Final Project Report- MWSC.

1. **Introduction**

A company called The Maracay Metropolitan Water & Sanitation Company (MWSC) needed to implement a customer relations & billing management system to help them administer their customers which is a database that store all the information they want and help in the management of the company. This document is MWSC database project report.

2. **Entity & Query Identification**
   2.1. **Identified Entities**
      2.1.1. **Customer** – This table is for clients of MWSC (**Customer** own **Premise**)
         ➢ customer_id
         ➢ customer_name
         ➢ telephone_number
      2.1.2. **Premise** – This table is for premises owned by clients of MWSC (**Premise** located in **Zones, Bill Premise, Zone Premise**)
         ➢ premise_id
         ➢ meter_number
         ➢ status
      2.1.3. **Tariff** – This table is for tariff structure of how they charge (**Charge structure** has **Tariff**)
         ➢ tariff_id
         ➢ tarrif_name
      2.1.4. **Zone** – This table contains all the zones of MWSC(**Zone** have **Sector**)
         ➢ zone_id
         ➢ zone_name
         ➢ MonthlySupply
         ➢ MonthlyConsumption
         ➢ No_Routes
         ➢ No_Billers
      2.1.5. **Bill** – This table contains bills of clients (**Bill** are paid **Payment, Bill** assigned **Premises**)
         ➢ bill_id
         ➢ No_Zones
      2.1.6. **Payment** – This table contains payments made by clients
         ➢ bill_id
         ➢ transaction_id
         ➢ amount_paid
         ➢ Remaining
      2.1.7. **Sector** – This table contains all the sectors of MWSC(**Sector** have **Staff**)
         ➢ serctor_id
         ➢ sector_name
         ➢ office_physical_address
         ➢ No_Zones
         ➢ No_plants

2.1.8. **Route** – This table contains all the routes owned by MWSC(**Plant** have **Route, Route** supply **Zone**)
  - ➢ route_id
  - ➢ route_name
  - ➢ Status

2.1.9. **Plant** – This table contains all the plants owned by MWSC
  - ➢ plant_id
  - ➢ plant_name
  - ➢ plant_size

