CSCE 5350 004

FUNDAMENTALS OF DATABASE SYSTEMS

PROJECT - PART 3

GROUP-8

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INITIAL ENTITIES & ATTRIBUTES:

Stores: Store Id, Address, Manager, Assigned Pharmacist, Assigned Doctor, Region Code

Warehouses: Warehouse Id, Address, Warehouse Manager, Current Stock, Capacity, Region Code

Region: Region Name, Region Code, Region Manager

Employees: EID, Name, SSN, Age, Gender, Address, Ph NO, Wage, Type, Location, Bank Account Number

Patients: PID, Name, Age, Gender, Ph NO, Address, SSN

Insurance: INM, Name of Insurance, PID, Amount, Date Claimed, Status

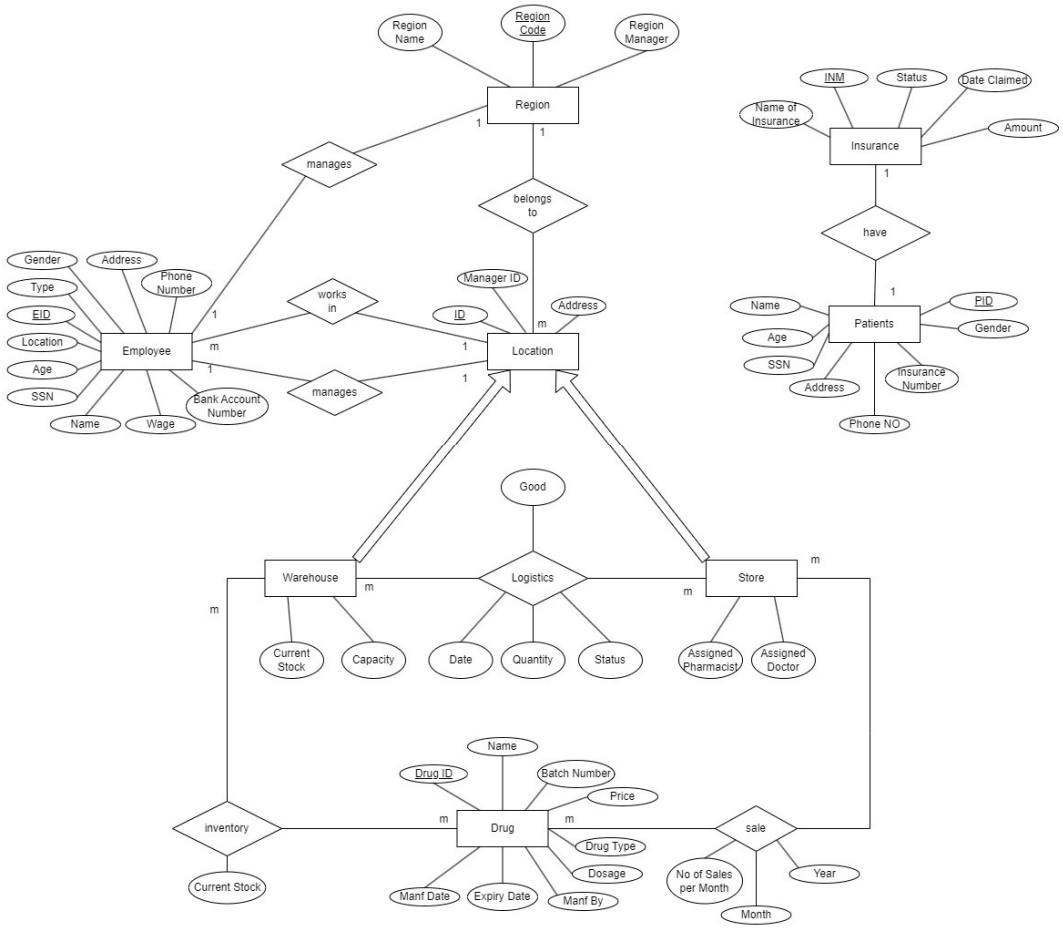
Drug: Drug ID, Name, Price, Drug Type, Dosage, Manf By, Manf Date, Batch NO, Expiry Date

Inventory: Drug ID, Building ID, Current Stock

Logistics: Good, Date, Warehouse ID, Store ID, Quantity, Status

Sales: No of sales per month, Month, Year, Drug ID, Store ID

ER DIAGRAM:



ASSUMPTIONS:

To solve the given Queries in the project we do not have the necessary tables and hence it will be impossible to solve the Queries.

