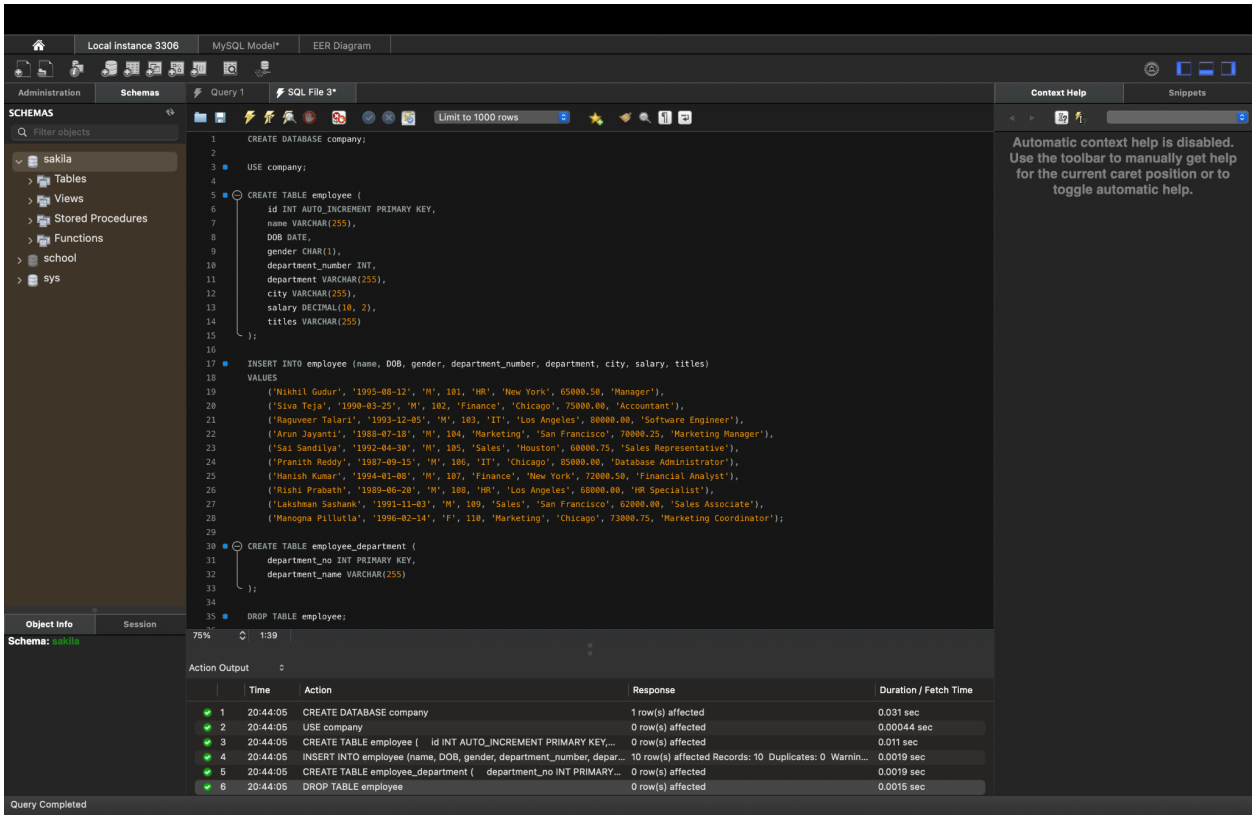
Homework 1

Task 1:



Justification for employee table data types:

- id - INT: Used as a unique identifier for an entry in the table which would typically be a number, so we are using it as an ‘INT’. In the case of ID here, We also added ‘AUTO_INCREMENT’ and ‘PRIMARY KEY’ because we want to id to be automatically incremented by 1 number and We would be using this `id` attribute to form a relation between this table and other tables
- name - VARCHAR: This data type is used to store strings of variable length.
- DOB - DATE: This data type is used to store dates, in this case we are storing the date of birth
- gender - CHAR: We are using a single character to store the gender, either ‘M’ or ‘F’. CHAR is used to store a single character
- department_number - INT: We are storing this data as an integer, hence we are using ‘INT’
- department - VARCHAR: We will be storing the name of the department here. And the name would be a string of variable length, so we are using ‘VARCHAR’ here.
- city - VARCHAR: Name of a city would also be a string, so ‘VARCHAR’ would be the data type we need to use
- salary - DECIMAL: Salary might not be a rounded number. Hence we are using the ‘DECIMAL’ data type
- titles - VARCHAR: Title would also be a string so we are using /VARCHAR’

Justification for employee_departments table data types:

- department_no - INT: This would be the number with which the department would be referred. Hence ‘int’ and we are also using ‘PRIMARY KEY’ so that we can form relation with this database and other databases.

