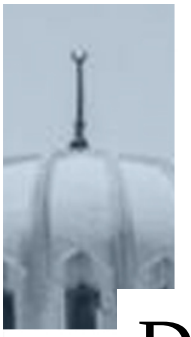

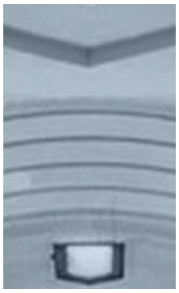

Ain Shams University

Faculty of Engineering

Computer and Systems Engineering

Database Systems Project



Program: Specialized Programs

Course Code: CSE 333s

Course Name: Database Systems

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Faculty of Engineering

Spring Semester – 2022

Medicine Factory Database System

Table of content

1.0 Introduction:

We are going to design a database for medicine factory, which records the following: Employees types such as manager, driver, salesman, chemist, …. etc. Employee have some attributes which are unique ID, full name, birthdate, bonus/deduction, working hours, gender, phone number, salary, address and hiring date. In addition, each employee works for one department and each department is managed by only one manager. Each department contains more than one employee and has attributes unique number, name and number of employees. Manager manage only one department and may have several dependents and have attribute experience. Dependent has attributes unique ID, full name, gender, salary, birthdate, bonus/deduction, working hours, hiring date and phone number.

The factory offers transportation facilities for each employee and it vary according to the employee's level. For managers, they can has a car with driver but some of the use their private car. Car has attribute model. On the other hand, there are buses available for chemist and salesman. To make it clear, the factory has three types of vehicles which are cars, buses and trucks. Vehicle has attributes unique number, destination and maintains date and there is a driver for each vehicle. Driver is allowed to drive only one vehicle and has attribute license. Truck has attribute truckload while each bus has attribute number of passengers.

Salesman has attribute target which is specific quantity of medicine need to sell. Each medicine has attributes unique ID, name, quantity, price, description, manufacture date, usage duration and expiry date. Moreover, medicine is either liquid or tablet. Each liquid has attribute volume while each tablet has attribute number of tablets. The factory clients are factories, hospital and pharmacies. Client has attributes unique ID, name, address and phone number. When a client buy medicine there are some data need to be stored which are receipt, receipt date, quantity and discount if there is. Factory has attribute factory type and pharmacy has attribute reach while hospital has attribute reputation.

Chemist combined the raw materials to produce the medicine and has attribute lab access which is the number of the lab that the chemist working on it. Part of the raw materials are manufactured while other part is supplied from suppliers and each raw material has attributes unique name, description and quantity. Manufactured raw materials has attribute manufacture date while the bought ones have price. The supplier has attributes unique name, phone number and address. When supplying there are some data need to be stored which are receipt, receipt date and quantity.

2.0 Important Data and Reports:

Consider the relational schema mentioned later in this project,

Reports: -

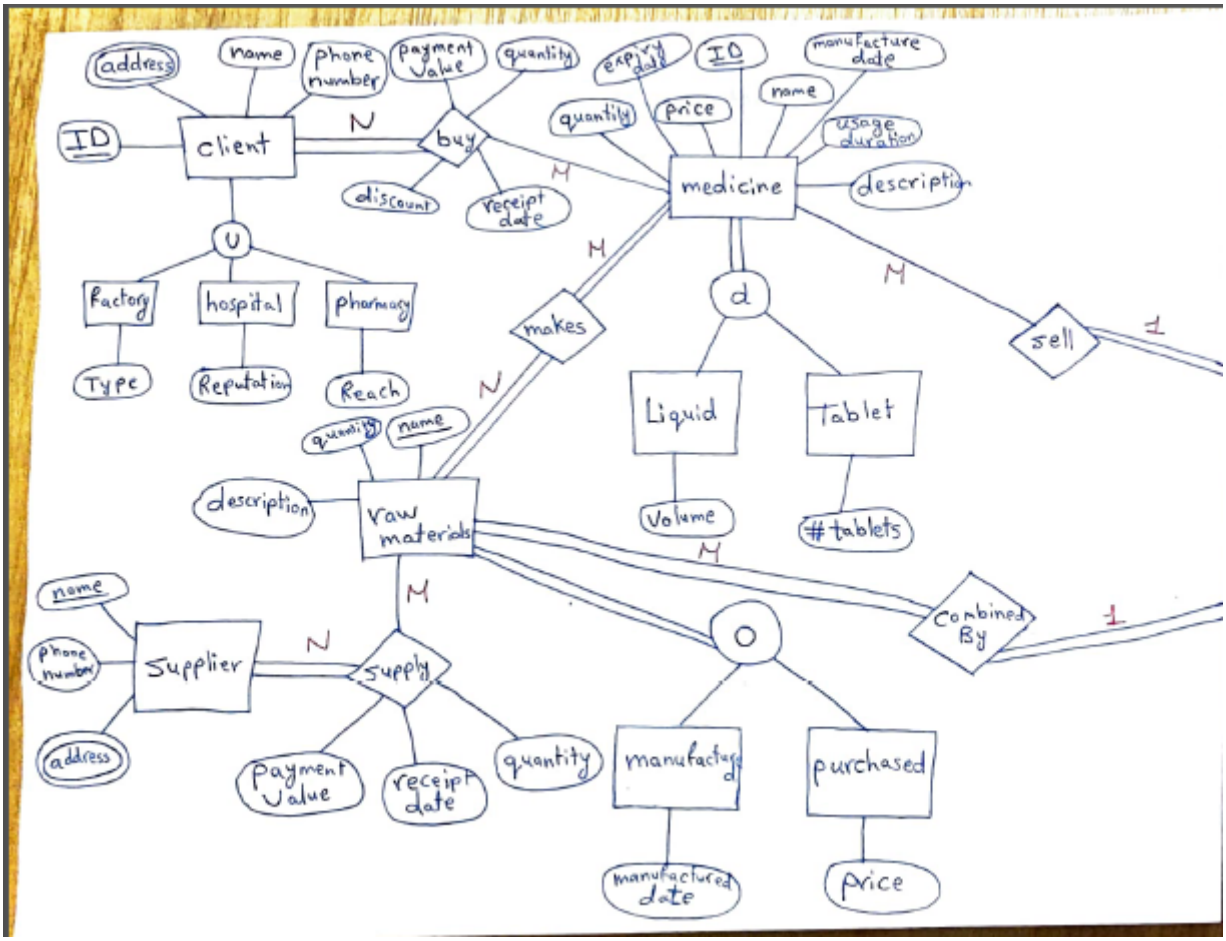
- For each department, whose average employee salary is more than $5000, retrieve the department name and the number of employees working for this department.
- Retrieve the full names of the employees who have dependents with salary more than $7000
- Retrieve the list of raw materials and the suppliers' names suppling them, ordered by the raw materials purchased price.
- Insert a new client, <'CL4390', 'Mark', '01958873251'>
- Update the price of medicine 'Panadol' to 7.50
- Delete the record for salesman whose ID is 'SM410'
- Create view table with name DEPT-EMP that count the total number of employees in each department.
- Retrieve all the clients names whose address is in Alexandria, where the value of the address attribute must contain the substring 'Alexandria' in it.
- Show the effect of giving all the employees who work more than 9 working hours a 15% raise
- Retrieve the driver license who drives a car of model 'Benz' and the manager having this car have an experience more than 5 years
- Retrieve the list of clients' names ordered alphabetically.

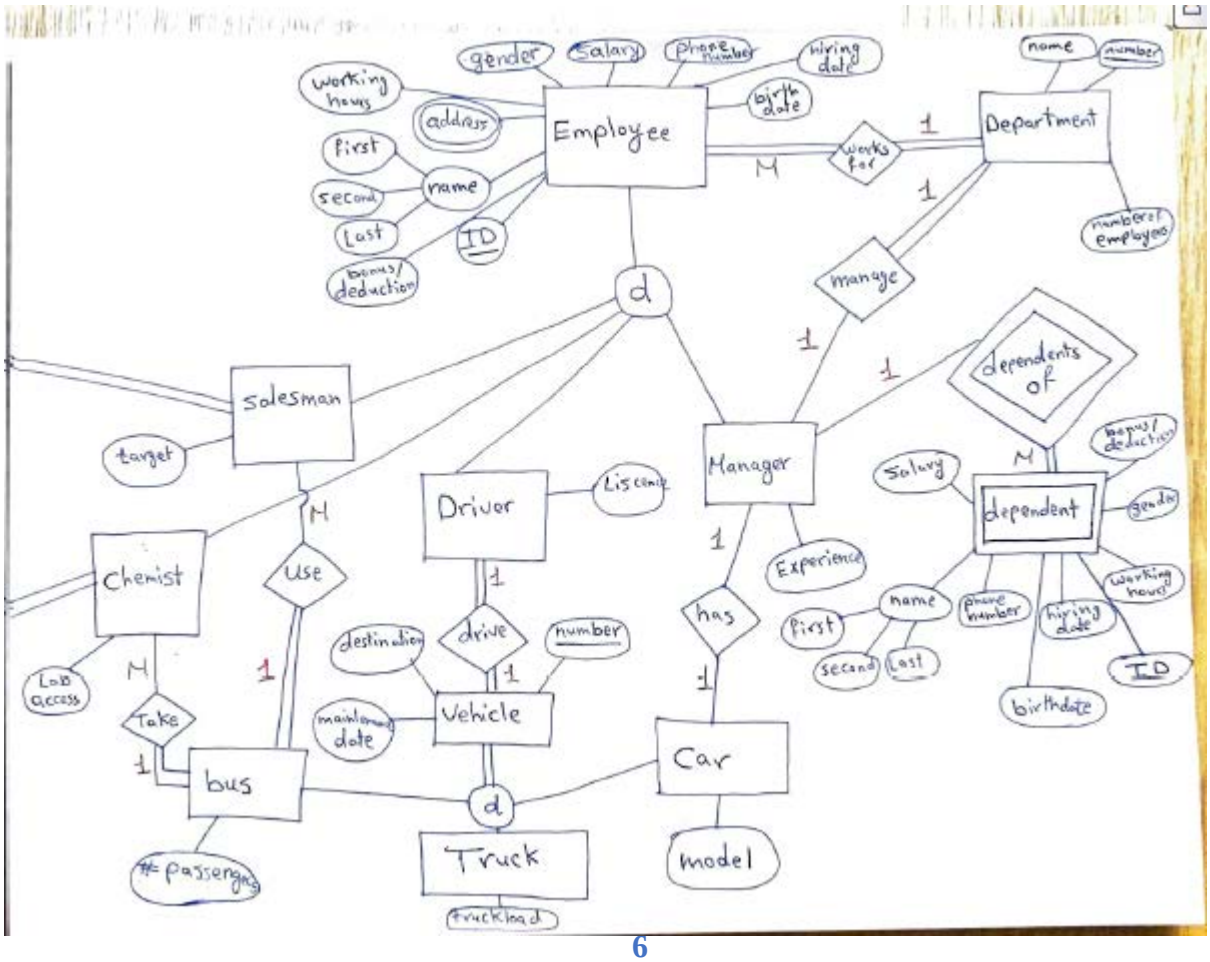
3.0 Assumptions:

1) Not all the cars for the managers. there are some cars used in other things
2) Each driver drives only one car and each car is driven by only one driver
3) Salesmen can use only one bus
4) Chemists can take only one bus
5) Each bus has several salesmen and chemists
6) Each client can buy more than one medicine and types of medicines are bought by more than one client
7) Each raw material is used in making more than one type of medicine and each medicine is made of more than one type of raw material
8) Each chemist combines more than one raw material and each raw martials is combined by only one chemist
9) Each supplier supply more than one raw material while raw material may be supplied by more than one supplier
10) In the database schema, entities driver and vehicle concatenated together in vehicle driver table. EmpID and VehNumber each of them is foreign key and both of them are primary key which is very special case because the EmpID must be primary key as Driver entity is inherited from Employee entity while VehNumber must be primary key as there will be foreign key in tables Bus, Truck and Car referring to it.