So, we decided to add two new tables, Prescription and Payroll, to the existing entities.

As a result, the entities change as follows.

UPDATED ENTITIES & ATTRIBUTES:

Stores: Store Id, Address, Manager, Assigned Pharmacist, Assigned Doctor, Region Code

Warehouses: Warehouse Id, Address, Warehouse Manager, Current Stock, Capacity, Region Code

Region: Region Name, Region Code, Region Manager

Employees: EID, Name, SSN, Age, Gender, Address, Ph NO, Wage, Type, Location, Bank Account Number

Payroll: EID, Date, Hours Worked

Patients: PID, Name, Age, Gender, Ph NO, Address, SSN

Insurance: INM, Name of Insurance, PID, Amount, Date Claimed, Status

Prescription: PrescriptionID, DoctorID, PatientID, Date_Prescribed

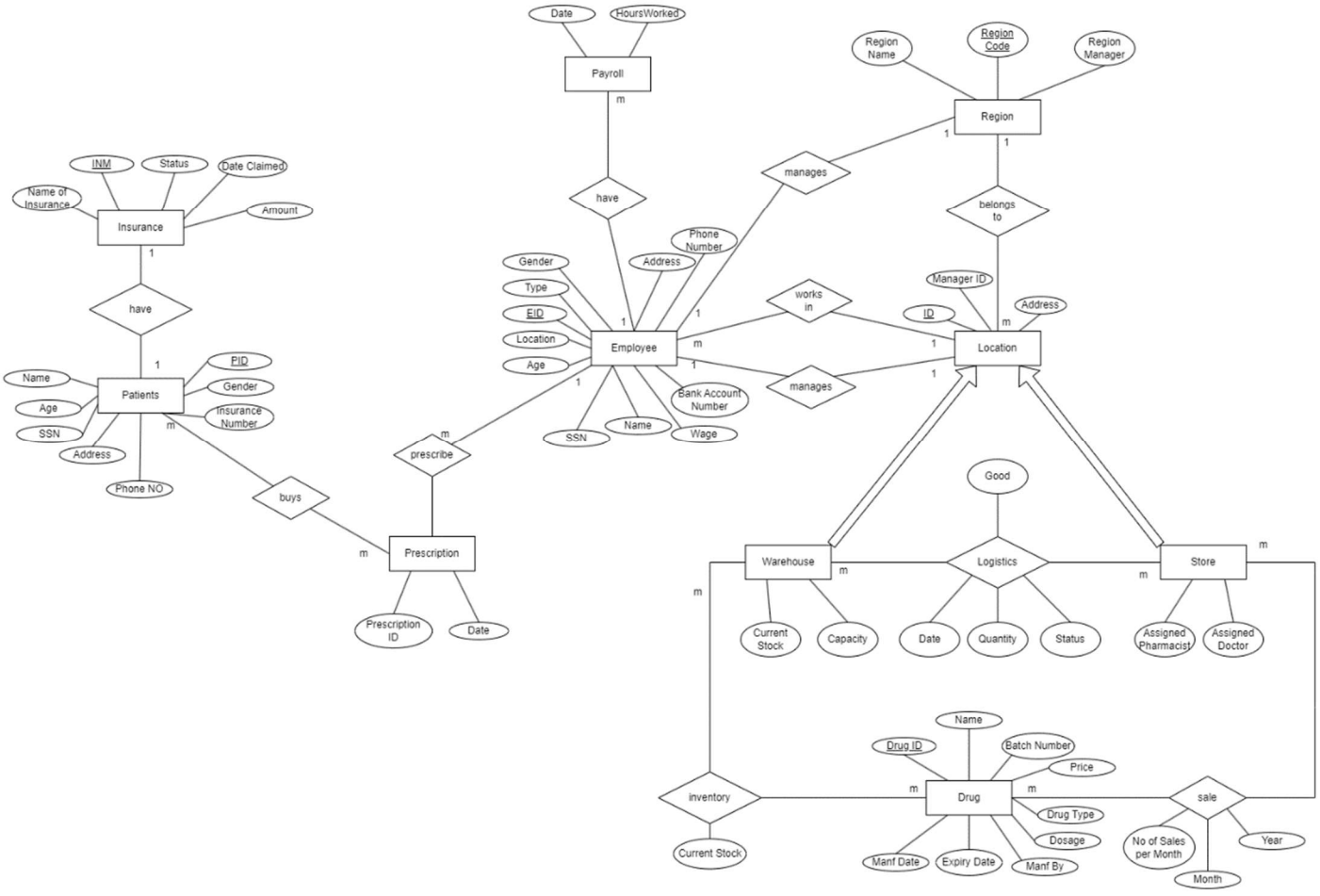
Drug: Drug ID, Name, Price, Drug Type, Dosage, Manf By, Manf Date, Batch NO, Expiry Date