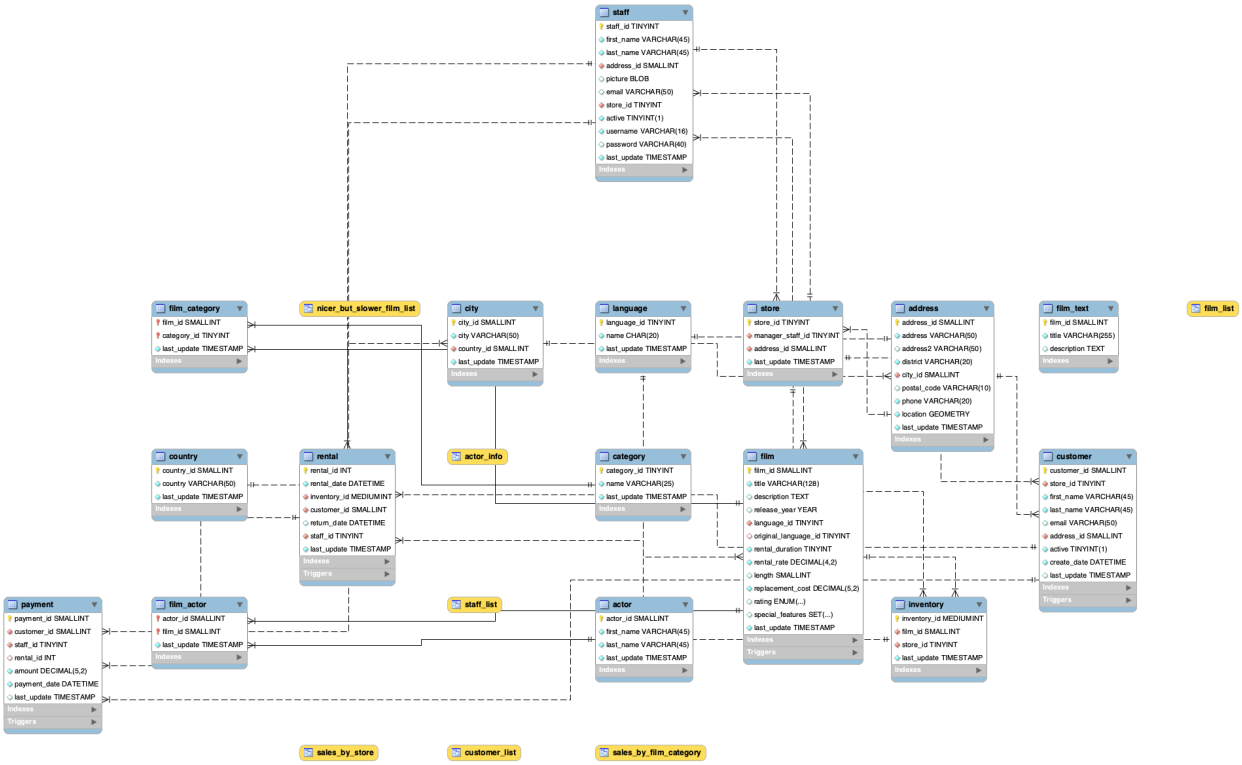
Justification between Data Deletion and Data Archival:

a) Data Deletion
    - Pros: Delete the data immediately which will also free up the storage space
    - Cons: This is irreversible, so all the historical data is lost which might be needed in the future for business reasons
b) Data Archival
    - Pros: Preserves historical data which can be used in the future for referencing or for business reasons
    - Cons: As we would not be deleting the data it would occupy storage space. And also if not handled well, there might be a confusion in distinguishing the archived data and the normal data

So generally in many businesses, it’s better to archive data rather than deleting it entirely as historical data would be valuable for business analysis. But if it is required to delete the data for compliance reasons it is good to delete the data totally.

Task 2:

Here is the ER diagram for the sakila database



Task 3:

Ethical and Privacy considerations that should be taken by an organization in order to collect employee data

- The organization should only collect the personal data that is necessary for the only purpose for which it is being collected.
- The organization should be transparent about the purpose of collecting the employee data.
- Employees should be informed about how their data will be used and who will have access to it.
- Employees should provide their consent to the collection and use of their data.
- The organization should only collect the minimum amount of data necessary for the purpose for which it is being collected.
- The organization should take serious actions to protect the employee data from anyone who is not supposed to have access to the data.
- The employee data should be under protection like encryption.
- The organization should only retain the employee data for as long as it is necessary for the purpose for which it was collected.
- Employees should have the right to access their data and to request the correction or deletion of it.
- The database should be designed in such a way that even if there is a security breach the anonymity of the employees should be intact.