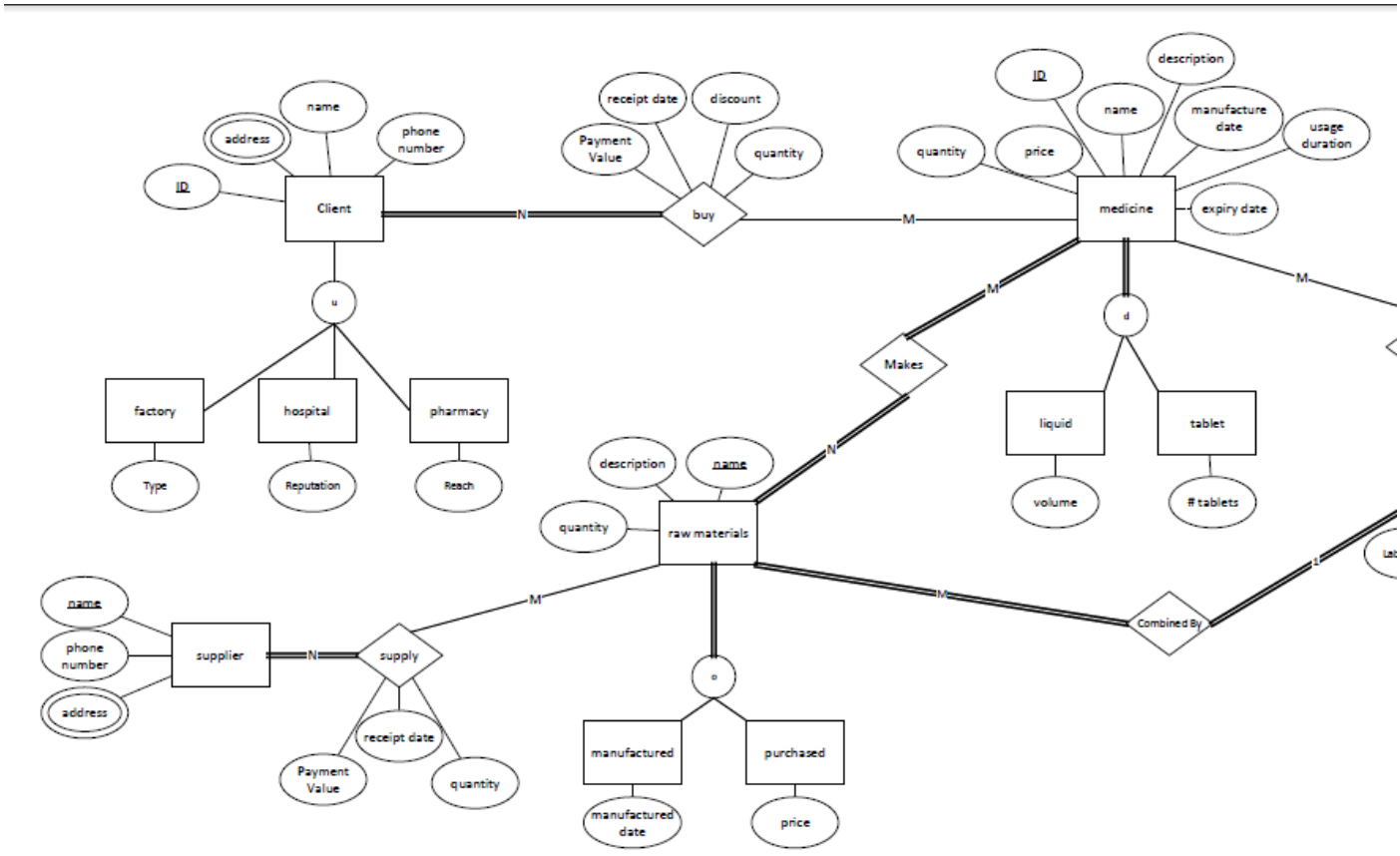
4.0 EER Diagram:

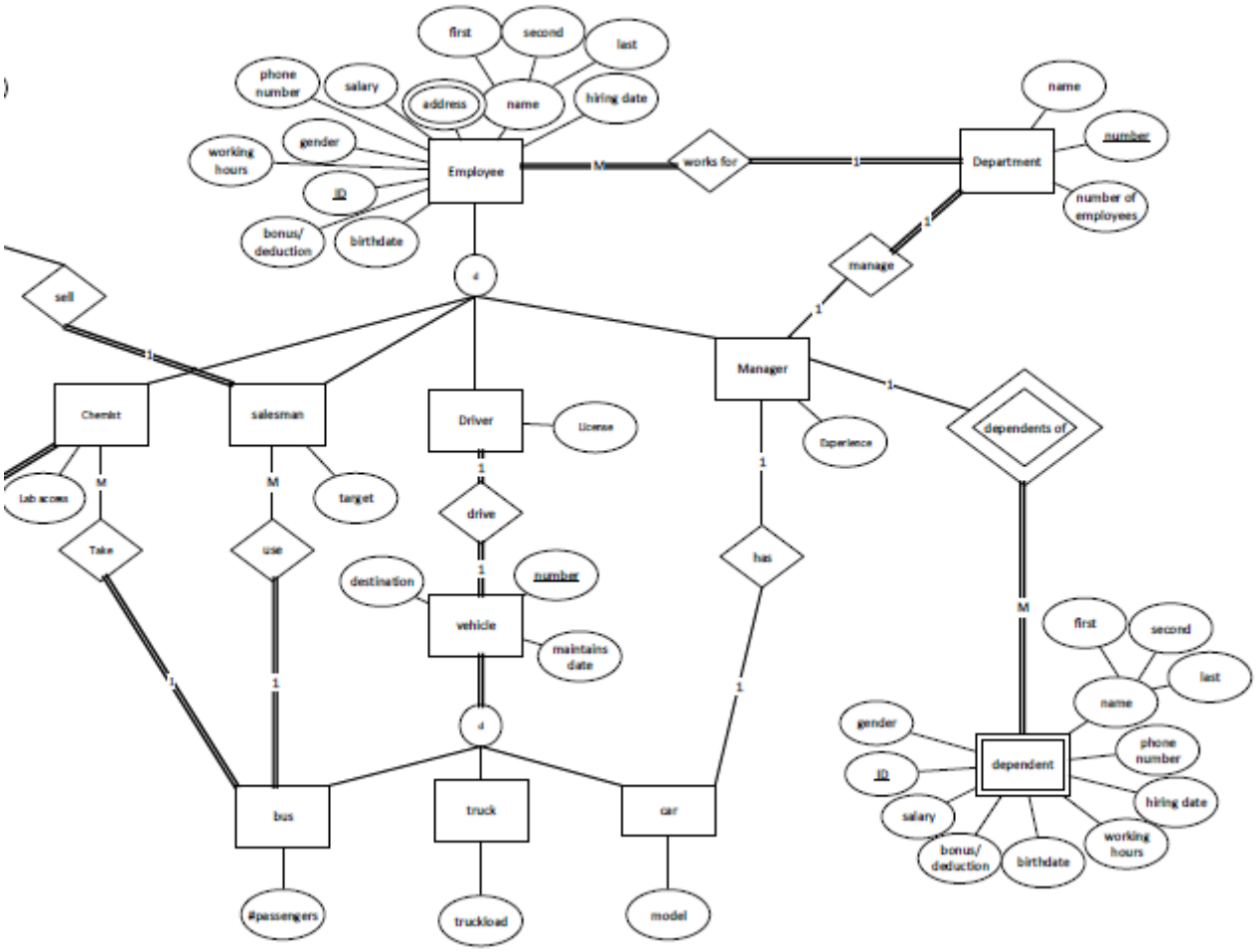
4.1Hand-Written:(Attached File "Database Hand.pdf" where full image is full)





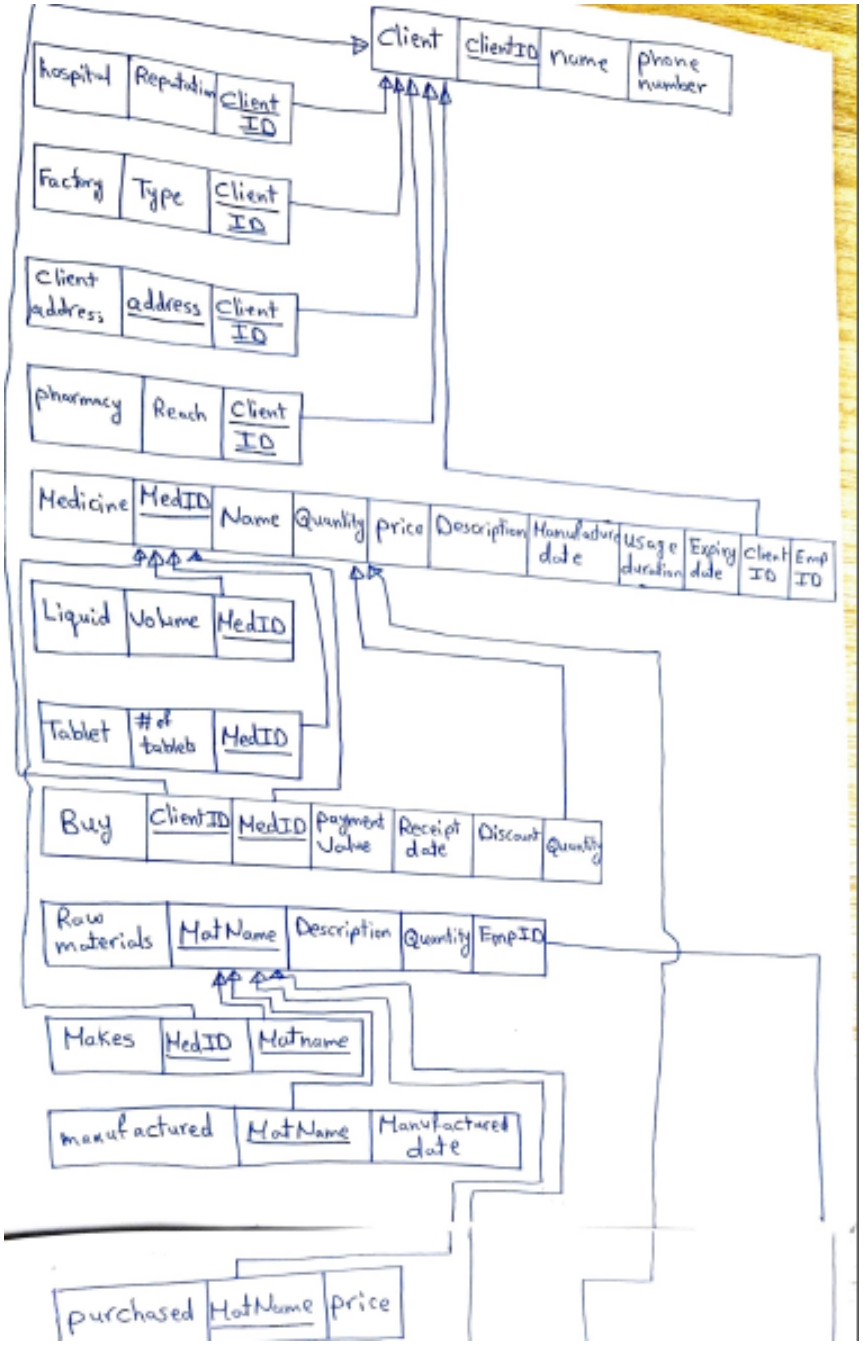
4.2 Using Tool (ERD Plus): (Attached File "Database ERD PLus.pdf" where full image is full)