Inventory: Drug ID, Building ID, Current Stock

Logistics: Good, Date, Warehouse ID, Store ID, Quantity, Status

Sales: No of sales per month, Month, Year, Drug ID, Store ID

ER DIAGRAM OF UPDATED ENTITIES:



CREATION OF THE TWO NEW TABLES:

Payroll:

```
create table Payroll(
    EID varchar2(10),
    foreign key(EID) references employee(EID) on DELETE CASCADE,
    Work_Date Date,
    Hours_Worked int check(Hours_Worked<24),
    PRIMARY KEY(EID, Work_Date)
);
```

Prescription:

```
create table Prescription(
    PrescriptionID varchar2(10),
    DoctorID varchar2(10),
    foreign key(DoctorID) references employee(EID) on DELETE CASCADE,
    PatientID varchar2(10),
    foreign key(PatientID) references Patients(PID) on DELETE CASCADE,
    Date_Prescribed Date,
    CONSTRAINT PK_PRESCRIPTION PRIMARY KEY(PrescriptionID, DoctorID)
);
```

TUPLES IN THE NEW TABLES:

Payroll:

EID	WORK_DATE	HOURS_WORKED
E10	06-MAR-23	2
E10	04-MAR-23	2
E9	09-MAR-23	4
E8	08-MAR-23	4
E7	06-MAR-23	3
E6	09-MAR-23	4
E6	06-MAR-23	4
E6	04-MAR-23	6
E5	09-MAR-23	8
E5	07-MAR-23	7
E5	04-MAR-23	6
E4	07-MAR-23	8
E4	06-MAR-23	8
E4	05-MAR-23	8
E4	04-MAR-23	8
E3	05-MAR-23	2
E3	04-MAR-23	6
E2	07-MAR-23	9
E2	06-MAR-23	9
E2	05-MAR-23	9
E2	04-MAR-23	9
E1	06-MAR-23	7
E1	05-MAR-23	8
E1	04-MAR-23	9
E10	06-MAR-22	2
E10	04-MAR-22	2
E9	09-MAR-22	4
E8	08-MAR-22	4
E7	06-MAR-22	3
E6	09-MAR-22	4
E6	06-MAR-22	4
E6	04-MAR-22	6
E5	09-MAR-22	8
E5	07-MAR-22	7
E5	04-MAR-22	6
E4	07-MAR-22	8
E4	06-MAR-22	8

Prescription:

```
SQL> select * from prescription;

PRESCRIPTI DOCTORID   PATIENTID  DATE_PRES
---------- ---------- ---------- ---------
PR1        D1         Pa1        02-JUN-21
PR2        D2         Pa2        02-JUN-21
PR3        D3         Pa3        02-JUN-21
PR4        D4         Pa4        02-JUN-21
PR5        D5         Pa5        02-JUN-21
PR6        D1         Pa6        02-JUN-21
PR7        D1         Pa7        02-JUN-21
PR8        D1         Pa8        02-JUN-21
PR9        D2         Pa9        02-JUN-21
PR10       D2         Pa1        02-JUN-21
PR11       D3         Pa2        02-JUN-21
PR12       D3         Pa3        02-JUN-21
PR13       D4         Pa4        02-JUN-21
PR14       D5         Pa5        02-JUN-21
PR15       D5         Pa6        02-JUN-21

15 rows selected.
```

GIVEN QUERIES:

1) List the total number of prescriptions group by doctors and pharmacy location issued on June 2nd, 2021.

