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**FACULTY OF SCIENCE & TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Fall: 2022-2023**

**Section: L Group: 10**

**PROJECT REPORT ON**

**DRUG SUPPLY MANAGEMENT SYSTEM**

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**TABLE OF CONTENTS**

|  |
| --- |
|  |
| 1. **Introduction** |
| 1. **Case Scenario** |
| 1. **ER Diagram** |
| 1. **Normalization** |
| 1. **Finalization** |
| 1. **Table Creation** 2. **Value Insertion** 3. **Query Test** 4. **Conclusion** |
|  |  |
|  |  |
|  |  |

**INTRODUCTION**

The name of the project is “Drug Supply Management System”. In this project, we have created the relation between different tables to make the database system and their information. We have the query descriptions required to create the tables and insert the values in the tables. We had to go through the normalization process to overcome data insertion, deletion, and update anomalies to decide on the tables to be created.

We believe this project will benefit a lot of new or updatable drug supply management systems.

**Case Study**

In a drug supply management system, pharmaceutical companies supply drugs to various pharmaceutical stores. Each pharmaceutical company is identified by name, address, and contact number. Pharmaceutical companies make several types of drugs which are labeled by manufacturer-id, and manufacture date. Drugs are sold in pharmaceutical stores. Pharmaceutical stores are identified by license number, contact number, name, and address. Pharmaceutical companies assign supervisors to deal with pharmaceutical stores. Supervisors are identified by an ID, name, and companies store their joining date. The doctor prescribes at least one medicine to the patients. While prescribing, the doctor will mention the date of treatment and the quantity of the medicines. Doctors are identified by license number, name, and specialty. Patients are identified by their patient identification number, patient name, and patient address. Patients purchase different sorts of drugs from pharmaceutical stores. Pharmaceutical companies appoint drivers to deliver drugs to pharmaceutical stores. Drivers are identified by their driving license and name.

**ER Diagram**

Diagram

Description automatically generated

**NORMALIZATION**

Relationship Name: **Make**

UNF: P\_address, P\_name, P\_contactno, M\_id, M\_date

1NF: P\_address, P\_name, P\_contactno, M\_id, M\_date

2NF:

* 1. P\_address, P\_name, P\_contactno
  2. M\_id, M\_date
  3. P\_name, M\_id (FK)

3NF: As same as 2NF

Relationship Name: **Purchase**

UNF: Pt\_id, Pt\_name, Pt\_address, Pt\_dob, M\_id, M\_date

1NF: Pt\_id, Pt\_name, Pt\_address, Pt\_dob, M\_id, M\_date

2NF:

* 1. Pt\_id, Pt\_name, Pt\_address, Pt\_dob
  2. M\_id, M\_date
  3. Pt\_id, M\_id (FK)

3NF: As same as 2NF

Relationship Name: **Prescribe**

UNF: Pt\_id, Pt\_name, Pt\_address, Pt\_dob, Date, Quantity, Doc\_license, Doc\_name, Specialty

1NF: Pt\_id, Pt\_name, Pt\_address, Pt\_dob, Date, Quantity, Doc\_license, Doc\_name, Specialty

2NF:

1. Pt\_id, Pt\_name, Pt\_address, Pt\_dob, Date, Quantity
2. Doc\_license, Doc\_name, Specialty
3. Pt\_id, Doc\_license (FK)

3NF: As same as 2NF

Relationship Name: **Sell**

UNF: M\_id, M\_date, Ph\_license, Ph\_name, Ph\_address, Ph\_contactno

1NF: M\_id, M\_date, Ph\_license, Ph\_name, Ph\_address, Ph\_contactno

2NF:

1. M\_id, M\_date
2. Ph\_license, Ph\_name, Ph\_address, Ph\_contactno
3. M\_id, Ph\_license (FK)

3NF: As same as 2NF

Relationship Name: **Appoint**

UNF: D\_license, D\_name, P\_name, P\_addess, P\_contactno

1NF: D\_license, D\_name, P\_name, P\_addess, P\_contactno

2NF:

