

Task: Assignment
Due date: 19th June, 2024
Group 1

RENT-A-MOVIE DATABASE PROJECT

The **Rent-A-Movie** video rental store wants to design a relational database to store information about their customers and their videotapes.

They hope the database will improve their ability to market to and provide enhanced service to their customers. Among the things they would like to be able to do, once the database is up and running are:

- ❖ Search for customers by last name or phone number
- ❖ When entering new customers, enter a zip code and the database will find the city and state
- ❖ Keep track of which movies their customers rented, on what dates, and how much they spent on each date and in total
- ❖ Be able to send letters to their customers, addressing them by first name
- ❖ Search for movies by movie name or type of movie
- ❖ Search for movies that have a certain actor (note that some movies will have more than one actor worth searching on)

Note: You are **NOT** expected to demonstrate all of these features; simply make sure your database is designed so that these features would be possible.

Some things you might need to know are:

- ❖ Movies rent for K10-k15 each, plus a 10% entertainment tax
- ❖ The possible types of movies are "Comedy", "Drama", "Family", "Horror", "SciFi", and "Romance"

Guidelines:

- ❖ Make sure all tables have a primary key that will be unique
- ❖ Avoid many-to-many relationships between tables
- ❖ No two students' assignment hand-ins should be identical (or even very similar)

YOUR ASSIGNMENT (Deliverables are underlined):

- ❖ Determine the schema (logical structure and relationship of the data) for your database (This is the most important step; do this correctly and the rest should be easy.)
- ❖ Create a database using MySQL DB
- ❖ Create the appropriate tables and keys
 - Don't add any fields you don't need

- ❖ Create the appropriate table relationships, enforcing Referential Integrity
- ❖ Add records (**feel free to be creative**), including at least:
 - ✓ 5 different customers
 - ✓ 10 different videos (you might want to use the internet for movie ideas)
 - ✓ Specify a variety of prices and movie types
 - ✓ Associate more than one actor with some of the movies
 - ✓ 15 rental transactions
 - ✓ At least 5 of them should include more than one movie
 - ✓ Every customer has at least 2 transactions
 - ✓ Specify a variety of movies and customers
- ❖ Create and print results from the following queries, including at least the indicated fields:
 - **Customer List:** ID, Phone Number, Customer Name, Street Address, City, State, Zip
 - No duplicate rows (a duplicate row is one where ALL the same data appears in another row)
 - Sorted in ascending order by Customer's Last Name
 - **Transaction List:** Date, Customer Name, Video Name, Price, Tax, Total Price (for each movie rented). Format each field appropriately.
 - No duplicate rows (a duplicate row is one where ALL the same data appears in another row)
 - Sorted by Customer's Last Name and, within each customer, by Date with the most recent rental appearing first
- ❖ **Use your Transaction List query** to create and print the following report using any Report tool (SSRS is highly advisable):
 - ✓ Each transaction, showing Customer Name, Date, Video Name, and Total Price (including tax)
 - ✓ Group by Customer and then by Date
 - ✓ Separate Customers with horizontal lines
 - ✓ Within each transaction date, sort by video name
 - ✓ Show the total amount that each Customer has spent at Rent-A-Movie on each date and overall
 - ✓ Format each field appropriately
- ❖ Hand in all your deliverables with a cover sheet, indicating your name and SIN number to a link on github.
- ❖ To earn **maximum** points, you must conform to all instructions, requirements, and guidelines must be in a form that would be acceptable to a client.

FAZ DATABASE PROJECT

a) You have been recently hired as a Database Administrator for the Football Association of Zambia and your first task is to design a Database Management Information System (DBMS), that models soccer teams, the games they play, and the players in each team. In the design they give you, the following are the requirements of the system to be modelled.

- ✓ We have a set of teams, each team has an ID (unique identifier), name, main stadium, and to which city this team belongs.
- ✓ Each team has many players, and each player belongs to one team. Each player has a number (unique identifier), name, DoB, start year, and shirt number that he uses.
- ✓ Teams play matches, in each match there is a host team and a guest team. The match takes place in the stadium of the host team.