SELECT e.name AS doctor_name, s.address AS pharmacy_location, COUNT(*) AS num_prescriptions

FROM prescription p

JOIN employee e ON p.doctorid = e.eid

JOIN store s ON p.doctorid = s.doctorid

WHERE p.date_prescribed = TO_DATE('2021-06-02', 'yyyy/mm/dd')

GROUP BY e.name, s.address;

2) Find locations with inventories that list at least one missing product (a product that has quantity of zero in the inventory).

select Distinct BUILDINGID from inventory where currentstock = 0;

3) Find the name of the employee(s) that had worked the most hours on November 3, 2022

select e.NAME

from employee e where e.EID in (

select p.EID from payroll p

where p.HOURS_WORKED=(select max(HOURS_WORKED) from payroll) and p.WORK_DATE=TO_DATE('2022-11-03','yyyy/mm/dd')

);

```
SQL> select e.NAME
  2  from employee e
  3  where e.EID in (
  4     select p.EID
  5     from payroll p
  6      where p.HOURS_WORKED=(select max(HOURS_WORKED) from payroll) and p.WORK_DATE=TO_DATE('2022-11-03','yyyy/mm/dd')
  7      );

NAME
----------
NA9
NA3

SQL>
```

4)List the items that currently have the least quantity on inventory.

```
select DNAME, Stock
from(
SELECT drug.Name as DNAME, SUM(inventory.CurrentStock) AS Stock
FROM drug
INNER JOIN inventory ON drug.DrugID = inventory.DrugID
GROUP BY drug.Name
)
where Stock=(
select min(Stock)
from(
SELECT drug.Name as DNAME, SUM(inventory.CurrentStock) AS Stock
FROM drug
INNER JOIN inventory ON drug.DrugID = inventory.DrugID
GROUP BY drug.Name
)
);
```

```
SQL> select DNAME, Stock
  2  from(
  3  SELECT drug.Name as DNAME, SUM(inventory.CurrentStock) AS Stock
  4  FROM drug
  5  INNER JOIN inventory ON drug.DrugID = inventory.DrugID
  6  GROUP BY drug.Name
  7  )
  8  where Stock=(
  9  select min(Stock)
 10  from(
 11  SELECT drug.Name as DNAME, SUM(inventory.CurrentStock) AS Stock
 12  FROM drug
 13  INNER JOIN inventory ON drug.DrugID = inventory.DrugID
 14  GROUP BY drug.Name
 15  )
 16  );

DNAME           STOCK
---------- ----------
DNAM5             250
DNAM6             250
DNAM8             250

SQL>
```

5) Print the payroll from March 4, 2022, to March 10, 2022 displaying employee name, hours worked and total salary for all employees

```
select ENAME, SUM(HOURS) as TOTAL_HOURS, SUM(Salary) as TOTAL_SALARY

from(

SELECT employee.name as ENAME, Payroll.Hours_Worked as HOURS, Payroll.Hours_Worked * employee.wage AS Salary

FROM employee

INNER JOIN Payroll ON employee.EID = Payroll.EID

WHERE Payroll.Work_Date>= TO_DATE('2022-03-04','yyyy/mm/dd') AND Payroll.Work_Date<=TO_DATE('2022-03-10', 'yyyy/mm/dd')

)

GROUP BY ENAME;
```

```
SQL> select ENAME, SUM(HOURS) as TOTAL_HOURS, SUM(Salary) as TOTAL_SALARY
  2  from(
  3  SELECT employee.name as ENAME, Payroll.Hours_Worked as HOURS, Payroll.Hours_Worked * employee.wage AS Salary
  4  FROM employee
  5  INNER JOIN Payroll ON employee.EID = Payroll.EID
  6  WHERE Payroll.Work_Date>= TO_DATE('2022-03-04','yyyy/mm/dd') AND Payroll.Work_Date<=TO_DATE('2022-03-10', 'yyyy/mm/dd')
  7  )
  8  GROUP BY ENAME;

ENAME      TOTAL_HOURS TOTAL_SALARY
---------- ----------- ------------
NA1                24          360
NA2                36          540
NA3                 8          120
NA4                32          480
NA5                21          315
NA6                14          210
NA7                 3           45
NA8                 4           60
NA9                 4           60
NA10                4           60

10 rows selected.

SQL>
```

