University of Vavuniya

Faculty of Applied Science

Department of Physical Science

CSC 1223(P) - Database Systems (Practical)

In-Course Assessment – II

Time allowed: **One Hour** 07.07.2023

Create a text file and name it with your index number. Save SQL statements and the answers to each of the queries in the text file.

Table 1: Customer

Customer_Id	First_Name	Last_Name	Email	Phone_Number
C001	John	Smith	john.smith@gmail.com	077 4567890
C002	Sarah	Johnson	sarah.johnson@yahoo.com	077 5678901
C003	Michael	Brown	michael.brown@gmail.com	078 6789012
C004	Lewis	Young	George.Young@gmail.com	075 9874509
C005	George	Orwell	George.Orwell@gmail.com	076 6903243
C006	Cooper	Bailey	Cooper.Bailey@gmail.com	072 4582340

Table 2: Meters

Meter_Id	Customer_Id	Meter_Type	Installation_Date	Meter_Status
M001	C001	Residential	2021-01-15	Active
M002	C002	Commercial	2021-03-10	Active
M003	C003	Residential	2021-06-20	Inactive
M004	C004	Residential	2021-09-30	Active
M005	C005	Commercial	2021-12-08	Active
M006	C006	Residential	2022-01-03	Inactive

Table 3: Readings

Reading_Id	Meter_Id	Reading_Date	Reading_Value
R1	M001	2021-02-01	1000
R2	M001	2021-03-01	1100
R3	M002	2021-03-15	5000
R4	M002	2021-06-08	5800
R5	M004	2021-07-29	200
R6	M004	2022-03-10	250
R7	M005	2022-01-10	675
R8	M002	2021-07-12	6100
R9	M005	2022-02-15	850
R10	M003	2021-07-13	150
R11	M006	2022-02-08	300

Table 4: Invoices

Invoice_Id	Meter_Id	Invoice_Date	Total_Amount	Status
1	M001	2021-03-05	100	Paid
2	M002	2021-04-10	150	Unpaid
3	M003	2021-07-05	200	Unpaid
4	M004	2023-04-30	850	Paid
5	M005	2022-02-12	350	Paid
6	M006	2022-03-18	75	Unpaid
7	M002	2022-08-12	350	Unpaid
8	M005	2022-03-11	175	Unpaid

1. Create a relational database schema named Electricity with the given relational instances using the MySQL command prompt. You may use the data available in the file helper.sql.

2. Write SQL statements for each of the following queries:

    a. Display the data definition for each of the relational instances.
    b. Retrieve all the tuples of each of the table.
    c. Retrieve the customer's full names (First_Name and Last_Name) and their corresponding meter types.
    d. Retrieve the top 3 customer's details with the highest total amount.
    e. Retrieve the customer's first names and their corresponding meter types who have paid all their invoices.
    f. List the customer's first name and their meter type for all active meters.
    g. Retrieve the customer's first name, meter type, and total amount for customers who have at least two unpaid invoices.
    h. Retrieve the customer's id and invoice date for customers who have unpaid invoices and active meters.
    i. Find the last reading value for each meter.
    j. Retrieve the customer's first name, meter type, and total amount for all customers who have at least one reading greater than 1000 and have paid all their invoices.