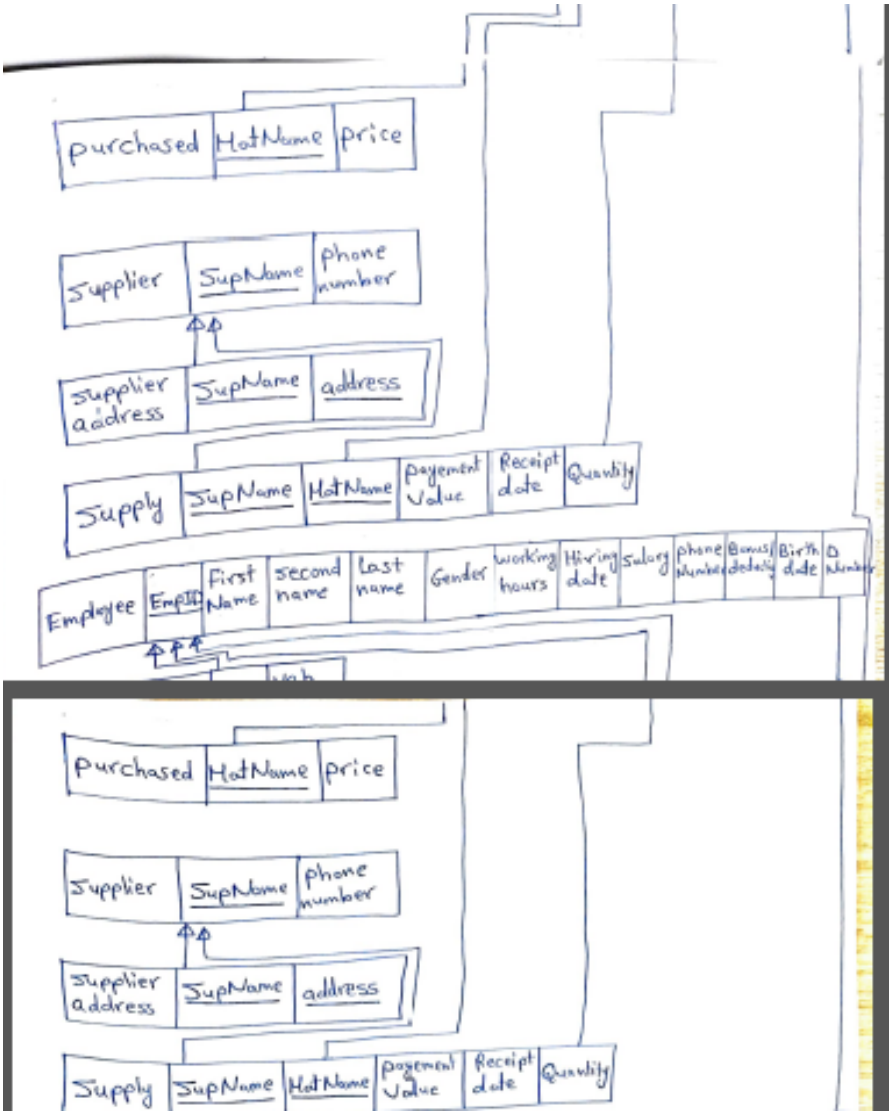


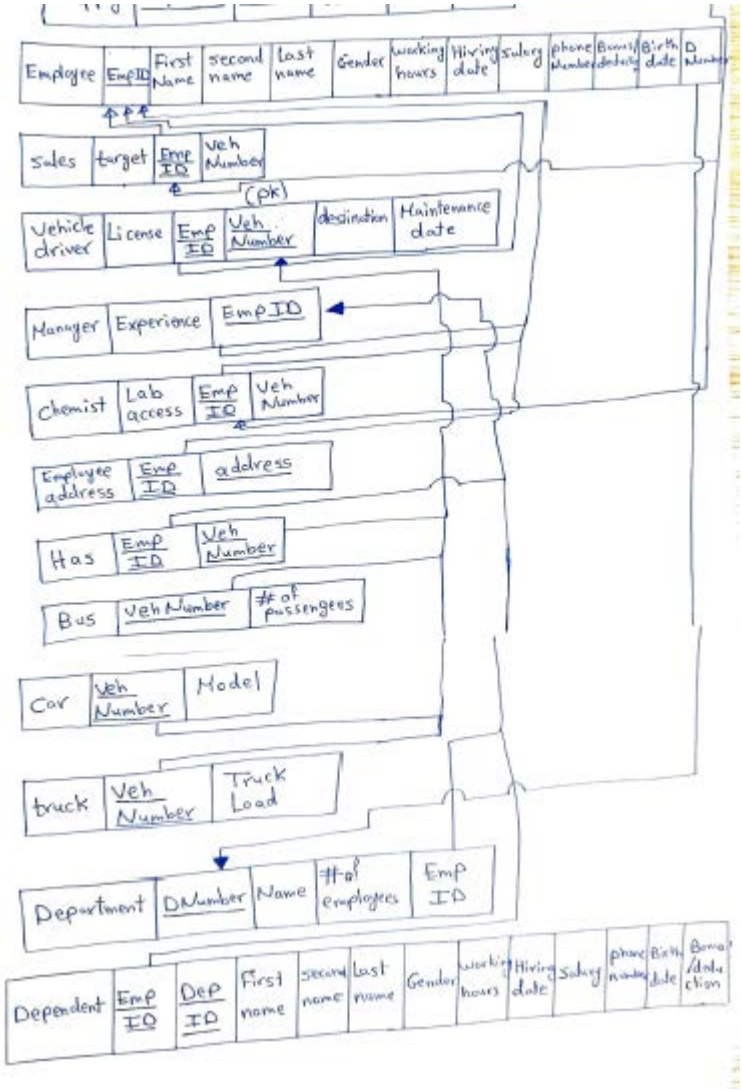


5.0 Database Schema (Relational Data Model):

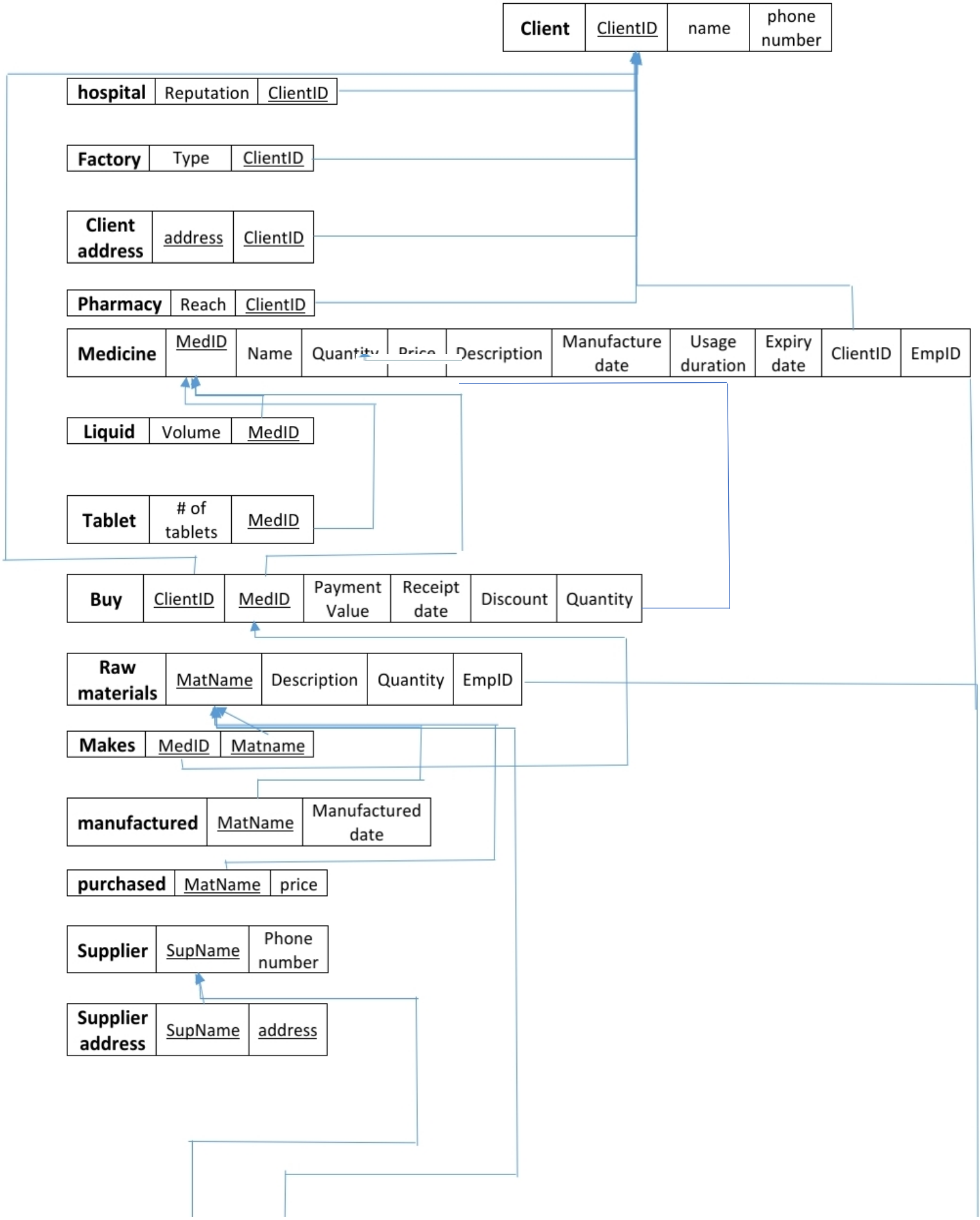
5.1 Hand-Written:

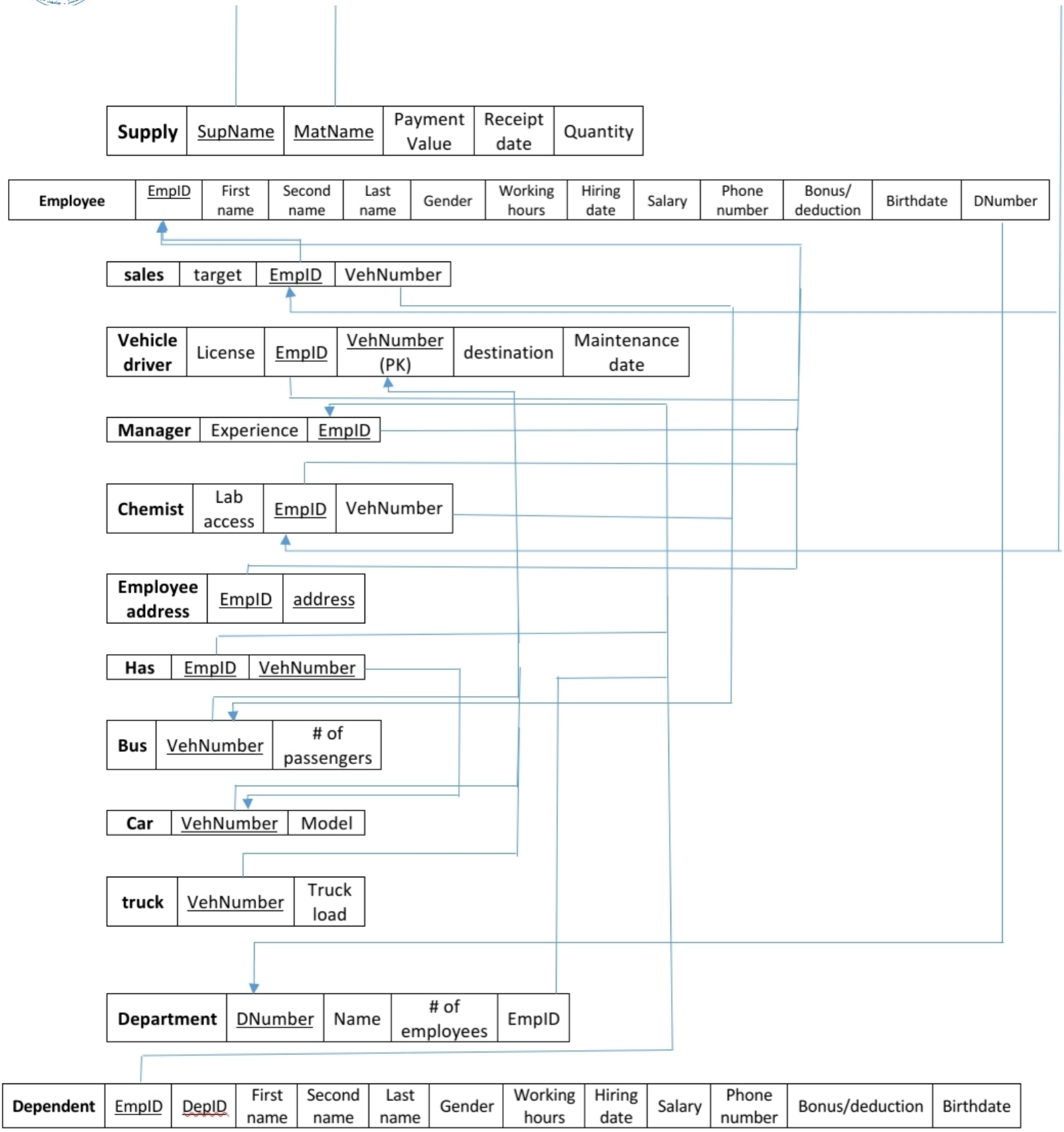



purchased
HotName
price
Supplier
SupName
phone number
Supplier address
SupName
address
Supply
SupName
HotName
payement Value
Receipt date
Quantity
Employee
EmpID
First Name
second name
Last name
Gender
working hours
Hiring date
Salary
phone Number
Bonus details
Birth date
ID Number
purchased
HotName
price
Supplier
SupName
phone number
Supplier address
SupName
address
Supply
SupName
HotName
payement Value
Receipt date
Quantity


Employee
EmpID
First Name
second name
Last name
Gender
working hours
Hiring date
Salary
phone Number
Birth date
sales
target
Emp ID
Veh Number
(FK)
Vehicle driver
License
Emp ID
Veh Number
destination
Maintenance date
Manager
Experience
EmpID
Chemist
Lab access
Emp ID
Veh Number
Employee address
Emp ID
address
Has
Emp ID
Veh Number
Bus
Veh Number
# of passengers
Car
Veh Number
Model
truck
Veh Number
Truck Load
Department
DNumber
Name
# of employees
Emp ID
Dependent
Emp ID
Dep ID
First name
Last name
Gender
Hiring date
Salary
Birth date

