SQL – Class Exercises

Instructions:

This document contains all the practice exercises conducted during the session. This is based on the sample case study described in the background section. The case study is a simplified version to real life scenarios. All names used in these exercises are indicative and do not intend or refer to any person or brand in real world.

Background:

MyShop is a retail ecommerce application built for customers to register themselves, add their preferred products to their shopping cart and later place orders. The MyShop data architect has already designed the data model for us to work on the same. Here are the major data tables identified which we will be working in the Exercises.

Please refer to Appendix-1 describing the list of tables, their datatypes.

Pre-requisites:

1. Please check that mySQL is setup in each machine in lab.
2. We have a pen and paper to jot down our thoughts and action accordingly.

Exercise:

1. Creation of Database.
    a. Using SQL create database statement, please create the database of MyShop using MYSQL workbench.
    b. Once created, check what are the database objects you see in the navigation pane.
2. Creation of table
    a. Let's create our first table "Customers" as per the design specification given in Appendix-1.
    b. Think of all the keys/constraints that might be applicable.
3. INSERT/UPDATE/Delete:
    a. Let's insert 3 customers in our customers table.
    b. Customer2 whose last_name is "Misra" is misspelled. How will we update the record?
    c. Customer3 details are totally wrong. Name entered is "Rajiv". Well we need to delete this customer.

4. Creation of the tables and load sample data
    a. We need to create all the tables in the MyShop database. Try creating a SQL Script and create all the tables. You can take help of the sample scripts and create others. Think of all the keys/constraints that might be applicable.
    b. Let's load sample data in all the tables.

5. Data Manipulation - Select
    a. Find all the list of products.
    b. Get the product name, product_cost of those products which are out of stock.

c. Get the products which are either out of stock or Pending arrival from company. (Values – "NOSTOCK", "AWTARRIVAL")
d. Get the customer list who have done purchases in last 6 months (180 days) roughly.
e. Identify all those customers who have returned their orders for refund in the last 3 months.

f. Get all those products in the ascending order of the cost whose cost is above 150 but below 500 INR.

6. Data Manipulation – Joins
    a. We need to get list of all the customers with the total count of products they have purchased.

    b. From all the orders placed, there is a need to identify the total count of orders against the complete list of products.

    c. We need to get the top 10 customers, the total value of their orders they have purchased in last 3 months. A customer comes in top 10 by their order value.

    d. For all those orders which have been returned either for refund or exchange, identify the product id and get the list of other orders of those products, their customer reviews.

7. Data Manipulation – Subqueries, SET Operators
    a. For all customers residing in metropolis cities as well as customers with age lesser than 25 years, find the order wise count of products as well as their total value

    b. We need to get the list of customers ordering more than 10000 INR per month as well as list of customers who are ordering less than 5000 INR but products more than 40 different types as well as customers who order more than 5000 lesser than 10000 and near 20 different types of products.

    c. We need to get list of products that are highly popular in a region by way of sales as well as list of products which are highest review ratings in the same region.

Appendix – 1: Sample Database Structure

Database Name : MyShop

```
Table : Customers
customer_id varchar(20) NOT NULL,
cust_first_name varchar(20),
cust_middle_name varchar(20),
cust_last_name varchar(20),
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```
cust_phone varchar(15),
cust_address_1 varchar(50),
cust_pincode varchar(10),
cust_state varchar(15),
cust_country varchar(20),
cust_dateOfBirth date,



Table : products
prod_id varchar(10) not null,
prod_type varchar(10) not null,
prod_name varchar(30) not null,
prod_desc varchar(100),
prod_unit varchar(5),
prod_available_qty int,
prod_price_unit decimal(10,2) NOT NULL,
prod_status varchar(10) NOT NULL DEFAULT 'AVL',

TABLE orders
  order_no int NOT NULL,
  customer_id varchar(20) NOT NULL,
  order_date date NOT NULL,
  customer_review tinyint,
  order_status varchar(15) NOT NULL DEFAULT `PLACED`,

TABLE product_orders
  order_no int NOT NULL,
  prod_id varchar(15) NOT NULL,
  order_qty int NOT NULL,
  price_per_unit decimal(10,2) NOT NULL,

TABLE `prod_type`
  prod_type varchar(10) NOT NULL,
  prod_type_desc varchar(20) NOT NULL,
  prod_type_uom varchar(15) NOT NULL,
```