1. P\_name, P\_addess, P\_contactno
2. P\_name (FK), D\_license, D\_name

3NF: As same as 2NF

Relationship Name: **Assign**

UNF: S\_name, S\_id, join\_Date, P\_name, P\_addess, P\_contactno

1NF: S\_name, S\_id, join\_Date, P\_name, P\_addess, P\_contactno

2NF:

1. P\_name, P\_addess, P\_contactno
2. P\_name (FK), S\_name, S\_id, join\_Date

3NF: As same as 2NF

Relationship Name: **Deal**

UNF: S\_name, S\_id, join\_Date, Ph\_license, Ph\_name, Ph\_address, Ph\_contactno

1NF: S\_name, S\_id, join\_Date, Ph\_license, Ph\_name, Ph\_address, Ph\_contactno

2NF:

1. S\_name, S\_id, join\_Date
2. Ph\_license, Ph\_name, Ph\_address, Ph\_contactno
3. S\_id, Ph\_license (FK)

3NF: As same as 2NF

Relationship Name: **Drugs Delivery**

UNF: D\_license, D\_name, Ph\_license, Ph\_name, Ph\_address, Ph\_contactno

1NF: D\_license, D\_name, Ph\_license, Ph\_name, Ph\_address, Ph\_contactno

2NF:

1. D\_license, D\_name,
2. Ph\_license, Ph\_name, Ph\_address, Ph\_contactno
3. D\_license, Ph\_license (FK)

3NF: As same as 2NF

**FINALIZATION**

Tables:

1. Prescription Info: Pt\_id, Pt\_name, Pr\_address, Pt\_dob, Ps\_date, Ps\_quantity
2. Pharmacy Info: Ph\_license, Ph\_name, Ph\_address, Ph\_contactno
3. Pharmacy Company: P\_address, P\_name, P\_contactno
4. Patient Info: Pt\_id, Pt\_name, Pt\_address, Pt\_dob
5. Doctor Info: Doc\_license, Doc\_name, Specialty
6. Driver Info: D\_license, D\_name
7. Supervisor Info: S\_name, S\_id, join\_Date
8. Drug Info: M\_id, M\_date
9. S\_Assign: P\_name (FK), S\_name, S\_id, join\_Date
10. D\_Appoint: P\_name (FK), D\_license, D\_name
11. Manufacture: P\_name, M\_id (FK)
12. Purchase: Pt\_id, M\_id (FK)
13. Delivery Info: D\_license, Ph\_license (FK)
14. Deal: S\_id, Ph\_license (FK)
15. Prescribe Info: Doc\_license, Pt\_id (FK)
16. Sell Info: M\_id, Ph\_license (FK)

**TABLE CREATION**

Table Name: **Prescription Info**

Command:

* Create table Prescription\_Info (Pt\_id number (20) PRIMARY KEY, Pt\_name varchar2(200), Pr\_address varchar2(200), Pt\_dob date, Ps\_date date, Ps\_Quantity number (30))
* Describe Prescription\_Info

Graphical user interface, application, table

Description automatically generated

Table Name: **Pharmacy Info**

Command:

* Create table Pharmacy\_Info (Ph\_license varchar2(200) PRIMARY KEY, Ph\_name varchar2(200), Ph\_address varchar2(200), Ph\_contactno varchar2(11))
* Describe Pharmacy\_Info

Graphical user interface, text, application

Description automatically generated

Table Name: **Pharmacy Company**

Command:

* Create table Pharmacy\_Company(P\_address varchar2(200), P\_name varchar2(200) PRIMARY KEY, P\_contactno varchar2(11))
* Describe Pharmacy\_Company

Graphical user interface, text, application, email

Description automatically generated

Table Name: **Patient Info**

Command:

* Create table Patient\_Info(Pt\_id number(30) PRIMARY KEY, Pt\_name varchar2(200), Pt\_address varchar2(200), Pt\_dob date)
* Describe Patient\_Info