5.2 Using Tool (ERD Plus):




Supply
SupName
MatName
Payment Value
Receipt date
Quantity
Employee
EmpID
First name
Second name
Last name
Gender
Working hours
Hiring date
Salary
Phone number
Bonus/ deduction
Birthdate
DNumber
sales
target
EmpID
VehNumber
Vehicle driver
License
EmpID
VehNumber (PK)
destination
Maintenance date
Manager
Experience
EmpID
Chemist
Lab access
EmpID
VehNumber
Employee address
EmpID
address
Has
EmpID
VehNumber
Bus
VehNumber
# of passengers
Car
VehNumber
Model
truck
VehNumber
Truck load
Department
DNumber
Name
# of employees
EmpID
Dependent
EmpID
DepID
First name
Second name
Last name
Gender
Working hours
Hiring date
Salary
Phone number
Bonus/deduction
Birthdate

6.0 SQL Code (Creation of Tables & Sample Operations):

```
CREATE TABLE Client(
        ClientID char(7) NOT NULL,
    name char(20) NOT NULL,
    phone_number char(11),
    PRIMARY KEY (ClientID)
);


CREATE TABLE Hospital(
        Reputation char(2),
    ClientID char(7) NOT NULL,
    PRIMARY KEY(ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
            ON DELETE CASCADE
            ON UPDATE CASCADE
);
CREATE TABLE Factory(
        Type char(10),
        ClientID char(7) NOT NULL,
    PRIMARY KEY(ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
            ON DELETE CASCADE
            ON UPDATE CASCADE
);
CREATE TABLE Client_address(
```

```
        address char(30) NOT NULL,
    ClientID char(7) NOT NULL,
        PRIMARY KEY(address,ClientID),
        FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
            ON DELETE CASCADE
            ON UPDATE CASCADE
);
CREATE TABLE Pharmacy(
        Reach char(20) NOT NULL,
    ClientID char(7) NOT NULL,
    PRIMARY KEY(ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
            ON DELETE CASCADE
            ON UPDATE CASCADE
);

CREATE TABLE Employee(
        EmpID char(7) NOT NULL,
    firstName char(13) NOT NULL,
    secondName char(13),
    lastName char(13) NOT NULL,
    Gender char(6),
    working_hours char(9),
    hiringDate DATE,
    Salary DECIMAL(6,2),
```

```
    phoneNumber char(11),
    bonus DECIMAL(3,2),
    birthate DATE,
    DNumber char(3),
    PRIMARY KEY (EmpID)
);

CREATE TABLE Manager(
        Expereience char(50) NOT NULL,
    EmpID char(7) NOT NULL,
    PRIMARY KEY (EmpID),
    FOREIGN KEY (EmpID) REFERENCES Employee(EmpID)
            ON DELETE CASCADE
      ON UPDATE CASCADE
);

CREATE TABLE Department(
        EmpID char(7) NOT NULL,
    Name char(12) NOT NULL,
    numEmployees INT,
    DNumber char(3),
    PRIMARY KEY (DNumber),
    FOREIGN KEY (EmpID) REFERENCES Manager(EmpID)
            ON DELETE CASCADE
      ON UPDATE CASCADE
```

```
);

ALTER TABLE Employee ADD CONSTRAINT foreignKey
        FOREIGN KEY (DNumber) REFERENCES Department(DNumber)
                ON DELETE CASCADE
    ON UPDATE CASCADE
;

CREATE TABLE Employee_address(
        EmpID char(7) NOT NULL,
   address char(30) NOT NULL,
   PRIMARY KEY (EmpID, address),
   FOREIGN KEY (EmpID) REFERENCES Employee(EmpID)
                ON DELETE CASCADE
      ON UPDATE CASCADE
);

CREATE TABLE Dependent(
        EmpID char(7) NOT NULL,
   DepID char(7) NOT NULL,
   firstName char(10) NOT NULL,
   secondName char(10),
   lastName char(10) NOT NULL,
   gender char(6),
   working_hours char(9),
```

```
    hiringDate DATE,
    Salary DECIMAL(6,2),
    phoneNumber char(11),
    bonus DECIMAL(3,2),
    birthdate DATE,
    PRIMARY KEY (EmpID, DepID),
    FOREIGN KEY (EmpID) REFERENCES Manager(EmpID)
                    ON DELETE CASCADE
       ON UPDATE CASCADE
);

CREATE TABLE Driver(
            License char(10) NOT NULL,
    EmpID char(7) NOT NULL,
    veh_number char(6) NOT NULL UNIQUE,
    destination char(30),
    maintenance_date DATE,
    PRIMARY KEY (EmpID,veh_number),
    FOREIGN KEY (EmpID) REFERENCES Employee(EmpID)
                    ON DELETE CASCADE
       ON UPDATE CASCADE
);

CREATE TABLE Truck(
            veh_number char(6) NOT NULL,
```

```
    truck_load char(10),
        PRIMARY KEY (veh_number),
    FOREIGN KEY (veh_number) REFERENCES Driver(veh_number)
            ON DELETE CASCADE
      ON UPDATE CASCADE
);

CREATE TABLE Car(
        veh_number char(6) NOT NULL,
    model char(20),
        PRIMARY KEY (veh_number),
    FOREIGN KEY (veh_number) REFERENCES Driver(veh_number)
            ON DELETE CASCADE
      ON UPDATE CASCADE
);

CREATE TABLE Bus(
        veh_number char(6) NOT NULL,
    numPassengers INT,
    PRIMARY KEY (veh_number),
    FOREIGN KEY (veh_number) REFERENCES Driver(veh_number)
            ON DELETE CASCADE
      ON UPDATE CASCADE
);
```

```
CREATE TABLE Has(
        EmpID char(7) NOT NULL,
    veh_number char(6) NOT NULL,
    PRIMARY KEY (EmpID,veh_number),
    FOREIGN KEY (EmpID) REFERENCES Manager(EmpID)
                ON DELETE CASCADE
       ON UPDATE CASCADE,

    FOREIGN KEY (veh_number) REFERENCES Car(veh_number)
                ON DELETE CASCADE
       ON UPDATE CASCADE
);

CREATE TABLE Salesman(
        target char(10),
    EmpID char(7) NOT NULL,
    veh_number char(6) NOT NULL,
    PRIMARY KEY (EmpID),
    FOREIGN KEY(EmpID) REFERENCES Employee(EmpID)
                ON DELETE CASCADE
       ON UPDATE CASCADE,
        FOREIGN KEY (veh_number) REFERENCES Bus(veh_number)
                ON DELETE CASCADE
       ON UPDATE CASCADE
```

```
);

CREATE TABLE Medicine(
        MedID char(7) NOT NULL,
    Name char(20) NOT NULL,
    Quantity INT,
    Price DECIMAL(3,2),
    Description char(100),
    Manufacture_date DATE,
    Usage_duration char(10),
    Expiry_date DATE,
    EmpID char(7) NOT NULL,
    PRIMARY KEY(MedID),
        FOREIGN KEY(EmpID) REFERENCES Salesman(EmpID)
                ON DELETE CASCADE
       ON UPDATE CASCADE
);

CREATE TABLE Liquid(
        Volume char(10),
    MedID char(7) NOT NULL,
    PRIMARY KEY(MedID),
    FOREIGN KEY(MedID) REFERENCES Medicine(MedID)
                ON DELETE CASCADE
```

```
        ON UPDATE CASCADE
);

CREATE TABLE Tablet(
            numTablets INT,
    MedID char(7) NOT NULL,
    PRIMARY KEY(MedID),
    FOREIGN KEY(MedID) REFERENCES Medicine(MedID)
                    ON DELETE CASCADE
        ON UPDATE CASCADE
);
CREATE TABLE Chemist(
            Lab_access char(10) NOT NULL,
    EmpID char(7) NOT NULL,
    veh_number char(6) NOT NULL,
    PRIMARY KEY (EmpID),
    FOREIGN KEY (EmpID) REFERENCES Employee(EmpID)
                    ON DELETE CASCADE
        ON UPDATE CASCADE,
    FOREIGN KEY (veh_number) REFERENCES Bus(veh_number)
                    ON DELETE CASCADE
        ON UPDATE CASCADE
);
CREATE TABLE Raw_Materials(
            MatName char(20) NOT NULL UNIQUE,
```

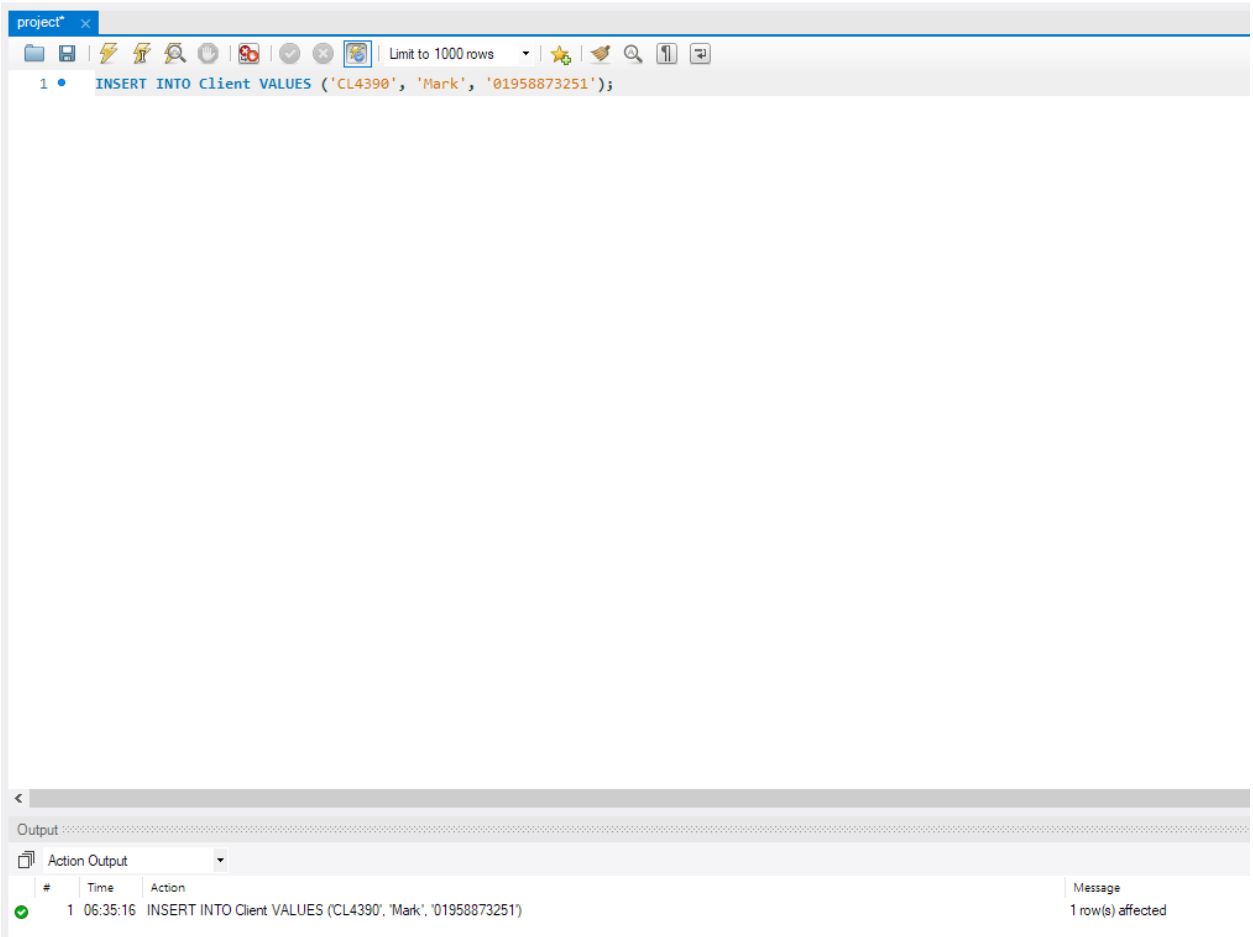
```
    Description char(100),
    Quantity INT,
    EmpID char(7) NOT NULL,
    PRIMARY KEY(MatName),
    FOREIGN KEY (EmpID) REFERENCES Chemist(EmpID)
                ON DELETE CASCADE
        ON UPDATE CASCADE
);

CREATE TABLE Makes(
        Matname char(20) NOT NULL,
    MedID char(7) NOT NULL,
    PRIMARY KEY (Matname, MedID),
    FOREIGN KEY(MedID) REFERENCES Medicine(MedID)
                ON DELETE CASCADE
        ON UPDATE CASCADE,
        FOREIGN KEY(Matname) REFERENCES Raw_materials(MatName)
                ON DELETE CASCADE
        ON UPDATE CASCADE
);

CREATE TABLE Buy(
    payment_value DECIMAL(4,2),
    receipt_date DATE,
    discount char(4),
```

```
    quantinty INT,
    ClientID char(7) NOT NULL,
    MedID char(7) NOT NULL,
    PRIMARY KEY (ClientID, MedID),
    FOREIGN KEY(MedID) REFERENCES Medicine(MedID)
                ON DELETE CASCADE
       ON UPDATE CASCADE,
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
                ON DELETE CASCADE
       ON UPDATE CASCADE
);



CREATE TABLE Supplier(
        SupName char(20) NOT NULL,
    phone_number char(11),
    PRIMARY KEY (SupName)
);


CREATE TABLE Supplier_address(
        SupName char(20) NOT NULL,
    address char(30) NOT NULL,
    PRIMARY KEY (SupName,address),
    FOREIGN KEY (SupName) REFERENCES Supplier(SupName)
                ON DELETE CASCADE
```

```
        ON UPDATE CASCADE
);
CREATE TABLE Supply(
            SupName char(20) NOT NULL,
    MatName char(20) NOT NULL,
    payment_value DECIMAL(6,2),
    receipt_date DATE,
    quantity INT,
    PRIMARY KEY(SupName, MatName),
    FOREIGN KEY(MatName) REFERENCES Raw_Materials(MatName)
                ON DELETE CASCADE
        ON UPDATE CASCADE,
            FOREIGN KEY(SupName) REFERENCES Supplier(SupName)
                ON DELETE CASCADE
        ON UPDATE CASCADE
);

CREATE TABLE Purchased(
            MatName char (20) NOT NULL,
    price DECIMAL (6,2),
    PRIMARY KEY (MatName),
            FOREIGN KEY(MatName) REFERENCES Raw_Materials(MatName)
                ON DELETE CASCADE
                ON UPDATE CASCADE
);
```

```
CREATE TABLE Manufactured (
        MatName char(20) NOT NULL,
    Manufactured_date DATE,
    PRIMARY KEY (MatName),
        FOREIGN KEY(MatName) REFERENCES Raw_Materials(MatName)
                ON DELETE CASCADE
                ON UPDATE CASCADE
);
```

