

# **GoodHealth Pharmacy (AYS) - DATABASE**

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## **Final Project Report**

### **CST 363-01: Introduction to Database**

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## Project Overview

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The GoodHealth Pharmacy Services is a prescription tracking service that offers a convenient, fast way for clinics, hospitals, and other health centers to keep track of prescriptions, drugs suppliers and cost, and other information. The GoodHealth Pharmacy Services is an extensively reviewed company that has successfully met the needs and expectations of their clients and their customers, companies big and small.

When a health center decides to use their services they are given access to quite a bit of information. Firstly, health centers will see which pharmacies have contracts with which pharmaceutical companies. They will also see available drugs and which pharmaceutical companies produce them and which pharmacies sell them and at what price. As health centers take in patients, they will be able to store patient data, different prescriptions, and keep track of which prescriptions are filled. They will also be able to store physician data and keep track of their years of experience and other information.

Our goal was to create an ER Database model for the GoodHealth Pharmacy drug store chain. The ER model will help understand the data that this company handles and how their data should be structured. It will specify the relations between different attributes belonging to this chain company. Given the details by GoodHealth, the ER model would have 11 tables, 3 of which are weak entities. At-Your-Service-Database will update GoodHealth through-out the database creation process to make sure all the client's needs are met. The ER model displayed on the next page explains the relations of all attributes and entities in the database.

## Database Structure

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The Database table consists of 11 tables. The strong entities are: Patient, Doctor, Prescription, Drug, Pharmaceutical Company (PharmCo), Pharmacy, Supervisor, and Contract. The remaining tables are Fill, drug\_price, and pharmCo\_has\_drug. Appendix B shows the complete entity\_relationship diagram.

DATABASE TABLE	DESCRIPTION
Patient	Contains all the patients' information.
Doctor	Contains all the doctors' information.
PharmaCo	Contains basic information about the pharmaceutical company.
Pharmacy	Contains information about pharmacies.
Drug	Contains generic and trade names of the drug.
Prescription	Contains prescription information and each prescription is related to a patient, doctor and drug.
Fill	Contains the date the prescription was filled and has a connection with the drug, pharmacy, and pharmCo table.
Contract	Contains contract information between a pharmaceutical company and a pharmacy. Each contract is linked to a supervisor
Supervisor	Contains all the supervisors' information.
Drug_Price	Contains the drug's id, which pharmacy is selling it and at what price.
PharmCo_has_Drug	Contains a drug's id and which pharmaceutical company supplies it.

## Functionality

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The database allows users to complete the following functions:

- Enter a new patient, doctor, or prescriptions
- Modify a prescriptions status/track if it has been filled
- Modify a contracts supervisor

The database allows the user to generate data like the years of experience a doctor has, reports by pharmacy name, drug name, patient, etc. They are also able to manage the table data.

## Database Design Process

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Our approach to this database design project was to first create a rough plan of the ER diagram with the given details of the drug store chain. After creating a rough design of the project, we added some attributes needed to fit the model. We developed 11 tables for this database. Our table design allowed for growth and flexibility and has been normalized to the best of our ability. For example, instead of putting a supervisor's details in the contract table, their information is stored in a separate table to account for any supervisor updates that may be done to the contract table. The supervisor's data is connected using a foreign key and minimal updates will have to be made if any changes occur.

We learned several important things through this design process including:

1. Knowing what data you will be handling and how it is connected is very important and should be discussed at the beginning of the design process.
2. Putting yourself in the shoes of the user is very important to understand how the data will be used and what services are most important
3. Designing a well connected database is harder than it seems and a lot of trial and error will occur before a good, functional design is achieved.

# Appendices

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Appendix A: At Your Service(AYS) Database Table Structure