Graphical user interface, text, application

Description automatically generated

Table Name: **Doctor Info**

Command:

* Create table Doctor\_Info(Doc\_license varchar2(200) PRIMARY KEY, Doc\_name varchar2(200), Speciality varchar2(200))
* Describe Doctor\_Info

Graphical user interface, text, application

Description automatically generated

Table Name: **Driver Info**

Command:

* Create table Driver\_Info(D\_license varchar2(200) PRIMARY KEY, D\_name varchar2(200))
* Describe Driver\_Info

Graphical user interface, text, application

Description automatically generated

Table Name: **Supervisor Info**

Command:

* Create table Supervisor\_Info(S\_name varchar2(200), S\_id number(30) PRIMARY KEY, Join\_date date)
* Describe Supervisor\_Info

Graphical user interface, text, application

Description automatically generated

Table Name: **Drug Info**

Command:

* Create table Drug\_Info (M\_id varchar (200) PRIMARY KEY, M\_date date)
* Describe Drug\_Info

Graphical user interface, text, application, email

Description automatically generated

Table Name: **Supervisor Assign**

Command:

* Create table S\_Assign (S\_id varchar2 (200) PRIMARY KEY, S\_name varchar2(200), Join\_date date, P\_name varchar2(200), constraint PN foreign key(P\_name) references Pharmacy\_Company(P\_name))
* Describe S\_Assign

Graphical user interface, application

Description automatically generated

Table Name: **Driver Appoint**

Command:

* Create table D\_Appoint (D\_name varchar2(200), D\_license varchar2(200) PRIMARY KEY, P\_name varchar2(200), constraint PND foreign key (p\_name) references Pharmacy\_Company(P\_name))
* Describe D\_Appoint

Graphical user interface, text, application, email

Description automatically generated

Table Name: **Manufacture**

Command:

* Create table Manufacture (P\_name varchar (200) PRIMARY KEY, M\_id varchar (200), constraint MF foreign key(M\_id) references Drug\_Info(M\_id))
* Describe Manufacture

Graphical user interface, text, application, email

Description automatically generated

Table Name: **Purchase**

Command:

* Create table Purchase (Pt\_id varchar2(200) PRIMARY KEY, M\_id varchar2(200), constraint PI foreign key(M\_id) references Drug\_Info(M\_id))
* Describe Purchase

Graphical user interface, text, application, email

Description automatically generated

Table Name: **Delivery Info**

Command:

* Create table Delivery\_Info (D\_license varchar2(200) PRIMARY KEY, Ph\_license varchar (200), constraint DPH foreign key (Ph\_license) references Pharmacy\_Info(Ph\_license))
* Describe Delivery\_Info

Graphical user interface, text, application

Description automatically generated

Table Name: **Deal**

Command:

* Create table Deal (S\_id varchar2(200) PRIMARY KEY, Ph\_license varchar (200), constraint DEALPH foreign key (PH\_license) references Pharmacy\_Info(Ph\_license))
* Describe Deal

Graphical user interface, text, application, email

Description automatically generated

Table Name: **Prescribe Info**

Command:

* Create table Prescribe\_Info (Doc\_license varchar2(200) PRIMARY KEY, Pt\_id number (30), constraint PK foreign key (Pt\_id) references Patient\_Info(Pt\_id))
* Describe Prescribe\_Info

Graphical user interface, text, application

Description automatically generated

Table Name: **Sell Info**

Command:

* Create table Sell\_Info (M\_id varchar2 (200) PRIMARY KEY, Ph\_license varchar2 (200), constraint SPH oreign key (Ph\_license) references Pharmacy\_Info (Ph\_license))
* Describe Sell\_Info