- **Sample Operations:**
  - **INSERT:**



- **INSERT with (UPDATE , SET , DELETE , and WHERE clauses):**

```
INSERT INTO Employee VALUES ("02M20","Mohsen","Khaled","Mahmoud","Male","10-2","2017-5-13",3000, "01287667891",0,"1990-3-20",NULL);    /*Manager*/
INSERT INTO Employee VALUES ("13D12","Maged","Ashraf","Mohy","Male","8-6","2020-7-3",800, "09237465671",0,"1992-4-5",NULL);    /*Driver*/

INSERT INTO DRIVER VALUES ("Giza123","13D12","123P","Cairo,Fifth Settelment","2021-6-3");
INSERT INTO BUS VALUES ("123P",10);

INSERT INTO Manager VALUES ("10 years", "02M20");
INSERT INTO Department VALUES("02M20","R&D",12,"10");

INSERT INTO Employee VALUES ("15S20","Ahmed","Mohammed","Mahmoud","Male","9-4","2017-11-13",1200, "01234567891",0,"1994-5-28","10");    /*Salesman*/
INSERT INTO Salesman VALUES ("100","15S20", "123P");

INSERT INTO Medicine VALUES ('Pana200', 'Panadol', 10, 1.20,"Used for headaches", '2019-12-15', "6 hours", '2023-12-15', '15S20');
UPDATE Medicine
SET medicine.Price =7.50
WHERE Name ="Panadol";
```

Output

Action Output

#	Time	Action	Message
31	07:04:54	INSERT INTO Employee VALUES ("13D12","Maged","Ashraf","Mohy","Male","8-6","2020-7-3",800, "09237465671",0,"1992-4-5",NULL)	1 row(s) affected
32	07:04:54	INSERT INTO DRIVER VALUES ("Giza123","13D12","123P","Cairo,Fifth Settelment","2021-6-3")	1 row(s) affected
33	07:04:54	INSERT INTO BUS VALUES ("123P",10)	1 row(s) affected
34	07:04:54	INSERT INTO Manager VALUES ("10 years", "02M20")	1 row(s) affected
35	07:04:54	INSERT INTO Department VALUES("02M20","R&D",12,"10")	1 row(s) affected
36	07:04:54	INSERT INTO Employee VALUES ("15S20","Ahmed","Mohammed","Mahmoud","Male","9-4","2017-11-13",1200, "01234567891",0,"1994-5-28","10")	1 row(s) affected
37	07:04:54	INSERT INTO Salesman VALUES ("100","15S20", "123P")	1 row(s) affected
38	07:04:55	INSERT INTO Medicine VALUES ('Pana200', 'Panadol', 10, 1.20,"Used for headaches", '2019-12-15', "6 hours", '2023-12-15', '15S20')	1 row(s) affected
39	07:04:55	UPDATE Medicine SET medicine.Price =7.50 WHERE Name ="Panadol"	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0

```
INSERT INTO Employee VALUES ("02M20","Mohsen","Khaled","Mahmoud","Male","10-2","2017-5-13",3000, "01287667891",0,"1990-3-20",NULL);    /*Manager*/
INSERT INTO Employee VALUES ("13D12","Maged","Ashraf","Mohy","Male","8-6","2020-7-3",800, "09237465671",0,"1992-4-5",NULL);    /*Driver*/

INSERT INTO DRIVER VALUES ("Giza123","13D12","123P","Cairo,Fifth Settelment","2021-6-3");
INSERT INTO BUS VALUES ("123P",10);

INSERT INTO Manager VALUES ("10 years", "02M20");
INSERT INTO Department VALUES("02M20","R&D",12,"10");

INSERT INTO Employee VALUES ("15S20","Ahmed","Mohammed","Mahmoud","Male","9-4","2017-11-13",1200, "01234567891",0,"1994-5-28","10");    /*Salesman*/
INSERT INTO Salesman VALUES ("100","15S20", "123P");

INSERT INTO Employee VALUES ("SM410'","Omar","Osama","Ibrahim","Male","9-4","2020-6-3",1200, "19235455691",0,"1995-6-10","10");    /*Salesman 2*/
INSERT INTO Salesman VALUES ("100","SM410'", "123P");

DELETE FROM Salesman
WHERE EmpID = "SM410";
```

Output

Action Output

#	Time	Action	Message
3	07:20:04	INSERT INTO DRIVER VALUES ("Giza123","13D12","123P","Cairo,Fifth Settelment","2021-6-3")	1 row(s) affected
4	07:20:04	INSERT INTO BUS VALUES ("123P",10)	1 row(s) affected
5	07:20:04	INSERT INTO Manager VALUES ("10 years", "02M20")	1 row(s) affected
6	07:20:04	INSERT INTO Department VALUES("02M20","R&D",12,"10")	1 row(s) affected
7	07:20:04	INSERT INTO Employee VALUES ("15S20","Ahmed","Mohammed","Mahmoud","Male","9-4","2017-11-13",1200, "01234567891",0,"1994-5-28","10")	1 row(s) affected
8	07:20:04	INSERT INTO Salesman VALUES ("100","15S20", "123P")	1 row(s) affected
9	07:20:08	INSERT INTO Employee VALUES ("SM410'","Omar","Osama","Ibrahim","Male","9-4","2020-6-3",1200, "19235455691",0,"1995-6-10","10")	1 row(s) affected
10	07:20:08	INSERT INTO Salesman VALUES ("100","SM410'", "123P")	1 row(s) affected
11	07:20:08	DELETE FROM Salesman WHERE EmpID = "SM410"	0 row(s) affected

- **INSERT with (SELECT clause with ORDER BY,WHERE,AND,HAVING Constraints):**

project* | new_schema - Schema

Limit to 1000 rows

```
INSERT INTO Client VALUES ("20W50","Taha Ibrahim","01234567891");
INSERT INTO Client VALUES ("21W52","Ahmed Mohammed","01394577321");
INSERT INTO Client VALUES ("10W60","Mahmoud Ismail","01435566811");
INSERT INTO Client VALUES ("30W10","Amira Mahmoud","01634567392");
INSERT INTO Client VALUES ("66W00","Yasmeen Hamed","08232534895");

INSERT INTO Client_address VALUES("20, Kornish, Alexandria","20W50");
INSERT INTO Client_address VALUES("21, Haram st, Giza","21W52");
INSERT INTO Client_address VALUES("12, Orabi st, Alexandria","10W60");
INSERT INTO Client_address VALUES("29, Kornish, Alexandria","30W10");
INSERT INTO Client_address VALUES("29, Morad st, Heliopolis","66W00");

SELECT name
FROM Client, Client_address
WHERE Client.ClientID = Client_address.ClientID
AND Client_address.address LIKE "%Alexandria%";
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name
Mahmoud Ismail
Taha Ibrahim
Amira Mahmoud

Result 1

Output

Action Output

#	Time	Action	Message
3	07:54:53	INSERT INTO Client VALUES ("10W60","Mahmoud Ismail","01435566811")	1 row(s) affected
4	07:54:53	INSERT INTO Client VALUES ("30W10","Amira Mahmoud","01634567392")	1 row(s) affected
5	07:54:53	INSERT INTO Client VALUES ("66W00","Yasmeen Hamed","08232534895")	1 row(s) affected
6	07:54:53	INSERT INTO Client_address VALUES("20, Kornish, Alexandria","20W50")	1 row(s) affected
7	07:54:53	INSERT INTO Client_address VALUES("21, Haram st, Giza","21W52")	1 row(s) affected
8	07:54:53	INSERT INTO Client_address VALUES("12, Orabi st, Alexandria","10W60")	1 row(s) affected
9	07:54:54	INSERT INTO Client_address VALUES("29, Kornish, Alexandria","30W10")	1 row(s) affected
10	07:54:54	INSERT INTO Client_address VALUES("29, Morad st, Heliopolis","66W00")	1 row(s) affected
11	07:57:12	SELECT name FROM Client, Client_address WHERE Client.ClientID = Client_address.ClientID AND Client_address.address LIKE "%Alexandria%" LIMI...	3 row(s) returned

project*

Limit to 1000 rows

```
INSERT INTO Supplier VALUES("El Safa","09876543212");
INSERT INTO Supplier VALUES("Health Care","02874543112");
INSERT INTO Supplier VALUES("EGY Medical","09979543912");
INSERT INTO Supplier VALUES("Medical Support","09976543212");
INSERT INTO Supplier VALUES("Pharmaceutical","09376553612");

INSERT INTO Supply VALUES ("El Safa","Sodium",250,"2021-6-9",10);
INSERT INTO Supply VALUES ("Medical Support","Zinc",400,"2021-3-2",5);
INSERT INTO Supply VALUES ("Pharmaceutical","Sulfuric Acid",140,"2021-1-2",6);
INSERT INTO Supply VALUES ("EGY Medical","Potassium",450,"2021-2-7",7);
INSERT INTO Supply VALUES ("Health Care","Calcium",230,"2021-5-6",8);

SELECT raw_materials.MatName, Supplier.SupName
FROM Raw_materials, supplier, supply
WHERE raw_materials.MatName = Supply.MatName
AND Supply.SupName = Supplier.SupName
ORDER BY supply.payment_value;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

MatName	SupName
Sulfuric Acid	Pharmaceutical
Calcium	Health Care
Sodium	El Safa
Zinc	Medical Support
Potassium	EGY Medical