6) Design a delete statement to delete employees working less than 5 hours from March 4, 2023, to March 10, 2023.

```
delete from Employee where Employee.EID in(

select EID

from payroll p

where WORK_DATE>= TO_DATE('2022-03-04','yyyy/mm/dd') and WORK_DATE<= TO_DATE('2022-03-10','yyyy/mm/dd')

GROUP by EID

having SUM(HOURS_WORKED)<5);
```

```
SQL> delete from Employee where Employee.EID in(
  2  select EID
  3  from payroll p
  4  where WORK_DATE>= TO_DATE('2022-03-04','yyyy/mm/dd') and WORK_DATE<= TO_DATE('2022-03-10','yyyy/mm/dd')
  5  GROUP by EID
  6  having SUM(HOURS_WORKED)<5
  7  );

4 rows deleted.

SQL>
```

7) Design an update statement to give a 23% salary raise to employees working more than 5 hours from March 4, 2023, to March 10, 2023.

update Employee

set wage=wage*1.23

where Employee.EID in(

select EID

from payroll p

where WORK_DATE>= TO_DATE('2022-03-04','yyyy/mm/dd') and WORK_DATE<= TO_DATE('2022-03-10','yyyy/mm/dd')

GROUP by EID

having SUM(HOURS_WORKED)>=5

);

```
SQL> update Employee
  2  set wage=wage*1.23
  3  where Employee.EID in(
  4  select EID
  5  from payroll p
  6  where WORK_DATE>= TO_DATE('2022-03-04','yyyy/mm/dd') and WORK_DATE<= TO_DATE('2022-03-10','yyyy/mm/dd')
  7  GROUP by EID
  8  having SUM(HOURS_WORKED)>=5
  9  );

6 rows updated.

SQL>
```

ADDITIONAL QUERIES:

1) List the StoreId of all the Stores in a Region R6

select StoreID from Store where Region='R6';

```
SQL> select StoreID from Store where Region='R6';

STOREID
----------
S6

SQL>
```

2) List the warehouseID of all warehouses in Region R1

select WarehouseID from Warehouse where Region='R1';

```
SQL> select WarehouseID from Warehouse where Region='R1';

WAREHOUSEI
----------
W1

SQL>
```

3) List the name and phone number of all employees working in stores with StoreID S1, S2

select Name, PhoneNO from Employee where(Location='S1' or Location='S2');

```
SQL> select Name, PhoneNO from Employee where(Location='S1' or Location='S2');

NAME       PHONENO
---------- ----------
NA1        PH1
NA2        PH2
NA11       PH11
NA12       PH12
NA21       PH21
NA22       PH22
NA31       PH31
NA32       PH32

8 rows selected.

SQL>
```

4) Get the name(s) of employee who worked for the maximum hours in a day in the month of March 2023

select Name

from Employee

where Employee.EID in(

select EID

from Payroll

where Hours_Worked = (Select Max(Hours_worked) from Payroll where Work_Date>=TO_DATE('2023-03-01','yyyy/mm/dd') and Work_Date<=TO_DATE('2023-03-31','yyyy/mm/dd'))

Group By EID

);

```
SQL> select Name
  2  from Employee
  3  where Employee.EID in(
  4  select EID
  5  from Payroll
  6  where Hours_Worked = (Select Max(Hours_worked) from Payroll where  Work_Date>=TO_DATE('2023-03-01','yyyy/mm/dd') an
d Work_Date<=TO_DATE('2023-03-31','yyyy/mm/dd'))
  7  Group By EID
  8  );

NAME
----------
NA1
NA2

SQL>
```