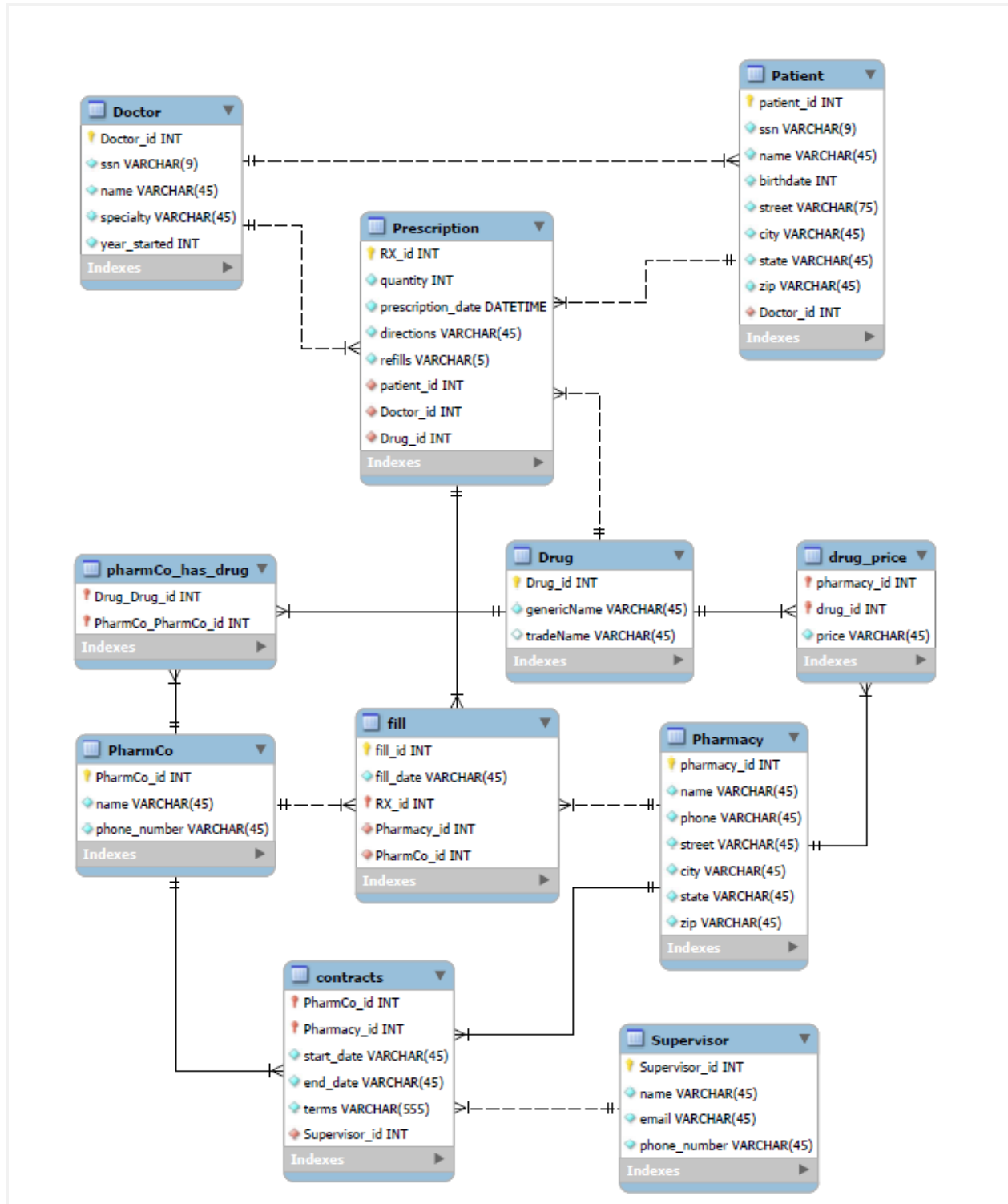
Appendix B: Create File

Appendix C: Insert Statements

Appendix D: SQL Statements

## Appendix A: At Your Service(AYS) Database Table Structure

\*prescription\_date in Prescription was changed to VARCHAR(45)