Graphical user interface, text, application, email

Description automatically generated

**VALUE INSERTION**

Table Name: **Prescription Info**

* Insert Into Prescription\_Info values (2001, 'Antor', 'Kazi\_Bari', '01-JUN-2001', '01-JUN-2020', 5)
* Insert Into Prescription\_Info values (2002, 'Sayan','Mia\_Bari', '01-JUN-2002', '01-FEB-2020', 7)
* Insert Into Prescription\_Info values (2003, 'Rayed', 'Najma\_Bording', '01-MAR-2002', '10-FEB-2020', 17)
* Insert Into Prescription\_Info values (2004, 'Kaushik', 'Hazi\_Bari', '15-FEB-2002', '15-APR-2020', 6)
* Insert Into Prescription\_Info values (2005, 'Tanvir', 'Mia\_Bari', '01-SEP-2000', '22-OCT-2020', 8)

Select \* from Prescription\_Info

Table Name: **Pharmacy Info**

* Insert Into Pharmacy\_Info values ('877977', 'Jafar Pharma', 'Moishan Bari', '01778697777')
* Insert Into Pharmacy\_Info values ('877988', 'Karim Pharma', 'Hazi Bari', '01778698888')
* Insert Into Pharmacy\_Info values ('877999', 'Hasan Drug', 'Hazi Bari', '01778698899')
* Insert Into Pharmacy\_Info values ('877100', 'Master Pharma', 'Kazi Bari', '01978698898')
* Insert Into Pharmacy\_Info values ('888100', 'Jalal Drug Shop', 'Mia Bari', '01878698777')

Select \* from Pharmacy\_Info

Table Name: **Pharmacy Company**

* Insert Into Pharmacy\_Company values ('Baridhara', 'Square', '01911123456')
* Insert Into Pharmacy\_Company values ('Rayerbag', 'Beximco', '01811123555')
* Insert Into Pharmacy\_Company values ('Matiketa', 'Opsonin', '01711123444')
* Insert Into Pharmacy\_Company values ('Uttara', 'Acme', '01511123666')
* Insert Into Pharmacy\_Company values ('Purbachal', 'Incepta', '01911123233')

Select \* from Pharmacy\_Company

Table Name: **Patient Info**

* Insert Into Patient\_Info values (2001, 'Antor', 'Kazi\_Bari', '01-JUN-2001')
* Insert Into Patient\_Info values (2002, 'Sayan', 'Mia\_Bari', '01-JUN-2002')
* Insert Into Patient\_Info values (2003, 'Rayed', 'Najma\_Bording', '01-MAR-2002')
* Insert Into Patient\_Info values (2004, 'Kaushik', 'Hazi\_Bari', '15-FEB-2002')
* Insert Into Patient\_Info values (2005, 'Tanvir', 'Mia\_Bari', '01-SEP-2000')

Select \* from Patient\_Info

Table Name: **Doctor Info**

* Insert Into Doctor\_Info values ('888977', 'Dr. Mannan Ali', 'ENT')
* Insert Into Doctor\_Info values ('888588', 'Dr. Karim Ali', 'Orthorpedics')
* Insert Into Doctor\_Info values ('888255', 'Dr. Ankur Roy', 'EYE')
* Insert Into Doctor\_Info values ('888966', 'Dr. SR Kumar', 'Gyno')
* Insert Into Doctor\_Info values ('888288', 'Dr. Sohel Nasir', 'Gastrology')

Select \* from Doctor\_Info

Table Name: **Driver Info**

* Insert Into Driver\_Info values ('662815', 'Md Monir Hossain')
* Insert Into Driver\_Info values ('316459', 'Md Soloman Mia')
* Insert Into Driver\_Info values ('555289', 'Md Kasam Mia')
* Insert Into Driver\_Info values ('272733', 'Md Moklace Hossain')
* Insert Into Driver\_Info values ('212249', 'Md Amir Chan')

Select \* from Driver\_Info

Table Name: **Supervisor Info**

* Insert Into Supervisor\_Info values ('Rabbi Ahmed', 01, '25-JUL-2018')
* Insert Into Supervisor\_Info values ('Md Kabir Mia', 02, '21-MAR-2018')
* Insert Into Supervisor\_Info values ('Sakil Ahmed', 03, '29-MAY-2019')
* Insert Into Supervisor\_Info values ('Opu', 04, '07-JUN-2019')