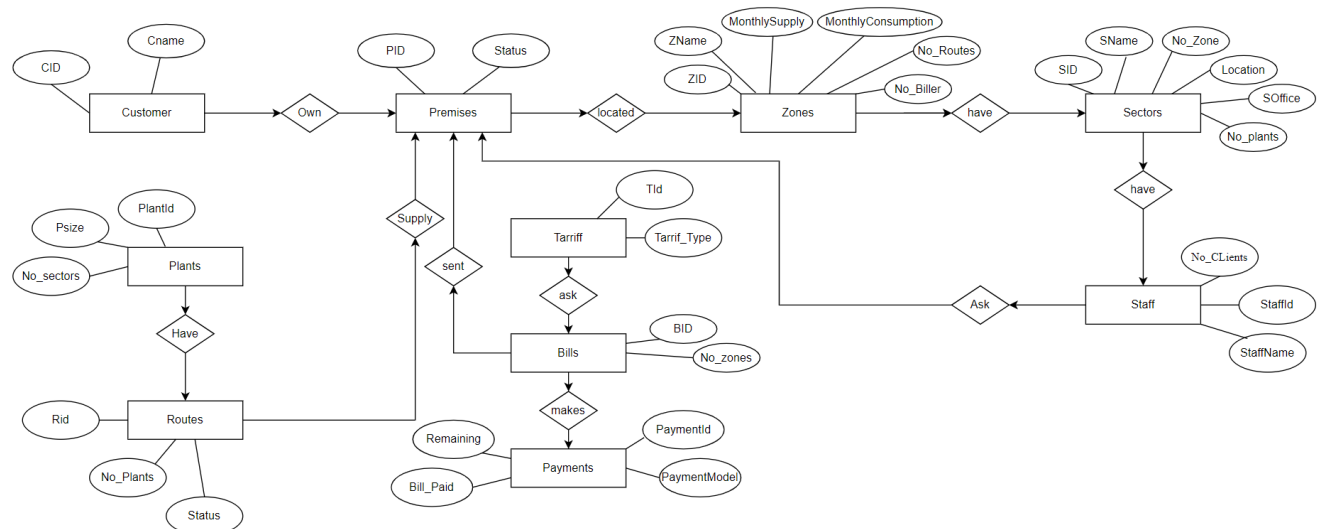2.1.10. **Staff** – This table has all MWSC staff(**Staff** make **Bill**)
  - ➢ staff_id
  - ➢ staff_name
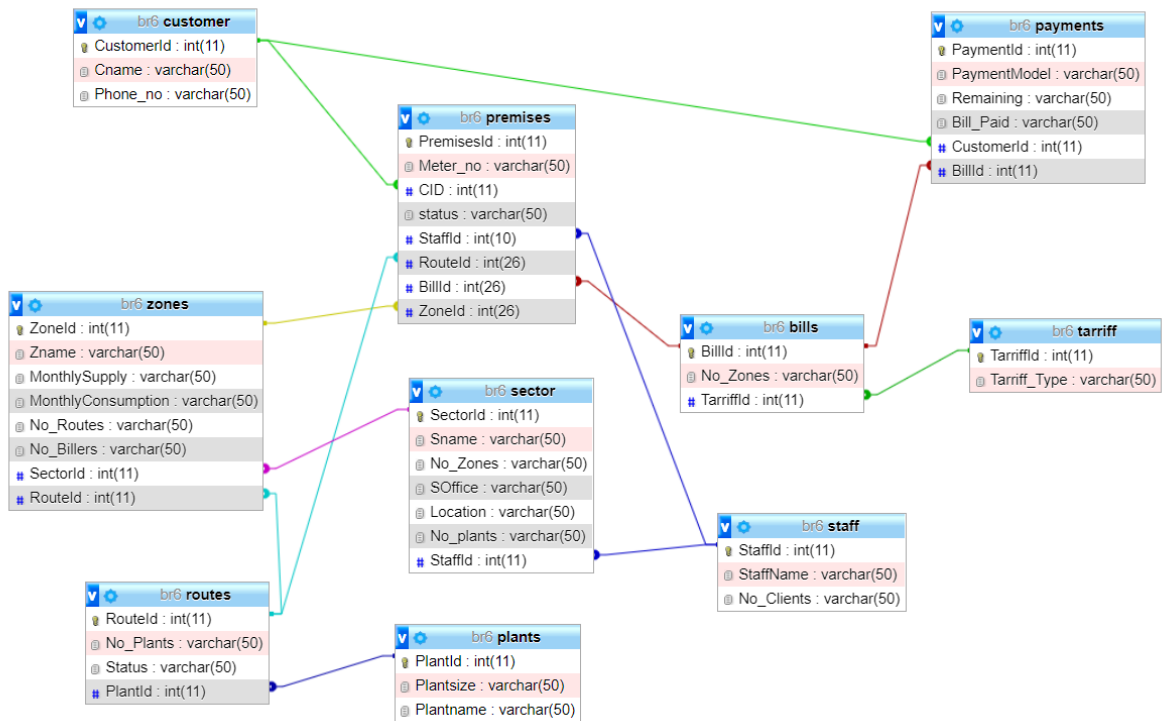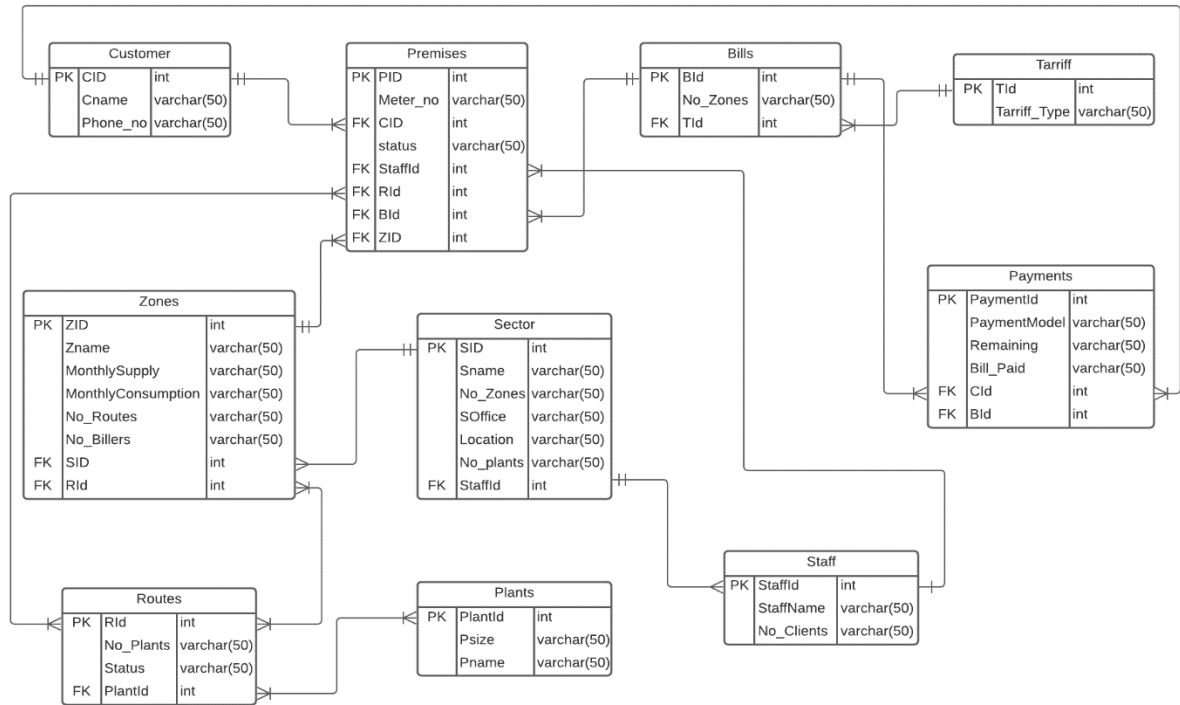 - ➢ No_Clients

