DATABASE MANAEMENT SYSTEM

Assignment - 2

LG STORE MANAGEMENT SYSTEM

Achyut Jagini – PES2UG19CS013

Ajith Vivekanandan – PES2UG19CS021

Akif Iqbal – PES2UG19CS027

Database chosen - Relational database

Specific implementation chosen - PostgreSQL

Reasons to justify choice of RDBMS

A Relational Database consists of appropriately arranged tables from which data can be administered and operated in various ways without having to rearrange the entire set of database tables. SQL queries are applied for both interactive querying's to fetch information and gathering data for reporting and analysis purposes. This helps in making important business decision-making processes convenient.

This type of Database allows the user to simply classify the data into different categories and store them efficiently. This arrangement can be further fetched using queries and filters. After creating the new database, any set of data under different categories can be included in the database, without any alteration to the existing system.

1. Simple Model

A Relational Database system is the simplest model, as it does not require any complex

structuring or querying processes. It doesn't involve tedious architectural processes like

hierarchical database structuring or definition. As the structure is   simple, it is sufficient to be

handled with simple SQL queries and does not require complex queries to be designed.

2. Data Accuracy

In the relational database system, there can be multiple tables related to one another with the

use of a primary key and foreign key concepts. This makes the data to be non-repetitive. There

is no chance for duplication of data. Hence the accuracy of data in the relational database is

more than any other database system.

3. Easy Access to Data

In the Relational Database System, there is no pattern or pathway for accessing the data, as to

another type of databases can be accessed only by navigating through a tree or a hierarchical

model. Anyone who accesses the data can query any table in the relational database. Using join

queries and conditional statements one can combine all or any number of related tables in order to fetch the required data. Resulting data can be modified based on the values from any column, on any number of columns, which permits the user to effortlessly recover the relevant data as the result. It allows one to pick on the desired columns to be incorporated in the outcome so that only appropriate data will be displayed.

4. Data Integrity
Data integrity is a crucial characteristic of the Relational Database system. Sturdy Data entries and legitimacy validations ensure that all the Data in the database confines within suitable arrangements and the data necessary for creating the relationships are present. This relational reliability amongst the tables in the database helps in avoiding the records from being imperfect, isolated or unrelated. Data integrity aids in making sure of the relational database's other significant characteristics like Ease of use, precision, and stability of the data.

5. Flexibility
A Relational Database system by itself possesses qualities for levelling up, expanding for bigger lengths, as it is endowed with a bendable structure to accommodate the constantly shifting requirements. This facilitates the increasing incoming amount of data, as well as the update and deletes wherever required. This model consents to the changes made to a database configuration as well, which can be applied without difficulty devoid of crashing the data or the other parts of the database.

6. High Security
As the data is divided amongst the tables of the relational database system, it is possible to make a few tables to be tagged as confidential and others not. This segregation is easily implemented with a relational database management system, unlike other databases. When a data analyst tries to login with a username and password, the database can set boundaries for

their level of access, by providing admission only to the tables that they are allowed to work on, depending on their access level.

7. Feasible for Future Modifications

As the relational database system holds records in separate tables based on their categories, it is straightforward to insert, delete or update records that are subjected to the latest requirements. This feature of the relational database model tolerates the newest requirements that are presented by the business. Any number of new or existing tables or columns of data can be inserted or modified depending on the conditions provided, by keeping up with the basic qualities of the relational database management system.