Select \* from Supervisor\_Info

Table Name: **Drug Info**

* Insert Into Drug\_Info values ('2121', '21-JAN-2019')
* Insert Into Drug\_Info values ('2222', '11-FEB-2019')
* Insert Into Drug\_Info values ('2323', '17-MAR-2019')
* Insert Into Drug\_Info values ('2424', '13-APR-2019')
* Insert Into Drug\_Info values ('2525', '02-MAY-2019')

Select \* from Drug\_Info

Table Name: **Supervisor Assign**

* Insert Into S\_Assign values ('101', 'Akash', '08-MAR-2017', 'Square')
* Insert Into S\_Assign values ('102', 'Himu', '11-MAY-2016', 'Beximco')
* Insert Into S\_Assign values ('103', 'Juwel', '22-JUL-2018', 'Opsonin')
* Insert Into S\_Assign values ('104', 'Asif', '29-NOV-2018', 'Acme')
* Insert Into S\_Assign values ('105', 'Shanto', '15-DEC-2016', 'Incepta')

Select \* from S\_Assign

Table Name: **Driver Appoint**

* Insert Into D\_Appoint values ('MD Monir Hossain', '66285', 'Square')
* Insert Into D\_Appoint values ('MD Solomon Mia', '316459', 'Beximco')
* Insert Into D\_Appoint values ('Kashem Mia', '555289', 'Opsonin')
* Insert Into D\_Appoint values ('MD Mokles Mia', '272733', 'Acme')
* Insert Into D\_Appoint values ('Amir Chan', '212249', 'Incepta')

Select \* from D\_Appoint

Table Name: **Manufacture**

* Insert Into Manufacture values ('Square', '2121')
* Insert Into Manufacture values ('Beximco', '2222')
* Insert Into Manufacture values ('Opsonin', '2323')
* Insert Into Manufacture values ('Acme', '2424')
* Insert Into Manufacture values ('Incepta', '2525')

Select \* from Manufacture

Table Name: **Purchase**

* Insert Into Purchase values ('2001', '2121')
* Insert Into Purchase values ('2002', '2222')
* Insert Into Purchase values ('2003', '2323')
* Insert Into Purchase values ('2004', '2424')
* Insert Into Purchase values ('2005', '2525')

Select \* from Purchase

Table Name: **Delivery Info**

* Insert Into Delivery\_Info values ('662815', '877977')
* Insert Into Delivery\_Info values ('316459', '877988')
* Insert Into Delivery\_Info values ('555289', '877999')
* Insert Into Delivery\_Info values ('272733', '877100')
* Insert Into Delivery\_Info values ('212249', '888100')

Select \* from Delivery\_Info

Table Name: **Deal**

* Insert Into Deal values ('101', '877977')
* Insert Into Deal values ('102', '877988')
* Insert Into Deal values ('103', '877999')
* Insert Into Deal values ('104', '877100')
* Insert Into Deal values ('105', '888100')

Select \* from Deal

Table Name: **Prescribe Info**

* Insert Into Prescribe\_Info values ('888977', 2001)
* Insert Into Prescribe\_Info values ('888588', 2002)
* Insert Into Prescribe\_Info values ('888255', 2003)
* Insert Into Prescribe\_Info values ('888966', 2004)
* Insert Into Prescribe\_Info values ('888288', 2005)

Select \* from Prescribe\_Info

Table Name: **Sell Info**

* Insert Into Sell\_Info values ('2121', '877977')
* Insert Into Sell\_Info values ('2222', '877988')
* Insert Into Sell\_Info values ('2323', '877999')
* Insert Into Sell\_Info values ('2424', '877100')
* Insert Into Sell\_Info values ('2525', '888100')

Select \* from Sell\_Info

**QUERY TEST**

Query Type: **Single Row Query**

Query: Show the pharmacy name, pharmacy license number, pharmacy address, and pharmacy contact number from the pharmacy\_info table where address is Hazi Bari.

