Create a Database and SQL practice

Due: October 1, 2020 5:00 p.m.

Create a way to walk the class through your diagram, reports, and analyses on the due date as a group.

1 ERD

You have just started working at a bank that wants you to get them to move away from using excel spreadsheets, and create a database for all of their data needs. Although you expect this database to be updated continually, you have spoken with all the heads of departments and came up with the list of data that the database should include upon roll out shown below.

- A list of customers and along with information about them
- Customer accounts with their balances, and a list of every transaction wither that is depositing or withdrawing(customers can have more than one account)
- All the loans associated with each customer along with the assets associated with each loan and information on those assets (i.e. cost, type of asset, location, etc.). A loan can have more than one asset and more than one customer associated with it
- The employee that approved loans and set up customer accounts
- All payments on loans and charges to customers
- An easy lookup that shows when a customer is overdue on their loan payment, so the customer experience team can reach out to the customer
- Employee information such as department, supervisor, the day they were hired, etc.
- A easy way for the HR team to know if there is a birthday coming up this month

Create a database diagram following the notation that we covered in lecture on your proposed database design. Make sure all the tables in your diagram are in third normal form and notation on primary and foreign keys is included.
Use your best judgment on the information that should be included in each table. Any data points that you believe to be relevant should be included. Assume that you have very detailed data on everything. You don't need to ask if we have the data before including it in your diagram.

2 SQL

These problems will use the sakila database on the statdb.byu.edu server (IP 10.18.54.68). Create Queries that answer the following problems. Include all queries to make tables, views, stored procs, and to get query results in a .sql file. The queries and Python code should run on the graders machine without breaking (assuming they have all the same packages as you do).

1. Create a procedure that shows if a specific store has a movie in stock. Make it dynamic, so we could list any store or movie. The procedure should be user friendly (i.e.) a store employee should be able to enter in part of the movie title and it should come back with a result.

2. Use jupyter notebook and sql to create a dynamic report that displays the most rented movies for whatever genre you include. Use a visualization to show the information.

3. The business is thinking about having a flat late fee amount of 30 dollars after a customer has not returned a rental within a month. What affect will this have on revenue? Assume that a one week rental is all that is offered and costs five dollars. If there are other assumptions you need to make, stat them when answering the problem. Use jupyter and sql to answer this problem without extracting data into a csv file.

4. The business wanst to get a feel around some metrics every week going forward and looking backward on the number of rentals, avg days to make a return, etc. Think of what other things you would want to include in this report, then use SQL and jupyter to make a query that will insert the results each week into a table. Create a report that can be sent out to business leaders every week using jupyter notebook and the table you created. If you decide to include/not include visualizations argue why your choice is better.