2.2. Identified Questions

#	Question	SQL Query
1	MWSC would like to know how many customers are in each zone	"SELECT zone_id, COUNT(1) FROM table GROUP BY zone_id
2	MWSC would like to know which premises are active.	SELECT premisesid, FROM premises WHERE status = "active"
3	MWSC would like to know which premises have been suspended.	SELECT premisesid, FROM premises WHERE status = "suspended"
4	MWSC would like to know how many zones are In each sector	SELECT COUNT (zoneId) FROM sector
5	MWSC would like to know how many plants are in each Route	SELECT COUNT (plantId) FROM Route
6	MWSC should know the tariff that each customer should pay.	SELECT tariff_type FROM Tarriff

3. ERDs

3.1. Entity Relationship Diagram showing the relations between the different entities

3.2. Final ERD

Customer		
PK	CID	int
	Cname	varchar(50)
	Phone_no	varchar(50)

Premises		
PK	PID	int
	Meter_no	varchar(50)
FK	CID	int
	status	varchar(50)
FK	StaffId	int
FK	RId	int
FK	BId	int
FK	ZID	int

Bills		
PK	BId	int
	No_Zones	varchar(50)
FK	TId	int

Tarriff		
PK	TId	int
	Tarriff_Type	varchar(50)

Payments		
PK	PaymentId	int
	PaymentModel	varchar(50)
	Remaining	varchar(50)
	Bill_Paid	varchar(50)
FK	CId	int
FK	BId	int

Zones		
PK	ZID	int
	Zname	varchar(50)
	MonthlySupply	varchar(50)
	MonthlyConsumption	varchar(50)
	No_Routes	varchar(50)
	No_Billers	varchar(50)
FK	SID	int
FK	RId	int

Sector		
PK	SID	int
	Sname	varchar(50)
	No_Zones	varchar(50)
	SOffice	varchar(50)
	Location	varchar(50)
	No_plants	varchar(50)
FK	StaffId	int

Staff		
PK	StaffId	int
	StaffName	varchar(50)
	No_Clients	varchar(50)

Routes		
PK	RId	int
	No_Plants	varchar(50)
	Status	varchar(50)
FK	PlantId	int

Plants		
PK	PlantId	int
	Psize	varchar(50)
	Pname	varchar(50)

4. **Project Artifacts**

    A link to your Database SQL File:

    ➢ https://github.com/IkireziPacifique/BR6/blob/master/BR6_database.sql

    A link to an SQL file containing all your queries:

    ➢ https://github.com/IkireziPacifique/BR6/blob/master/BR6_Queries%20SQL.txt

5. **Project Learnings –** At least 5 things you learnt from the entire process of developing this project.

    ➢ Structured Query Language (SQL): Managing and organizing data in a database
    ➢ Relational Algebra: Writing queries to create relations and manage data in the relations
    ➢ Entity Relationship Model: Drawing illustrations from a given problem
    ➢ Entity Relationship Design: Drawing Entities to make data be ready to be put in a database
    ➢ Database: Creating and Managing a database.