Result 2

Output

Action Output

#	Time	Action	Message
14	08:26:27	INSERT INTO Supplier VALUES("EGY Medical","09979543912")	1 row(s) affected
15	08:26:27	INSERT INTO Supplier VALUES("Medical Support","09976543212")	1 row(s) affected
16	08:26:27	INSERT INTO Supplier VALUES("Pharmaceutical","09376553612")	1 row(s) affected
17	08:26:27	INSERT INTO Supply VALUES ("El Safa","Sodium",250,"2021-6-9",10)	1 row(s) affected
18	08:26:27	INSERT INTO Supply VALUES ("Medical Support","Zinc",400,"2021-3-2",5)	1 row(s) affected
19	08:26:27	INSERT INTO Supply VALUES ("Pharmaceutical","Sulfuric Acid",140,"2021-1-2",6)	1 row(s) affected
20	08:26:27	INSERT INTO Supply VALUES ("EGY Medical","Potassium",450,"2021-2-7",7)	1 row(s) affected
21	08:26:27	INSERT INTO Supply VALUES ("Health Care","Calcium",230,"2021-5-6",8)	1 row(s) affected
22	08:29:48	SELECT raw_materials.MatName, Supplier.SupName FROM Raw_materials, supplier, supply WHERE raw_materials.MatName = Supply.MatName AND...	5 row(s) returned

project* | new_schema - Schema

Limit to 1000 rows

```
1  INSERT INTO Employee VALUES("20C62","Mohsen","Morad","Elfeky", "Male", "4", "2012-7-5", 6000, 01233445567, 0, "1992-6-3", NULL);
2  INSERT INTO Manager VALUES("10 years", "20C62");
3
4  INSERT INTO DEPARTMENT VALUES("20C62", "R&D", 3,"12P");
5  INSERT INTO DEPARTMENT VALUES("20C62", "Quality", 4,"13P");
6
7
8  INSERT INTO Employee VALUES("18C22","Ahmed","Mahmoud","Mohammed", "Male", "7", "2015-7-5", 6000, 01233445567, 0, "1993-5-3", "12P");
9  INSERT INTO Employee VALUES("19C22","Ahmed","Mahmoud","Mohammed", "Male", "7", "2016-8-9", 7000, 01233445567, 0, "1991-10-3", "12P");
10 INSERT INTO Employee VALUES ("18C23","Mariam","Mahmoud","Maged", "Female", "7", "2017-5-2", 5500, 01233445567, 0, "1990-9-20", "13P");
11 INSERT INTO Employee VALUES("20C22","Sara","Mohy","Mohammed", "Female", "7", "2015-1-2", 4000, 01233445567, 0, "1989-11-24", "12P");
12 INSERT INTO Employee VALUES("13C22","Morad","Ayman","Mohammed", "Male", "7", "2015-12-20", 8000, 01233445567, 0, "1995-6-7", NULL);
13
14 SELECT Department.name, Department.numEmployees
15 FROM Department, Employee
16 WHERE Department.DNumber = Employee.DNumber
17 HAVING AVG(salary) > 5000;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	numEmployees
R&D	3

Result 2

Output

Action Output

#	Time	Action	Message
34	21:04:50	INSERT INTO Manager VALUES("10 years", "20C62")	1 row(s) affected
35	21:04:51	INSERT INTO DEPARTMENT VALUES("20C62", "R&D", 3,"12P")	1 row(s) affected
36	21:04:51	INSERT INTO DEPARTMENT VALUES("20C62", "Quality", 4,"13P")	1 row(s) affected
37	21:04:51	INSERT INTO Employee VALUES("18C22","Ahmed","Mahmoud","Mohammed", "Male", "7", "2015-7-5", 6000, 01233445567, 0, "1993-5-3", "12P")	1 row(s) affected
38	21:04:51	INSERT INTO Employee VALUES("19C22","Ahmed","Mahmoud","Mohammed", "Male", "7", "2016-8-9", 7000, 01233445567, 0, "1991-10-3", "12P")	1 row(s) affected
39	21:04:51	INSERT INTO Employee VALUES ("18C23","Mariam","Mahmoud","Maged", "Female", "7", "2017-5-2", 5500, 01233445567, 0, "1990-9-20", "13P")	1 row(s) affected
40	21:04:51	INSERT INTO Employee VALUES("20C22","Sara","Mohy","Mohammed", "Female", "7", "2015-1-2", 4000, 01233445567, 0, "1989-11-24", "12P")	1 row(s) affected
41	21:04:51	INSERT INTO Employee VALUES("13C22","Morad","Ayman","Mohammed", "Male", "7", "2015-12-20", 8000, 01233445567, 0, "1995-6-7", NULL)	1 row(s) affected
42	21:04:51	SELECT Department.name, Department.numEmployees FROM Department, Employee WHERE Department.DNumber = Employee.DNumber HAVING ...	1 row(s) returned

project*

Limit to 1000 rows

```
1  INSERT INTO Employee VALUES ("12C20", "Ahmed", "Mohammed", "Mahmoud", "Male", "9", "2015-9-10", 8000, "01834567891", 0, "1991-7-10", NULL);
2  INSERT INTO Employee VALUES ("13C20", "Sara", "Omar", "Mahmoud", "Female", "7","2016-9-7", 6000, "01234767891", 0, "1993-2-9", NULL);
3  INSERT INTO Employee VALUES ("14C20", "Sandy", "Moneer", "Maged", "Female", "6","2017-5-5", 5000, "01224567891", 0, "1994-10-19", NULL);
4  INSERT INTO Employee VALUES ("15C20", "Osman", "Mohab", "Fakher", "Male", "7","2014-10-11", 4000, "01235567891", 0, "1990-3-10", NULL);
5
6  INSERT INTO Manager VALUES ("9 Years", "12C20");
7  INSERT INTO Manager VALUES ("9 Years", "13C20");
8  INSERT INTO Manager VALUES ("9 Years", "14C20");
9  INSERT INTO Manager VALUES ("9 Years", "15C20");
10
11
12 INSERT INTO Dependent VALUES("12C20", "12D20", "Bedair", "Mared", "Shawky", "Male", "10", "2000-5-6", 8000, "98761234552", 0, "1990-12-9");
13 INSERT INTO Dependent VALUES("13C20", "13D20", "Marwa", "Maged", "Mofeed", "Female", "8", "2015-7-8", 5000, "98761234552", 0, "1992-6-9");
14 INSERT INTO Dependent VALUES("14C20", "14D20", "Mostafa", "Badry", "Atef", "Male", "10", "2017-9-9", 6000, "98761234552", 0, "1990-12-9");
15 INSERT INTO Dependent VALUES("15C20", "15D20", "Mahmoud", "Mofeed", "Masoud", "Male", "10", "2019-10-11", 7500, "98761234552", 0, "1992-10-7");
16
17 SELECT Employee.firstname, Employee.secondName, Employee.lastName
18 FROM Employee, Dependent
19 WHERE Employee.EmpID = Dependent.EmpID
20 AND Dependent.salary > 7000;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

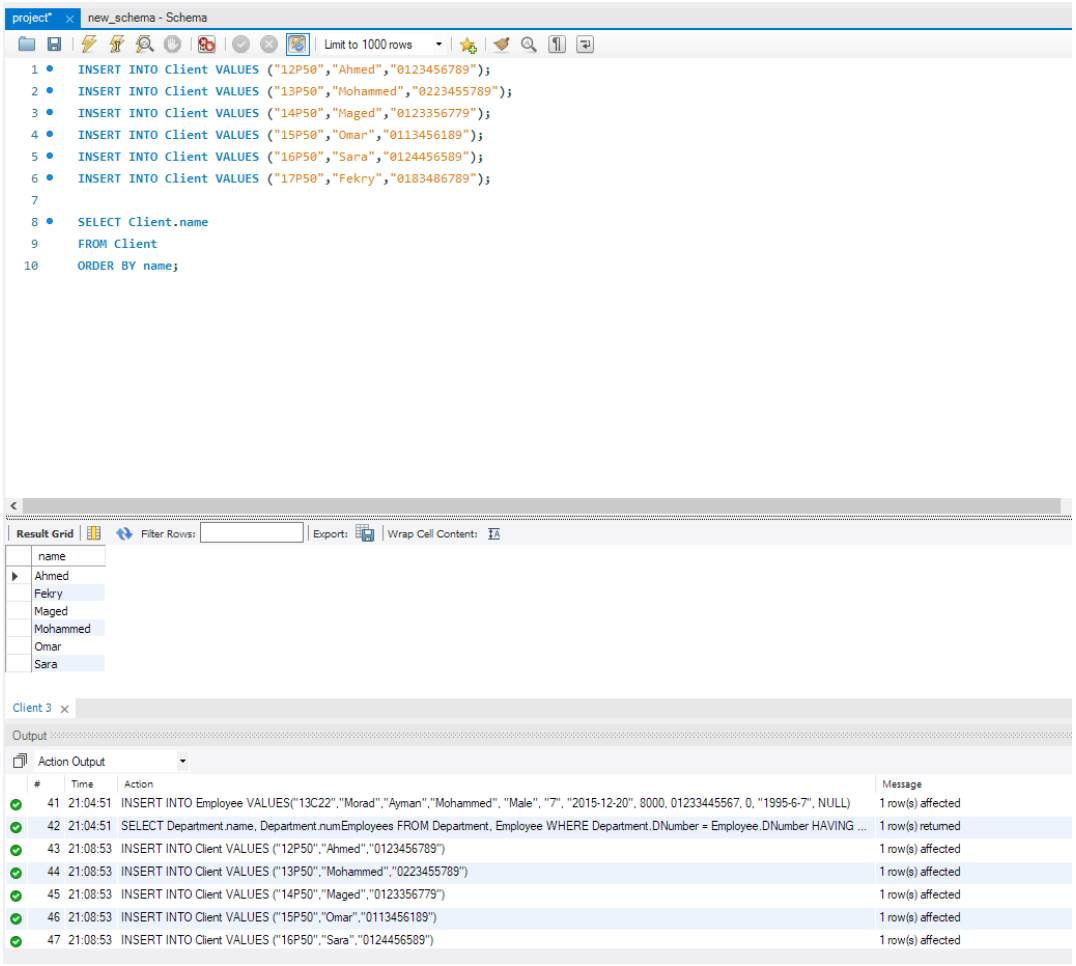
firstname	secondName	lastName
Ahmed	Mohammed	Mahmoud
Osman	Mohab	Fakher