Implementation of the database and populating the database with suitable values:

```
CREATE TABLE SALE(
    sBillingID bigint NOT NULL,
    sTotalCost bigint,
    PRIMARY KEY (sBillingID)
);

CREATE TABLE EMPLOYEE(
    eID bigint NOT NULL PRIMARY KEY,
    eName varchar(50) NOT NULL,
    ePhone bigint,
    eDOB Date,
    eHireDate Date,
    eSalary bigint,
    eAccNo bigint,
    eEmail varchar(255),
    eBank varchar(50),
    eBillingID bigint NOT NULL,
    FOREIGN KEY (eBillingID) REFERENCES SALE(sBillingID)
);

CREATE TABLE CUSTOMER(
```

```sql
    cID bigint NOT NULL PRIMARY KEY,
    cName varchar(50) NOT NULL,
    cDOB Date,
    cPhone bigint,
    cEmail varchar(255),
    cGender varchar(1),
    cLastPurchase Date,
    empID bigint NOT NULL,
    FOREIGN KEY (empID) REFERENCES EMPLOYEE(eID)
);

CREATE TABLE PAYMENTS(
    pAmountDue bigint,
    pModeOfPayment varchar(255),
    pBillingID bigint NOT NULL,
    FOREIGN KEY (pBillingID) REFERENCES SALE(sBillingID)
);

CREATE TABLE LG_PRODUCT(
    lgID bigint NOT NULL UNIQUE,
    lgName varchar(255) NOT NULL,
    custID bigint NOT NULL,
    PRIMARY KEY (lgID),
    FOREIGN KEY (custID) REFERENCES CUSTOMER(cID)
);

CREATE TABLE LG_AC(
    acID bigint NOT NULL,
    acName varchar(50),
    acModel bigint,
    acWeight bigint,
    acMinTemp bigint,
    acMaxTemp bigint,
    acWarranty Date,
    acPrice bigint,
    acElectricityInput bigint,
    FOREIGN KEY(acID) REFERENCES LG_PRODUCT(lgID)
);

CREATE TABLE LG_WASHING_MACHINE(
    wmID bigint NOT NULL,
    wmName varchar(50) NOT NULL,
    wmModel bigint,
    wmWeight bigint,
    wmWarranty Date,
```

```sql
    wmLoadVolume bigint,
    wmPrice bigint,
    wmMotorType varchar(255),
    wmElectricityInput bigint,
    wmLoad varchar(9),
    FOREIGN KEY(wmID) REFERENCES LG_PRODUCT(lgID)
);

CREATE TABLE LG_REFRIGERATOR(
    rID bigint NOT NULL,
    rName varchar(50) NOT NULL,
    rModel bigint,
    rWeight bigint,
    rMinTemp bigint,
    rMaxTemp bigint,
    rWarranty Date,
    rLoadVolume bigint,
    rPrice bigint,
    rElectricityInput bigint,
    rFreezer varchar(9),
    FOREIGN KEY(rID) REFERENCES LG_PRODUCT(lgID)
);

CREATE TABLE LG_TV(
    tvID bigint NOT NULL,
    tvName varchar(50) NOT NULL,
    tvModel bigint,
    tvWeight bigint,
    tvWarranty Date,
    tvPrice bigint,
    tvElectricityInput bigint,
    tvScreen varchar(3),
    tvType varchar(9),
    FOREIGN KEY(tvID) REFERENCES LG_PRODUCT(lgID)
);
```

```sql
INSERT INTO
EMPLOYEE(eID,eName,ePhone,eDOB,eHireDate,eSalary,eAccNo,eEmail,eBank,eBillingID)
VALUES (68319,'Kayling',9051998932,'1991-11-18','2005-12-
10',6000,5042199,'kayling@gmail.com','hdfc',113452);
```

```sql
INSERT INTO
EMPLOYEE(eID,eName,ePhone,eDOB,eHireDate,eSalary,eAccNo,eEmail,eBank,eBillingID)
VALUES (34728,'Josh',9945864219,'1987-04-20','2001-02-
12',8000,5042199,'josh@gmail.com','hdfc',123342);

INSERT INTO
EMPLOYEE(eID,eName,ePhone,eDOB,eHireDate,eSalary,eAccNo,eEmail,eBank,eBillingID)
VALUES (89421,'Alex',7042587612,'1988-02-12','2007-12-
10',5000,5042199,'alex@gmail.com','hdfc',43562);

INSERT INTO
EMPLOYEE(eID,eName,ePhone,eDOB,eHireDate,eSalary,eAccNo,eEmail,eBank,eBillingID)
VALUES (70428,'Sebastian',9872554392,'1990-12-10','2006-11-
05',5000,5042199,'seb@gmail.com','hdfc',245756);


INSERT INTO CUSTOMER(cID,cName,cDOB,cPhone,cEmail,cGender,cLastPurchase,empID)
VALUES (134251,'Tim','1980-05-11',9975638563,'tim@gmail.com','Male','2019-04-
12',68319);

INSERT INTO CUSTOMER(cID,cName,cDOB,cPhone,cEmail,cGender,cLastPurchase,empID)
VALUES (147318,'Alice','2000-05-11',9975638563,'alice@gmail.com','Female','2019-
01-10',34728);

INSERT INTO CUSTOMER(cID,cName,cDOB,cPhone,cEmail,cGender,cLastPurchase,empID)
VALUES (178492,'Ella','2001-05-11',9975638563,'ella@gmail.com','Female','2018-07-
09',89421);

