Lab 02

# Objectives:

The purpose of this lab is to familiarize you with tables, columns, relationships, and constraints as provided to you within the sample database. By the end of this lab you should be able to:

* Produce a relationship diagram of an existing database
* Visualize the sample database provided to you and display the relationships between the tables
* Be familiar with the sample database that we will be using for the remainder of the term

# Preface:

During this lab, you will need to create a relationship diagram. There are many free tools available to you for this task. One example would be <http://draw.io>.

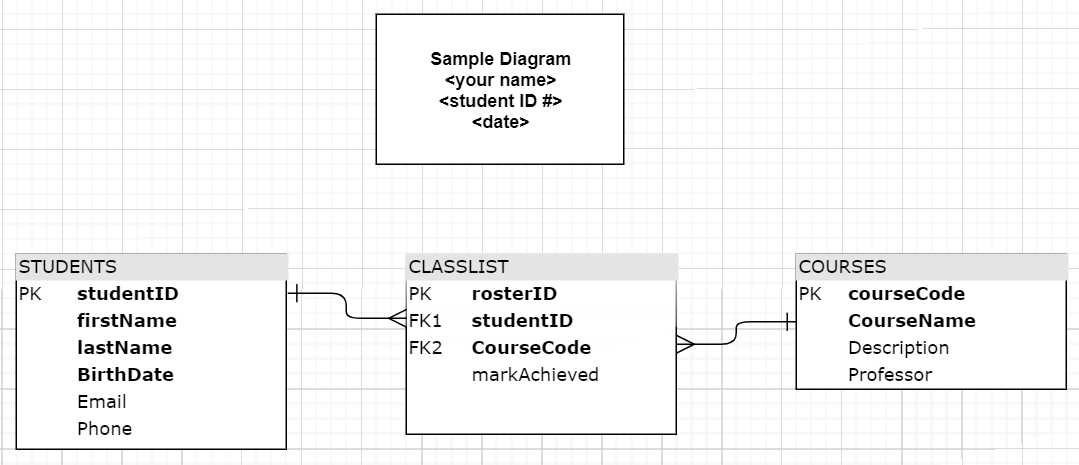
## Explore the Database

By navigating through SQL Developer and looking at the Columns, Data and Constraints tabs for each table, you will create a relationship diagram for all the tables in the database.

Your diagram must include:

* **ZERO MARKS WILL BE GIVEN IF USING SOME OTHER SCRIPT DIAGRAMS. Answers cannot be combined for all the questions together as one diagram.**
* **ZERO MARKS WILL BE GIVEN if using direct model diagrams.**
* The names of the entities (tables)
* The attributes (columns) for each table
* Lines representing the relationships between tables, try to get the lines to as closely point to the correct fields as possible (not always possible to be exact, but do your best here). Do not overlap or cross the lines.
* Crows Foot Symbols on the lines representing the type of relationship (1-1, 1-many)
* Required fields should be **bolded**
* Primary Key fields should be underlined **or** indicated with a PK beside it.
* Child fields in the relationships should be indicated with an FK beside it.

**Example**:



# LAB 02 – SUBMISSION

You will be submitting a Word document with the screenshots of a completed database relationship diagram of the following 5 questions.

**In the ERD picture have your Name, Student ID number, section.** This can be achieved by creating a simple box in the diagram before saving it.

**QUESTION 1**

Draw the Entity Relationship diagram of the following tables PRODUCTLINES and RETAILPRODUCTS

1. PRODUCTLINES

A diagram of a product

Description automatically generated

1. RETAILPRODUCTS

A diagram of a product

Description automatically generated

**QUESTION 2**

Draw the Entity Relationship diagram of the following table RETAILEMPLOYEES.

A diagram of a company

Description automatically generated

**QUESTION 3**

Draw an Entity Relationship diagram for the following.

The online movie rental service offers a catalog of movies available for rental.

* Each movie has a unique Movie\_ID. Movies have attributes such as Title, Genre, Director, Release Year, and Rating. A movie catalog requires at least the title and Genre as required fields.
* Customers can register for an account to rent movies. Each customer has a unique Customer\_ID. Customer information includes attributes such as Name, Email, Address, and Payment Information. A customer catalog requires at least the name and email address of the customer.
* Each rental transaction is recorded. A rental has a unique Rental\_ID. Rental information includes attributes such as Customer\_ID, Movie\_ID, Rental Date, Due Date. Each customer can rent more than 1 movie and each movie can be rented by many or zero customers.

A diagram of a company

Description automatically generated

**QUESTION 4**

Find the primary keys and foreign keys for all the tables created in LAB 01. See an example below and follow the same way to find these keys from constraints tab in the tables. Mention “n/a” if there is no primary key or foreign key.

|  |  |  |
| --- | --- | --- |
| **Table Name** | **Primary Key fieldname** | **Foreign key fieldname(Reference Parent table name)** |
| RETAILEMPLOYEES | EMPLOYEENUMBER | OFFICECODE(RETAILOFFICES), REPORTSTO(RETAILEMPLOYEES) |
| ORDERDETAILS | N/A | N/A |
| RETAILORDERS | ORDERNUMBER | CUSTOMERNUMBER(RETAILCUSTOMERS) |
| RETAILPRODUCTS | PRODUCTCODE | PRODUCTLINE(PRODUCTLINES) |
| PRODUCTLINES | PRODUCTLINE | N/A |
| RETAILCUSTOMERS | CUSTOMERNUMBER | SALESREPEMPLOYEENUMBER(RETAILEMPLOYEES) |
| RETAILOFFICES | OFFICECODE | N/A |
| RETAILPAYMENTS | CHECKNUMBER | N/A |

**QUESTION 5**

Find the cardinality of relationship between the parent and child tables from question1. For example, compare the primary key value of parent table and foreign key values of child table. How many times has been used? Can there be many retail employees in a retailoffice or 1 employee or 0 employee. Using the example below. You may want to find the cardinality on both sides of relationship, that means each relationship you will be reversing the table names to give the cardinality.

|  |  |  |
| --- | --- | --- |
| **Table 1 name** | **Table 2 name** | **Cardinality** |
| RETAILOFFICE | RETAILEMPLOYEES | 1 TO MANY (EACH RETAILOFFICE HAS 1 OR MORE RETAILEMPLOYEES) |
| RETAILEMPLOYEES | RETAILOFFICE | 1 TO 1 (EACH RETAILEMPLOYEE BELONGS TO ONE RETAILOFFICE) |
| RETAILPRODUCTS | PRODUCTLINES | 1 TO 1 (EACH RETAILPRODUCTS HAS 1 PRODUCTLINES) |
| PRODUCTLINES | RETAILPRODUCTS | 1 TO MANY (EACH PRODUCTLINES HAS MANY RETAILPRODUCTS) |
| ORDERDETAILS | RETAILPRODUCTS | 1 TO 1 (EACH ORDERDETAILS HAS 1 RETAILPROUCTS) |
| RETAILPRODUCTS | ORDERDETAILS | 1 TO MANY (EACH RETAILPRODUCTS HS MANY ORDERDETAILS) |