Command: Select Ph\_name, Ph\_license, Ph\_address, Ph\_contactno from pharmacy\_info where Ph\_address = 'Hazi Bari'

Graphical user interface, text, application, email

Description automatically generated

Query Type: **Aggregate Function Query**

Query: Show the patient id, and patient name from the Prescription\_Info table and count the number of addresses that belongs to Mia\_Bari.

Command: Select Pt\_Id, Pt\_name, COUNT (Pr\_address) "PT\_addrees" from Prescription\_Info where Pr\_address = 'Mia\_Bari' group by pt\_ID, Pt\_name

Graphical user interface, text, application, email

Description automatically generated

Query Type: **Single Row Sub Query (1)**

Query: Show the doctor’s name and doctor’s license number from the doctor\_Info table who has a specialty in ENT or specialty in EYE

Command: select Doc\_name, Doc\_license from Doctor\_Info where Doc\_License = (Select Doc\_License from Doctor\_Info where Speciality = 'ENT') OR Speciality = 'EYE'

Graphical user interface, text, application, email

Description automatically generated

Query Type: **Single Row Sub Query (2)**

Query: Show the patient’s name, patient id, and patient address from the Prescription\_Info table whose prescription date is less than Tanvir’s prescription date.

Command: Select Pt\_name, Pt\_ID, Pr\_address from Prescription\_Info where Ps\_date < (Select Ps\_date from Prescription\_Info where Pt\_name = 'Tanvir')

Graphical user interface, text, application, email

Description automatically generated

Query Type: **Multiple Row Sub Query (1)**

Query: Show the patient id, patient name, patient address, and patient date of birth from Patient\_Info where the Patient date of birth is less than ‘01-March-2002’ and patient address is not ‘Najma\_Bording’.

Command: Select Pt\_ID, Pt\_name, Pt\_address, Pt\_dob from Patient\_Info where Pt\_dob < all (select Pt\_dob from Patient\_Info where Pt\_dob = '01-MAR-2002') AND Pt\_address <> 'Najma\_Bording'

Graphical user interface, text, application, email

Description automatically generated

Query Type: **Multiple Row Sub Query (2)**

Query: Show the patient id, patient name, and patient address from Prescription\_Info where Patient date of birth is less than ’15 february 2002’.

Command: Select Pt\_ID, Pt\_name, Pr\_address,Pt\_dob from Prescription\_Info

where Pt\_dob < All (Select Pt\_dob from Prescription\_Info where Pt\_dob = '15-FEB-2002')

Graphical user interface, text, application, email

Description automatically generated

Query Type: **Self Join**

Query: Show the doctor’s name and their speciality from Doctors\_Info when their license is same.

Command: Select a.Doc\_name, b.Speciality from Doctor\_Info a, Doctor\_Info b where a.doc\_License = b.doc\_License

Graphical user interface, text, application, email

Description automatically generated

Query Type: **Equi Join**

Query: Write a querry to display Driver’s license, supervisor id of all employees whose Ph\_license in Delivery\_info table is equal to the Ph\_license in the Deal table.

Command: Select a.D\_License, b.s\_id from Delivery\_Info a, Deal b where a.Ph\_license = b.Ph\_license

Graphical user interface, text, application, email

Description automatically generated

View: **P\_address**

Command:

* Create view P\_address as select pt\_id, pt\_name, pr\_address from prescription\_info where pr\_address = 'Mia\_Bari'
* Describe P\_address

Graphical user interface, text, application

Description automatically generated

* Select \* from P\_address

Graphical user interface, text, application, email

Description automatically generated

**CONCLUSION**

A DBMS is a systematic operational system consisting of tools making data, data saving and data manipulation easier. DBMS is used throughout the world for data handling. Thus, it is a good data manager to date. If someone asks you, how do we protect data? The proper solution is to get DBMS. So, it is needless to say about the benefits of having a database management system for drug supply management throughout the pharmaceutical industries.