INSERT INTO CUSTOMER(cID,cName,cDOB,cPhone,cEmail,cGender,cLastPurchase,empID)
VALUES (119574,'Anna','1995-05-11',9975638563,'anna@gmail.com','Female','2017-07-
12',70428);

INSERT INTO CUSTOMER(cID,cName,cDOB,cPhone,cEmail,cGender,cLastPurchase,empID)
VALUES (175948,'Bob','1993-05-11',9975638563,'bob@gmail.com','Male','2019-11-
13',68319);

INSERT INTO CUSTOMER(cID,cName,cDOB,cPhone,cEmail,cGender,cLastPurchase,empID)
VALUES (112345,'Joshua','1992-05-11',9975638563,'joshua@gmail.com','Male','2019-
03-12',89421);


INSERT INTO SALE(sBillingID,sTotalCost)
VALUES (113452,500);
```

```sql
INSERT INTO SALE(sBillingID,sTotalCost)
VALUES (123342,800);

INSERT INTO SALE(sBillingID,sTotalCost)
VALUES (43562,700);

INSERT INTO SALE(sBillingID,sTotalCost)
VALUES (245756,900);


INSERT INTO PAYMENTS(pAmountDue,pModeOfPayment,pBillingID)
VALUES (1400,'card',113452);

INSERT INTO PAYMENTS(pAmountDue,pModeOfPayment,pBillingID)
VALUES (1300,'online',123342);

INSERT INTO PAYMENTS(pAmountDue,pModeOfPayment,pBillingID)
VALUES (1700,'cash',43562);

INSERT INTO PAYMENTS(pAmountDue,pModeOfPayment,pBillingID)
VALUES (1800,'online',245756);

INSERT INTO PAYMENTS(pAmountDue,pModeOfPayment,pBillingID)
VALUES (2200,'card',113423);

INSERT INTO PAYMENTS(pAmountDue,pModeOfPayment,pBillingID)
VALUES (1300,'cash',112352);


INSERT INTO LG_PRODUCT(lgID,lgName,custID)
VALUES (1342,'AC',134251);

INSERT INTO LG_PRODUCT(lgID,lgName,custID)
VALUES (2248,'Washing_machine',147318);

INSERT INTO LG_PRODUCT(lgID,lgName,custID)
VALUES (3652,'Refrigerator',178492);

INSERT INTO LG_PRODUCT(lgID,lgName,custID)
VALUES (4342,'TV',119574);

INSERT INTO LG_PRODUCT(lgID,lgName,custID)
VALUES (1956,'AC',175948);

INSERT INTO LG_PRODUCT(lgID,lgName,custID)
```

```sql
VALUES (2057,'Washing_machine',112345);

INSERT INTO LG_PRODUCT(lgID,lgName,custID)
VALUES (3342,'Refrigerator',134251);

INSERT INTO LG_PRODUCT(lgID,lgName,custID)
VALUES (4542,'TV',147318);


INSERT INTO
LG_AC(acID,acName,acModel,acWeight,acMinTemp,acMaxTemp,acWarranty,acPrice,acElect
ricityInput)
VALUES (1342,'LG_3_Star_Inverter_Split',75757,14,12,30,'2024-06-
03',450000,340000);

INSERT INTO
LG_WASHING_MACHINE(wmID,wmName,wmModel,wmWeight,wmWarranty,wmLoadVolume,wmPrice,w
mMotorType,wmElectricityInput,wmLoad)
VALUES (2248,'LG_2_Star_Top_Load',45452,23,'2022-10-
12',456,20000,'TRIAC',340000,23);

INSERT INTO
LG_REFRIGERATOR(rID,rName,rModel,rWeight,rMinTemp,rMaxTemp,rWarranty,rLoadVolume,
rPrice,rElectricityInput,rFreezer)
VALUES (3652,'LG_6_Star',58433,90,0,30,'2025-02-03',80,200000,30000,'Top');

INSERT INTO
LG_TV(tvID,tvName,tvModel,tvWeight,tvWarranty,tvPrice,tvElectricityInput,tvScreen
,tvType)
VALUES (4342,'OLED_4K',34322,10,'2025-10-12',150000,12000,'LED','AndroidTV');

INSERT INTO
LG_AC(acID,acName,acModel,acWeight,acMinTemp,acMaxTemp,acWarranty,acPrice,acElect
ricityInput)
VALUES (1956,'LG_5_Star_Inverter_Split',75227,14,12,30,'2024-12-
03',400000,340000);

INSERT INTO
LG_WASHING_MACHINE(wmID,wmName,wmModel,wmWeight,wmWarranty,wmLoadVolume,wmPrice,w
mMotorType,wmElectricityInput,wmLoad)
VALUES (2057,'LG_1_Star_Front_Load',211345,23,'2022-10-
12',20,2000,'TRIAC',34000,'Front');
```

```
INSERT INTO
LG_REFRIGERATOR(rID,rName,rModel,rWeight,rMinTemp,rMaxTemp,rWarranty,rLoadVolume,
rPrice,rElectricityInput,rFreezer)
VALUES (3342,'LG_2_Star',231111,15,10,30,'2023-02-
01',30,12000,10000,'NoFreezer');

INSERT INTO
LG_TV(tvID,tvName,tvModel,tvWeight,tvWarranty,tvPrice,tvElectricityInput,tvScreen
,tvType)
VALUES (4542,'LG_LCD',69655,7,'2021-12-01',3000,23000,'LCD','NormalTV');
```

Contributions and Time Spent

Achyut Jagini – Listed number of reasons/constraints to justify the choice of DBMS – 1 hr

Ajith Vivekanandan – Populated database with suitable values – 1 hr

Akif Iqbal – Implemented and created the database – 1 hr