Result 7

Output

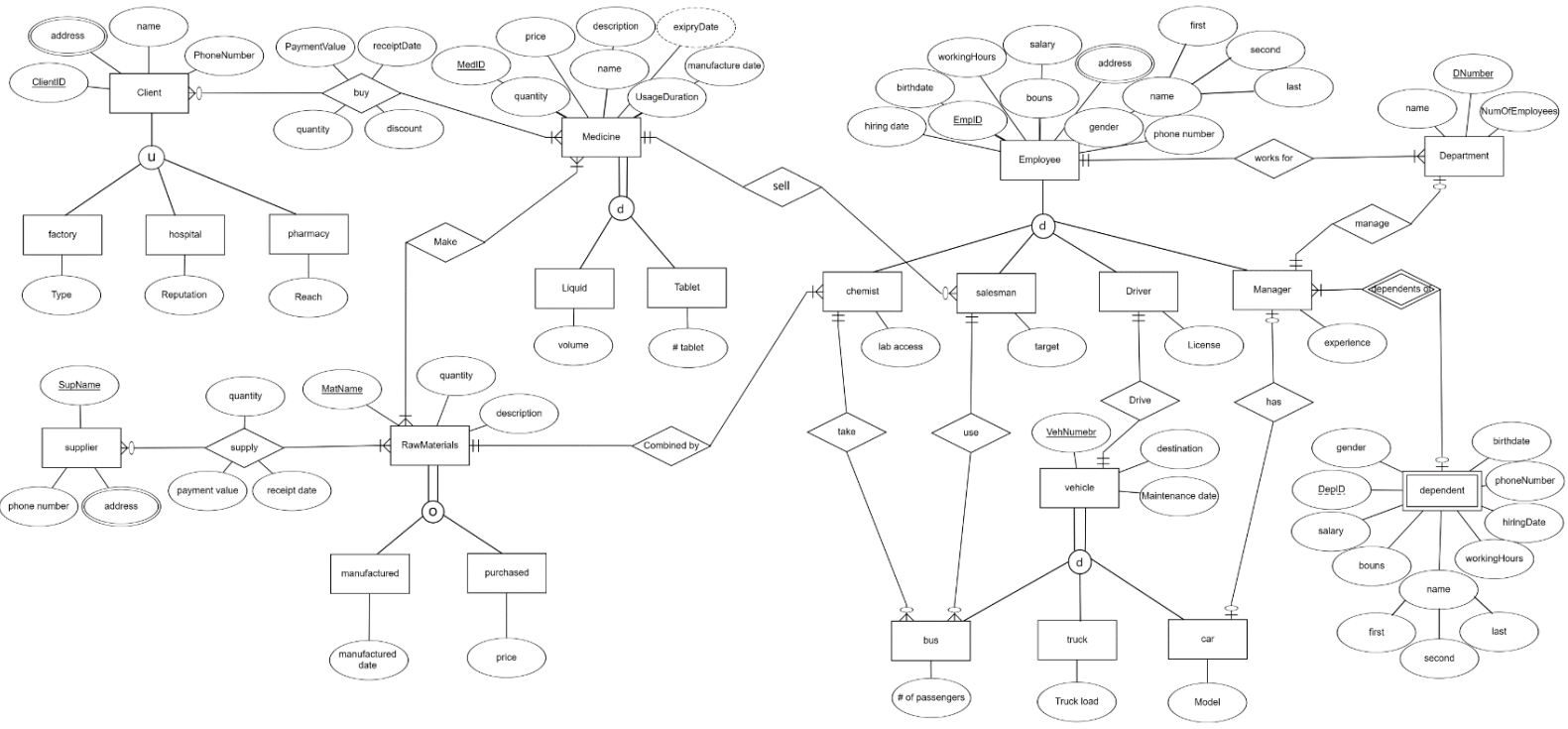
Action Output

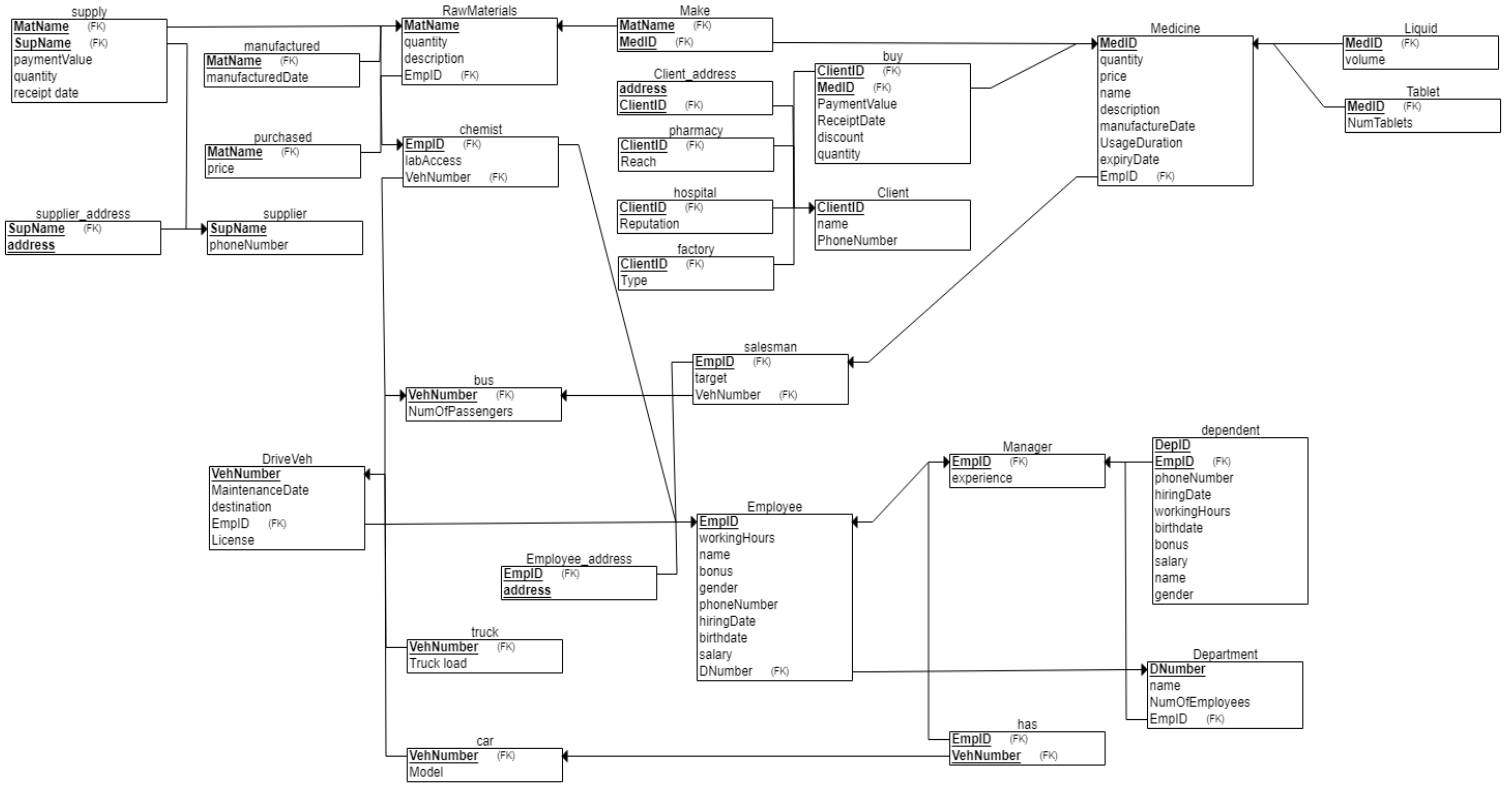
#	Time	Action	Message
8	21:32:29	INSERT INTO Manager VALUES ("9 Years", "15C20")	1 row(s) affected
9	21:32:29	INSERT INTO Dependent VALUES("12C20", "12D20", "Bedair", "Mared", "Shawky", "Male", "10", "2000-5-6", 8000, "98761234552", 0, "1990-12-...	1 row(s) affected
10	21:32:29	INSERT INTO Dependent VALUES("13C20", "13D20", "Marwa", "Maged", "Mofeed", "Female", "8", "2015-7-8", 5000, "98761234552", 0, "1992-6-...	1 row(s) affected
11	21:32:29	INSERT INTO Dependent VALUES("14C20", "14D20", "Mostafa", "Badry", "Atef", "Male", "10", "2017-9-9", 6000, "98761234552", 0, "1990-12-9")	1 row(s) affected
12	21:32:29	INSERT INTO Dependent VALUES("15C20", "15D20", "Mahmoud", "Mofeed", "Masoud", "Male", "10", "2019-10-11", 7500, "98761234552", 0, "1...	1 row(s) affected
13	21:32:29	SELECT Employee.firstname, Employee.secondName, Employee.lastName FROM Employee, Dependent WHERE Employee.EmpID = Dependent.EmpI...	2 row(s) returned


project*
new_schema - Schema
Limit to 1000 rows
1 • INSERT INTO Client VALUES ("12P50","Ahmed","0123456789");
2 • INSERT INTO Client VALUES ("13P50","Mohammed","0223455789");
3 • INSERT INTO Client VALUES ("14P50","Maged","0123356779");
4 • INSERT INTO Client VALUES ("15P50","Omar","0113456189");
5 • INSERT INTO Client VALUES ("16P50","Sara","0124456589");
6 • INSERT INTO Client VALUES ("17P50","Fekry","0183486789");
7
8 • SELECT Client.name
9 FROM Client
10 ORDER BY name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
name
Ahmed
Fekry
Maged
Mohammed
Omar
Sara
Client 3
Output
Action Output
Time Action Message
41 21:04:51 INSERT INTO Employee VALUES("13C22","Morad","Ayman","Mohammed", "Male", "7", "2015-12-20", 8000, 01233445567, 0, "1995-6-7", NULL) 1 row(s) affected
42 21:04:51 SELECT Department.name, Department.numEmployees FROM Department, Employee WHERE Department.DNumber = Employee.DNumber HAVING ... 1 row(s) returned
43 21:08:53 INSERT INTO Client VALUES ("12P50","Ahmed","0123456789") 1 row(s) affected
44 21:08:53 INSERT INTO Client VALUES ("13P50","Mohammed","0223455789") 1 row(s) affected
45 21:08:53 INSERT INTO Client VALUES ("14P50","Maged","0123356779") 1 row(s) affected
46 21:08:53 INSERT INTO Client VALUES ("15P50","Omar","0113456189") 1 row(s) affected
47 21:08:53 INSERT INTO Client VALUES ("16P50","Sara","0124456589") 1 row(s) affected

7.0 Implementation

7.1 Using ERD tool





Generate SQL

```
CREATE TABLE Client
(
  ClientID CHAR(7) NOT NULL,
  name CHAR(20) NOT NULL,
  PhoneNumber CHAR(11) NOT NULL,
  PRIMARY KEY (ClientID)
);

CREATE TABLE supplier
(
  SupName CHAR(20) NOT NULL,
  phoneNumber CHAR(11) NOT NULL,
  PRIMARY KEY (SupName)
);

CREATE TABLE factory
(
  Type CHAR(10) NOT NULL,
  ClientID CHAR(7) NOT NULL,
  PRIMARY KEY (ClientID),
  FOREIGN KEY (ClientID) REFERENCES Client(ClientID)
);

CREATE TABLE hospital
(
  Reputation CHAR(2) NOT NULL,
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE hospital
(
  Reputation CHAR(2) NOT NULL,
  ClientID CHAR(7) NOT NULL,
  PRIMARY KEY (ClientID),
  FOREIGN KEY (ClientID) REFERENCES Client(ClientID)
);

CREATE TABLE pharmacy
(
  Reach CHAR(20) NOT NULL,
  ClientID CHAR(7) NOT NULL,
  PRIMARY KEY (ClientID),
  FOREIGN KEY (ClientID) REFERENCES Client(ClientID)
);

CREATE TABLE Client_address
(
  address CHAR(30) NOT NULL,
  ClientID CHAR(7) NOT NULL,
  PRIMARY KEY (address, ClientID),
  FOREIGN KEY (ClientID) REFERENCES Client(ClientID)
);

CREATE TABLE supplier_address
(
  address CHAR(30) NOT NULL,
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE supplier_address
(
  address CHAR(30) NOT NULL,
  SupName CHAR(20) NOT NULL,
  PRIMARY KEY (address, SupName),
  FOREIGN KEY (SupName) REFERENCES supplier(SupName)
);

CREATE TABLE Medicine
(
  quantity INT NOT NULL,
  price NUMERIC(3,2) NOT NULL,
  name CHAR(30) NOT NULL,
  description CHAR(100) NOT NULL,
  manufactureDate DATE NOT NULL,
  UsageDuration CHAR(10) NOT NULL,
  MedID CHAR(7) NOT NULL,
  expiryDate DATE NOT NULL,
  EmpID CHAR(7) NOT NULL,
  PRIMARY KEY (MedID),
  FOREIGN KEY (EmpID) REFERENCES salesman(EmpID)
);

CREATE TABLE RawMaterials
(
  MatName CHAR(20) NOT NULL,
  quantity INT NOT NULL,
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE RawMaterials
(
  MatName CHAR(20) NOT NULL,
  quantity INT NOT NULL,
  description CHAR(100) NOT NULL,
  EmpID CHAR(7) NOT NULL,
  PRIMARY KEY (MatName),
  FOREIGN KEY (EmpID) REFERENCES chemist(EmpID)
);

CREATE TABLE Employee
(
  workingHours CHAR(9) NOT NULL,
  name CHAR(30) NOT NULL,
  bonus NUMERIC(3,2) NOT NULL,
  gender CHAR(6) NOT NULL,
  phoneNumber CHAR(11) NOT NULL,
  hiringDate DATE NOT NULL,
  EmpID CHAR(7) NOT NULL,
  birthdate DATE NOT NULL,
  salary NUMERIC(6,2) NOT NULL,
  DNumber CHAR(3) NOT NULL,
  PRIMARY KEY (EmpID),
  FOREIGN KEY (DNumber) REFERENCES Department(DNumber)
);

CREATE TABLE Department
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE Department
(
  name CHAR(12) NOT NULL,
  DNumber CHAR(3) NOT NULL,
  NumOfEmployees INT NOT NULL,
  EmpID CHAR(7) NOT NULL,
  PRIMARY KEY (DNumber),
  FOREIGN KEY (EmpID) REFERENCES Manager(EmpID)
);

CREATE TABLE Manager
(
  experience CHAR(100) NOT NULL,
  EmpID CHAR(7) NOT NULL,
  PRIMARY KEY (EmpID),
  FOREIGN KEY (EmpID) REFERENCES Employee(EmpID)
);

CREATE TABLE DriveVeh
(
  License CHAR(10) NOT NULL,
  MaintenanceDate DATE NOT NULL,
  destination CHAR(30) NOT NULL,
  VehNumber CHAR(6) NOT NULL,
  EmpID CHAR(7) NOT NULL,
  PRIMARY KEY (VehNumber),
  FOREIGN KEY (EmpID) REFERENCES Employee(EmpID)
);
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE salesman
(
  target CHAR(10) NOT NULL,
  EmpID CHAR(7) NOT NULL,
  VehNumber CHAR(6) NOT NULL,
  PRIMARY KEY (EmpID),
  FOREIGN KEY (EmpID) REFERENCES Employee(EmpID),
  FOREIGN KEY (VehNumber) REFERENCES bus(VehNumber)
);

CREATE TABLE chemist
(
  labAccess CHAR(10) NOT NULL,
  EmpID CHAR(7) NOT NULL,
  VehNumber CHAR(6) NOT NULL,
  PRIMARY KEY (EmpID),
  FOREIGN KEY (EmpID) REFERENCES Employee(EmpID),
  FOREIGN KEY (VehNumber) REFERENCES bus(VehNumber)
);

CREATE TABLE dependent
(
  gender CHAR(6) NOT NULL,
  phoneNumber CHAR(11) NOT NULL,
  hiringDate DATE NOT NULL,
  workingHours CHAR(9) NOT NULL,
  birthdate DATE NOT NULL,
  bonus NUMERIC(3.2) NOT NULL.
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE dependent
(
  gender CHAR(6) NOT NULL,
  phoneNumber CHAR(11) NOT NULL,
  hiringDate DATE NOT NULL,
  workingHours CHAR(9) NOT NULL,
  birthdate DATE NOT NULL,
  bonus NUMERIC(3,2) NOT NULL,
  DepID CHAR(7) NOT NULL,
  salary NUMERIC(6,2) NOT NULL,
  name CHAR(30) NOT NULL,
  EmpID CHAR(7) NOT NULL,
  PRIMARY KEY (DepID, EmpID),
  FOREIGN KEY (EmpID) REFERENCES Manager(EmpID)
);

CREATE TABLE car
(
  Model CHAR(20) NOT NULL,
  VehNumber CHAR(6) NOT NULL,
  PRIMARY KEY (VehNumber),
  FOREIGN KEY (VehNumber) REFERENCES DriveVeh(VehNumber)
);

CREATE TABLE truck
(
  Truck_load CHAR(10) NOT NULL,
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE truck
(
  Truck_load CHAR(10) NOT NULL,
  VehNumber CHAR(6) NOT NULL,
  PRIMARY KEY (VehNumber),
  FOREIGN KEY (VehNumber) REFERENCES DriveVeh(VehNumber)
);

CREATE TABLE bus
(
  NumOfPassengers INT NOT NULL,
  VehNumber CHAR(6) NOT NULL,
  PRIMARY KEY (VehNumber),
  FOREIGN KEY (VehNumber) REFERENCES DriveVeh(VehNumber)
);

CREATE TABLE Liquid
(
  volume CHAR(10) NOT NULL,
  MedID CHAR(7) NOT NULL,
  PRIMARY KEY (MedID),
  FOREIGN KEY (MedID) REFERENCES Medicine(MedID)
);

CREATE TABLE Tablet
(
  NumTablets INT NOT NULL,
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE Tablet
(
  NumTablets INT NOT NULL,
  MedID CHAR(7) NOT NULL,
  PRIMARY KEY (MedID),
  FOREIGN KEY (MedID) REFERENCES Medicine(MedID)
);

CREATE TABLE manufactured
(
  manufacturedDate DATE NOT NULL,
  MatName CHAR(20) NOT NULL,
  PRIMARY KEY (MatName),
  FOREIGN KEY (MatName) REFERENCES RawMaterials(MatName)
);

CREATE TABLE purchased
(
  price NUMERIC(6,2) NOT NULL,
  MatName CHAR(20) NOT NULL,
  PRIMARY KEY (MatName),
  FOREIGN KEY (MatName) REFERENCES RawMaterials(MatName)
);

CREATE TABLE buy
(
  PaymentValue NUMERIC(4,2) NOT NULL,
  ReceiptDate DATE NOT NULL
```

CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE buy
(
  PaymentValue NUMERIC(4,2) NOT NULL,
  ReceiptDate DATE NOT NULL,
  discount CHAR(4) NOT NULL,
  quantity INT NOT NULL,
  ClientID CHAR(7) NOT NULL,
  MedID CHAR(7) NOT NULL,
  PRIMARY KEY (ClientID, MedID),
  FOREIGN KEY (ClientID) REFERENCES Client(ClientID),
  FOREIGN KEY (MedID) REFERENCES Medicine(MedID)
);

CREATE TABLE Make
(
  MedID CHAR(7) NOT NULL,
  MatName CHAR(20) NOT NULL,
  PRIMARY KEY (MedID, MatName),
  FOREIGN KEY (MedID) REFERENCES Medicine(MedID),
  FOREIGN KEY (MatName) REFERENCES RawMaterials(MatName)
);

CREATE TABLE supply
(
  paymentValue NUMERIC(6,2) NOT NULL,
  quantity INT NOT NULL,
  receipt_date DATE NOT NULL,
  SupName CHAR(20) NOT NULL.
```

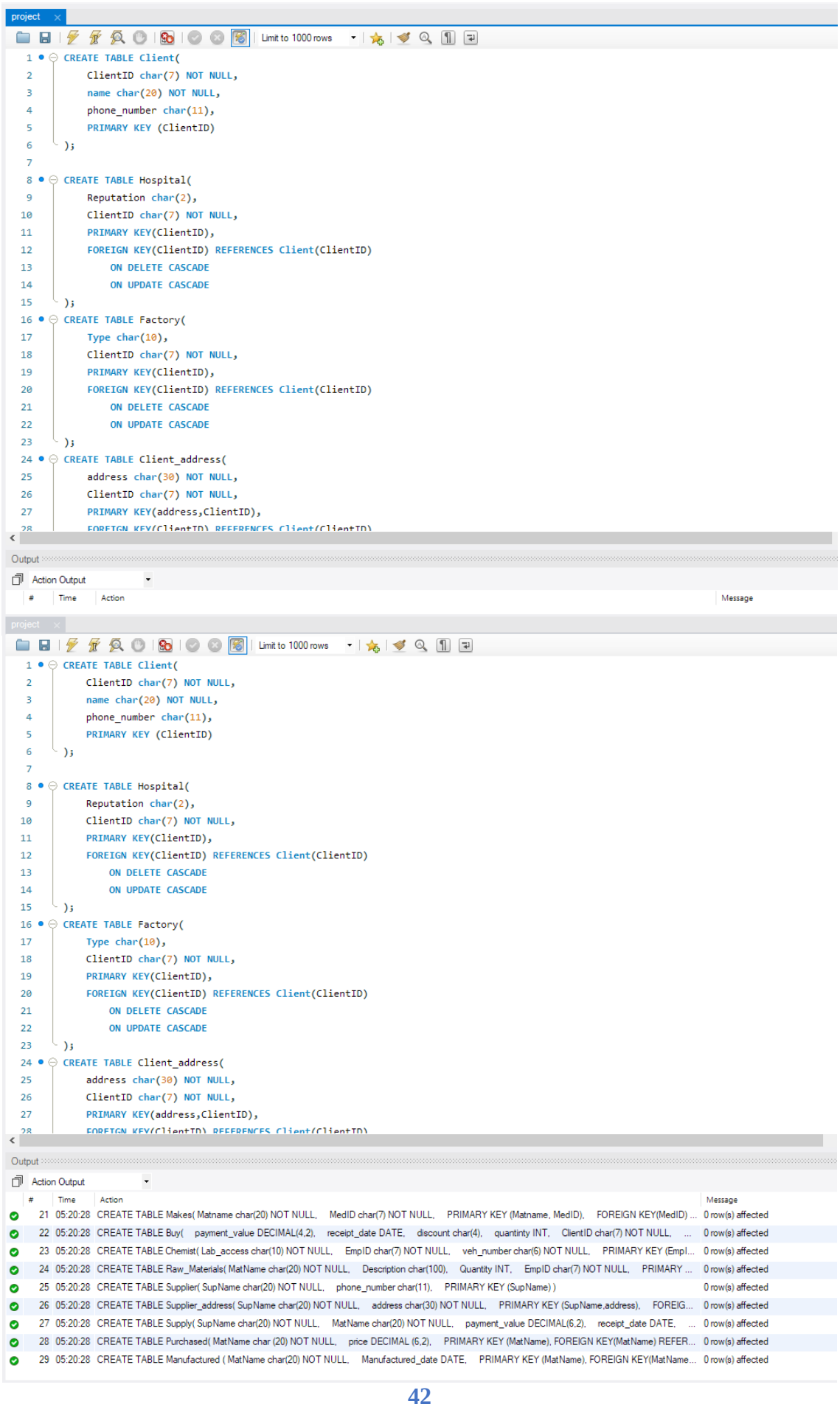
CLOSE (ESC) COPY

Generate SQL

```
CREATE TABLE supply
(
  paymentValue NUMERIC(6,2) NOT NULL,
  quantity INT NOT NULL,
  receipt_date DATE NOT NULL,
  SupName CHAR(20) NOT NULL,
  MatName CHAR(20) NOT NULL,
  PRIMARY KEY (SupName, MatName),
  FOREIGN KEY (SupName) REFERENCES supplier(SupName),
  FOREIGN KEY (MatName) REFERENCES RawMaterials(MatName)
);

CREATE TABLE Employee_address
(
  address CHAR(30) NOT NULL,
  EmpID CHAR(7) NOT NULL,
  PRIMARY KEY (address, EmpID),
  FOREIGN KEY (EmpID) REFERENCES Employee(EmpID)
);

CREATE TABLE has
(
  EmpID CHAR(7) NOT NULL,
  VehNumber CHAR(6) NOT NULL,
  PRIMARY KEY (EmpID, VehNumber),
  FOREIGN KEY (EmpID) REFERENCES Manager(EmpID),
  FOREIGN KEY (VehNumber) REFERENCES car(VehNumber)
);
```

CLOSE (ESC) COPY

7.2 Using MySQL WorkBench tool



```
CREATE TABLE Client(
    ClientID char(7) NOT NULL,
    name char(20) NOT NULL,
    phone_number char(11),
    PRIMARY KEY (ClientID)
);

CREATE TABLE Hospital(
    Reputation char(2),
    ClientID char(7) NOT NULL,
    PRIMARY KEY(ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
CREATE TABLE Factory(
    Type char(10),
    ClientID char(7) NOT NULL,
    PRIMARY KEY(ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
CREATE TABLE Client_address(
    address char(30) NOT NULL,
    ClientID char(7) NOT NULL,
    PRIMARY KEY(address,ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
```

Output

Action Output

#	Time	Action	Message

```
CREATE TABLE Client(
    ClientID char(7) NOT NULL,
    name char(20) NOT NULL,
    phone_number char(11),
    PRIMARY KEY (ClientID)
);

CREATE TABLE Hospital(
    Reputation char(2),
    ClientID char(7) NOT NULL,
    PRIMARY KEY(ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
CREATE TABLE Factory(
    Type char(10),
    ClientID char(7) NOT NULL,
    PRIMARY KEY(ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
CREATE TABLE Client_address(
    address char(30) NOT NULL,
    ClientID char(7) NOT NULL,
    PRIMARY KEY(address,ClientID),
    FOREIGN KEY(ClientID) REFERENCES Client(ClientID)
```

Output

Action Output

#	Time	Action	Message
21	05:20:28	CREATE TABLE Makes(Matname char(20) NOT NULL, MedID char(7) NOT NULL, PRIMARY KEY (Matname, MedID), FOREIGN KEY(MedID) ...	0 row(s) affected
22	05:20:28	CREATE TABLE Buy(payment_value DECIMAL(4,2), receipt_date DATE, discount char(4), quantinty INT, ClientID char(7) NOT NULL, ...	0 row(s) affected
23	05:20:28	CREATE TABLE Chemist(Lab_access char(10) NOT NULL, EmpID char(7) NOT NULL, veh_number char(6) NOT NULL, PRIMARY KEY (EmpI...	0 row(s) affected
24	05:20:28	CREATE TABLE Raw_Materials(MatName char(20) NOT NULL, Description char(100), Quantity INT, EmpID char(7) NOT NULL, PRIMARY ...	0 row(s) affected
25	05:20:28	CREATE TABLE Supplier(SupName char(20) NOT NULL, phone_number char(11), PRIMARY KEY (SupName))	0 row(s) affected
26	05:20:28	CREATE TABLE Supplier_address(SupName char(20) NOT NULL, address char(30) NOT NULL, PRIMARY KEY (SupName,address), FOREIG...	0 row(s) affected
27	05:20:28	CREATE TABLE Supply(SupName char(20) NOT NULL, MatName char(20) NOT NULL, payment_value DECIMAL(6,2), receipt_date DATE, ...	0 row(s) affected
28	05:20:28	CREATE TABLE Purchased(MatName char (20) NOT NULL, price DECIMAL (6,2), PRIMARY KEY (MatName), FOREIGN KEY(MatName) REFER...	0 row(s) affected
29	05:20:28	CREATE TABLE Manufactured (MatName char(20) NOT NULL, Manufactured_date DATE, PRIMARY KEY (MatName), FOREIGN KEY(MatName...	0 row(s) affected