.
- Cast: Meryl Streep, Steven Yuen, Andrew Lincoln, Lady Gaga, etc.
- Rating: G, PG, PG-13, R, NR
- Queue: DVD's waiting to be borrowed
- User rating: 1, 2, 3, 4, 5

Database Design

Identify and create the following in your database design

- Entity Relationship (ER) diagram
- Relationship between entities
- Relationship type
- Attributes
- Cardinality
- Degree
- Domains
- Primary and foreign keys
- Relations
- Tuples
- Attributes type including single value, multi value, composite and derived
- Convert the E-R diagram to relations in the format of: *relation(attribute1, attribute2, attribute3).* For instance, *book(ISBN, title, author, price).*

You must include at least eight relations and at least three attributes for each relation.

Relational Algebra

Generate relational algebra to answer the queries below. Use standard notation and relational algebra terminology. You may need to modify you E-R design to answer the questions below.

Replace [customer], [genre], [cast], [customer name], [location] or other items in brackets with your own values.

1. Identify all [genre] TV Shows in [format] with [cast] or [cast]. For instance, identify pop & Rock DVD TV Shows with Lady Gaga or Amy Winehouse. Display the show name, rating and feeling.
2. Identify all shows saved to [customer name] DVD rental queue. Display the placement in the queue, show name and average user rating.
3. Identify all [format] shows borrowed by [customer name] in the last [time] years. Display the show name, borrow date and return date.
4. Identify highly rated [genre] shows. Display the show name and average user rating.
5. Identify the number of DVD's borrowed by genre. Display two columns: genre and number of rentals. Display one row for each genre.
6. Identify popular shows borrowed or streamed near [location] in the last [time]. Display the show name and number of times borrowed or streamed. Display one row for each show name.
7. Identify the number of shows by cast. Display two columns: cast name and number of shows they appear. Display one row for each cast name.
8. Identify shows not streamed or borrowed in the last year. Display two columns: show name and average user rating.

9. Identify customers with no activity in the last [time] (customers who have not borrowed a DVD or streamed a show). Display two columns: customer name and email address.
10. Identify shows without user ratings. Display two columns: show name, release date and cast.

Formatting

- The E-R design must be similar to your relational algebra, including attribute names and attribute types.
- Your project must include the question and relational algebra operations to answer the question
- Each question and answer must be formatted to display on a new page.
- Your project must be typed.
- Use appropriate terminology.
- Diagrams must be illustrated using software such as Microsoft Word, Microsoft Visio or LucidChart. If you manually create diagrams, they must be neat and clear.
- All pages of your output must include your name, class, date and project number in the header of each page.
- The first page of your project must include your name, the last four digits of your student id, class, the submission date and the project number.

Submission

- An electronic copy of your project will be submitted to Blackboard on the due date. The file name will be in the format: [last name] [first name] Project1.docx or [last name] [first name] Project1.pdf. For example, *Smith Sally Project1.pdf.*
- Submit one MS Word or one Adobe PDF file. Don't submit separate files for the ER, relational algebra and questions. Files not submitted in this format will be rejected.
- No projects will be accepted if left under my office door, my office mailbox or delivered to any other member of the department.
- Projects will not be accepted after the cutoff date.
- Projects are due on the due date. No projects will be accepted after the cutoff date. 5 points will be deducted for each day a project is submitted after the due date.

Academic Integrity

Projects and examinations must represent your own work. Group projects and exams are not permitted. Although you are encouraged to ask other students for information, you should neither copy another student's project nor permit another student to see your work. You can be asked to perform specific procedures and operations in the presence of the instructor. A student who submits a project that is too similar to another student's work will receive a ZERO for the project. Additional penalties may be imposed. Students found guilty of any form of academic dishonesty such as plagiarism or cheating on an exam or computer project are subject to discipline, including, but not limited to, failure in the course and suspension or dismissal from the College. You are required to comply with the CUNY Policy on Academic Integrity available at *http://www.cuny.edu/about/administration/offices/sa/policies/AcademicIntegrityPolicywithoutmemo.pdf*