5) List all the PrescriptionIDs and the name of Patients who bought them issued on June 2nd 2021

select pr.PrescriptionID, pa.Name

from Prescription pr

join Patients pa on pr.PATIENTID=pa.PID

where pr.Date_Prescribed = TO_DATE('2021-06-02','yyyy/mm/dd');

```
SQL> select pr.PrescriptionID, pa.Name
  2  from Prescription pr
  3  join Patients pa on pr.PATIENTID=pa.PID
  4  where pr.Date_Prescribed = TO_DATE('2021-06-02','yyyy/mm/dd')
  5  ;

PRESCRIPTI NAME
---------- ---------
PR1        PNAM1
PR2        PNAM2
PR3        PNAM3
PR4        PNAM4
PR5        PNAM5
PR6        PNAM6
PR7        PNAM7
PR8        PNAM8
PR9        PNAM9
PR10       PNAM1
PR11       PNAM2

PRESCRIPTI NAME
---------- ---------
PR12       PNAM3
PR13       PNAM4
PR14       PNAM5
PR15       PNAM6

15 rows selected.

SQL>
```

6) List all the drugs names and type of drugs manufactured by ManfCom2

select Name, Drugtype from Drug where Manfby='ManfCom2';

```
SQL> select Name, Drugtype from Drug where Manfby='ManfCom2';

NAME       DRUGTYPE
---------- ----------
DNAM2      Syrup

SQL>
```

7) List all the item names currently in stock in warehouse W7

select Name

from Drug

where DrugID in(

select DrugID

from Inventory

where Buildingid='W7' and Currentstock>0

);

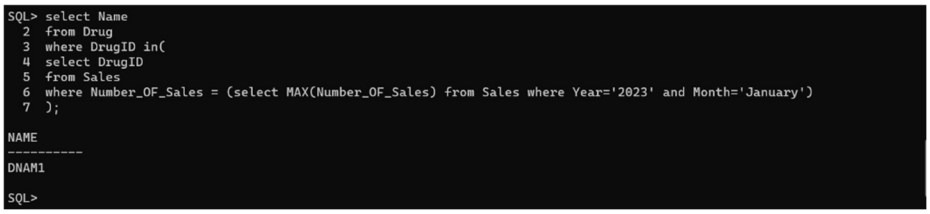
```
SQL> select Name
  2  from Drug
  3  where DrugID in(
  4  select DrugID
  5  from Inventory
  6  where Buildingid='W7' and Currentstock>0
  7  );

NAME
----------
DNAM7

SQL>
```

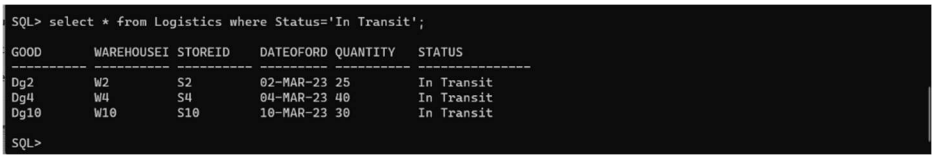
8) Get the name(s) of Drug with the highest No of Sales per Month in Jan 2023

```
select Name
from Drug
where DrugID in(
select DrugID
from Sales
where Number_OF_Sales = (select MAX(Number_OF_Sales) from Sales where Year='2023' and Month='January')
);
```



9) Get the list of logistics order that are in 'In Transit' stage

```
select * from Logistics where Status='In Transit';
```



10) Get the name of the Region in which the Warehouse with highest storage capacity is in

```
select r.RegionName
from Warehouse w
join Region R on w.Region=r.RegionCode
where w.capacity = (select MAX(w.capacity) from warehouse);
```

ADDITIONAL UPDATE QUERIES:

1) Increase the Hourly wage of all managers to 35

update Employee set wage=35 where Type='Manager';

```
SQL> update Employee set wage=35 where Type='Manager';

30 rows updated.

SQL>
```

2) Update the capacity of warehouse W2 to increase it by 20%

update Warehouse set capacity= capacity*1.2 where warehouseid='W2';

```
SQL> update Warehouse set capacity= capacity*1.2 where warehouseid='W2';

1 row updated.

SQL>
```

3) Change the phone number of patient Pa3 to NPPHNO3

update Patients set PhoneNo='NPPHNO3' where PID='Pa3';

```
SQL> update Patients set PhoneNo='NPPHNO3' where PID='Pa3';

1 row updated.

SQL>
```