For each match we need to keep track of the following:

- ❖ The date on which the game is played
 - ❖ The final result of the match
 - ❖ The players participated in the match. For each player, how many goals he scored,
 - ❖ whether or not he took yellow card, and whether or not he took red card.
 - ❖ During the match, one player may substitute another player. We want to capture this substitution and the time at which it took place.
- Each match has exactly three referees. For each referee we have an ID (unique identifier), name, DoB, years of experience. One referee is the main referee and the other two are assistant referee.

YOUR ASSIGNMENT (Deliverables are underlined):

- ❖ Determine the schema (logical structure and relationship of the data) for your database (This is the most important step; do this correctly and the rest should be easy.)
- ❖ Create a database using MySQL DB
- ❖ Create the appropriate tables and keys
 - Don't add any fields you don't need
- ❖ Create the appropriate table relationships, enforcing Referential Integrity
- ❖ Add records (**feel free to be creative**), including at least:
- ❖ Create and print results from the following queries, including at least the indicated fields:
- ❖ **Use your Transaction List query** to create and print the following report using any Report tool (SSRS is highly advisable):
 - ✓ Each transaction, showing Match, Match Date, Match scores,
 - ✓ Group by Match and then by Date
 - ✓ Within each transaction match, sort by player name
 - ✓ Format each field appropriately
- ❖ Hand in all your deliverables with a cover sheet, indicating your name and SIN numbers to a link on github.
- ❖ To earn **maximum** points, you must conform to all instructions, requirements, and guidelines must be in a form that would be acceptable to a client.

Prescriptions-R-X DATABASE PROJECT

The Prescriptions-R-X chain of pharmacies has offered to give you a free lifetime supply of medicines if you design its database. Given the rising cost of health care, you agree. Here's the information that you gather:

- ✓ Patients are identified by an SSN, and their names, addresses, and ages must be recorded.
- ✓ Doctors are identified by an SSN. For each doctor, the name, specialty, and years of experience must be recorded.
- ✓ Each pharmaceutical company is identified by name and has a phone number.
- ✓ For each drug, the trade name and formula must be recorded. Each drug is sold by a given pharmaceutical company, and the trade name identifies a drug uniquely from among the products of that company. If a pharmaceutical company is deleted, you need not keep track of its products any longer.
- ✓ Each pharmacy has a name, address, and phone number.
- ✓ Every patient has a primary physician. Every doctor has at least one patient.
- ✓ Each pharmacy sells several drugs and has a price for each. A drug could be sold at several pharmacies, and the price could vary from one pharmacy to another.
- ✓ Doctors prescribe drugs for patients. A doctor could prescribe one or more drugs for several patients, and a patient could obtain prescriptions from several doctors.
- ✓ Each prescription has a date and a quantity associated with it. You can assume that if a doctor prescribes the same drug for the same patient more than once, only the last such prescription needs to be stored.
- ✓ Pharmaceutical companies have long-term contracts with pharmacies. A pharmaceutical company can contract with several pharmacies, and a pharmacy can contract with several pharmaceutical companies. For each contract, you have to store a start date, an end date, and the text of the contract.
- ✓ Pharmacies appoint a supervisor for each contract. There must always be a supervisor for each contract, but the contract supervisor can change over the lifetime of the contract.

Practical Requirements:

- ❖ **User Interface Design:** Design a user-friendly interface that allows pharmacy staff to easily enter and retrieve information about patients, doctors, pharmaceutical companies, drugs, prescriptions, and contracts.
- ❖ **Data Integrity and Security:** Implement measures to ensure the integrity and security of sensitive data, such as patient SSNs and medical records. Consider encryption and access control mechanisms.
- ❖ **Reporting and Analytics:** Develop reporting and analytics tools that help the pharmacy chain analyze prescription trends, drug sales, and doctor performance. This could include

generating monthly reports on drug sales per pharmacy, patient demographics, and prescription patterns.