4) Update the cost of Drug Dg4 to decrease its cost by 10%

update Drug set Price= Price*0.9 where Drugid='Dg4';

```
SQL> update Drug set Price= Price*0.9 where Drugid='Dg4';

1 row updated.

SQL>
```

5) Update the inventory to status of Drug Dg6 in Warehouse W6

update Inventory set currentstock=200 where buildingid='W6' and drugid='Dg6';

```
SQL> update Inventory set currentstock=200 where buildingid='W6' and drugid='Dg6';

1 row updated.

SQL>
```

6) Update all the logistic orders between Warehouse W5 and Store S5 to Delivered

update Logistics

set status='Delivered'

where warehouseid='W5' and storeid='S5';

```
SQL> update Logistics
  2  set status='Delivered'
  3  where warehouseid='W5' and storeid='S5';

1 row updated.

SQL>
```

ADDITIONAL DELETE QUERIES:

1) Delete Information regarding Patient Pa7

delete from Patients where PID='Pa7';

```
SQL> delete from Patients where PID='Pa7';

1 row deleted.

SQL>
```

2) Delete all Payroll records that were entered before 2013

delete from Payroll where Work_Date<TO_DATE('2013-01-01','yyyy/mm/dd');

```
SQL> delete from Payroll where Work_Date<TO_DATE('2013-01-01','yyyy/mm/dd');

0 rows deleted.

SQL>
```

3) Delete all logistics orders that were placed before 2010

delete from logistics where dateoforder<TO_DATE('2010-01-01','yyyy/mm/dd');

```
SQL> delete from logistics where dateoforder<TO_DATE('2010-01-01','yyyy/mm/dd');

0 rows deleted.

SQL>
```

4) Delete the records of all Prescriptions that were issued before 2018

delete from prescription where date_prescribed<TO_DATE('2018-01-01','yyyy/mm/dd');

```
SQL> delete from prescription where date_prescribed<TO_DATE('2018-01-01','yyyy/mm/dd');

0 rows deleted.

SQL>
```

5) Delete the information about drugs that expire on or before Dec 31st 2019

delete from drug where expirydate<=TO_DATE('2019-12-31','yyyy/mm/dd');

```
SQL> delete from drug where expirydate<=TO_DATE('2019-12-31','yyyy/mm/dd');

0 rows deleted.

SQL>
```

6) Delete information regarding employees working in S10

delete from employee where location='S10';

```
SQL> delete from employee where location='S10';

3 rows deleted.

SQL>
```

LIST OF ADDITIONAL QUERIES SOLVED:

1) List the StoreId of all the Stores in a Region R6

2) List the warehouseID of all warehouses in Region R1

3) List the name and phone number of all employees working in stores with StoreID S1, S2

4) Get the name(s) of employee who worked for the maximum hours in a day in the month of March 2023

5) List all the PrescriptionIDs and the name of Patients who bought them issued on June 2nd 2021

6) List all the drugs names and type of drugs manufactured by ManfCom2

7) List all the item names currently in stock in warehouse W7

8) Get the name(s) of Drug with the highest No of Sales per Month in Jan 2023

9) Get the list of logistics order that are in 'In Transit' stage

10) Get the name of the Region in which the Warehouse with highest storage capacity is in

LIST OF ADDITIONAL UPDATE QUERIES SOLVED:

1) Increase the Hourly wage of all managers to 35

2) Update the capacity of warehouse W2 to increase it by 20%

3) Change the phone number of patient Pa3 to NPPHNO3

4) Update the cost of Drug Dg4 to decrease its cost by 10%

5) Update the inventory to status of Drug Dg6 in Warehouse W6

6) Update all the logistic orders between Warehouse W5 and Store S5 to Delivered

LIST OF ADDITIONAL DELETE QUERIES SOLVED:

1) Delete Information regarding Patient Pa7

2) Delete all Payroll records that were entered before 2013

3) Delete all logistics orders that were placed before 2010

4) Delete the records of all Prescriptions that were issued before 2018

5) Delete the information about drugs that expire on or before Dec 31st 2019

6) Delete information regarding employees working in S10