## Appendix B: Create File

```
CREATE SCHEMA IF NOT EXISTS `mydb` DEFAULT CHARACTER SET utf8 ;
USE `mydb` ;
```

```
-- Table `mydb`.`Doctor`
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Doctor` (
  `Doctor_id` INT NOT NULL,
  `ssn` VARCHAR(9) NOT NULL,
  `name` VARCHAR(45) NOT NULL,
  `specialty` VARCHAR(45) NOT NULL,
  `year_started` INT NOT NULL,
  PRIMARY KEY (`Doctor_id`))
ENGINE = InnoDB;
```

```
-- Table `mydb`.`Patient`
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Patient` (
  `patient_id` INT NOT NULL,
  `ssn` VARCHAR(9) NOT NULL,
  `name` VARCHAR(45) NOT NULL,
  `birthdate` INT NOT NULL,
  `street` VARCHAR(75) NOT NULL,
  `city` VARCHAR(45) NOT NULL,
  `state` VARCHAR(45) NOT NULL,
  `zip` VARCHAR(45) NOT NULL,
  `Doctor_id` INT NOT NULL,
  PRIMARY KEY (`patient_id`),
```

```
INDEX `fk_Patient_Doctor_idx` (`Doctor_id` ASC) VISIBLE,  
CONSTRAINT `fk_Patient_Doctor`  
  FOREIGN KEY (`Doctor_id`)  
  REFERENCES `mydb`.`Doctor` (`Doctor_id`)  
  ON DELETE NO ACTION  
  ON UPDATE NO ACTION)  
ENGINE = InnoDB;
```

```
-- -----  
-- Table `mydb`.`Drug`  
-- -----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Drug` (  
  `Drug_id` INT NOT NULL,  
  `genericName` VARCHAR(45) NOT NULL,  
  `tradeName` VARCHAR(45) NULL,  
  PRIMARY KEY (`Drug_id`))  
ENGINE = InnoDB;
```

```
-- -----  
-- Table `mydb`.`PharmCo`  
-- -----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`PharmCo` (  
  `PharmCo_id` INT NOT NULL,  
  `name` VARCHAR(45) NOT NULL,  
  `phone_number` VARCHAR(45) NOT NULL,  
  PRIMARY KEY (`PharmCo_id`))  
ENGINE = InnoDB;
```



```
-- -----  
-- Table `mydb`.`Prescription`  
-- -----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Prescription` (  
  `RX_id` INT NOT NULL,  
  `quantity` INT NOT NULL,  
  `prescription_date` VARCHAR(45) NOT NULL,  
  `directions` VARCHAR(45) NOT NULL,  
  `refills` VARCHAR(5) NOT NULL,  
  `patient_id` INT NOT NULL,  
  `Doctor_id` INT NOT NULL,  
  `Drug_id` INT NOT NULL,  
  PRIMARY KEY (`RX_id`),  
  INDEX `fk_Prescription_Patient1_idx` (`patient_id` ASC) VISIBLE,  
  INDEX `fk_Prescription_Doctor1_idx` (`Doctor_id` ASC) VISIBLE,  
  INDEX `fk_Prescription_Drug1_idx` (`Drug_id` ASC) VISIBLE,  
  CONSTRAINT `fk_Prescription_Patient1`  
    FOREIGN KEY (`patient_id`)  
    REFERENCES `mydb`.`Patient` (`patient_id`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION,  
  CONSTRAINT `fk_Prescription_Doctor1`  
    FOREIGN KEY (`Doctor_id`)  
    REFERENCES `mydb`.`Doctor` (`Doctor_id`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION,  
  CONSTRAINT `fk_Prescription_Drug1`  
    FOREIGN KEY (`Drug_id`)  
    REFERENCES `mydb`.`Drug` (`Drug_id`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION)
```

```
ENGINE = InnoDB;
```

```
-----  
-- Table `mydb`.`Pharmacy`  
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Pharmacy` (  
  `pharmacy_id` INT NOT NULL,  
  `name` VARCHAR(45) NOT NULL,  
  `phone` VARCHAR(45) NOT NULL,  
  `street` VARCHAR(45) NOT NULL,  
  `city` VARCHAR(45) NOT NULL,  
  `state` VARCHAR(45) NOT NULL,  
  `zip` VARCHAR(45) NOT NULL,  
  PRIMARY KEY (`pharmacy_id`))  
ENGINE = InnoDB;
```

```
-----  
-- Table `mydb`.`drug_price`  
-----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`drug_price` (  
  `pharmacy_id` INT NOT NULL,  
  `drug_id` INT NOT NULL,  
  `price` VARCHAR(45) NOT NULL,  
  PRIMARY KEY (`pharmacy_id`, `drug_id`),  
  INDEX `fk_Pharmacy_has_Drug_Drug1_idx` (`drug_id` ASC) VISIBLE,  
  INDEX `fk_Pharmacy_has_Drug_Pharmacy1_idx` (`pharmacy_id` ASC) VISIBLE,  
  CONSTRAINT `fk_Pharmacy_has_Drug_Pharmacy1`  
    FOREIGN KEY (`pharmacy_id`)  
    REFERENCES `mydb`.`Pharmacy` (`pharmacy_id`)
```

```

ON DELETE NO ACTION
ON UPDATE NO ACTION,
CONSTRAINT `fk_Pharmacy_has_Drug_Drug1`
FOREIGN KEY (`drug_id`)
REFERENCES `mydb`.`Drug` (`Drug_id`)
ON DELETE NO ACTION
ON UPDATE NO ACTION)
ENGINE = InnoDB;

```

```

-----
-- Table `mydb`.`pharmCo_has_drug`
-----

CREATE TABLE IF NOT EXISTS `mydb`.`pharmCo_has_drug` (
  `Drug_Drug_id` INT NOT NULL,
  `PharmCo_PharmCo_id` INT NOT NULL,
  PRIMARY KEY (`Drug_Drug_id`, `PharmCo_PharmCo_id`),
  INDEX `fk_Drug_has_PharmCo_PharmCo1_idx` (`PharmCo_PharmCo_id` ASC) VISIBLE,
  INDEX `fk_Drug_has_PharmCo_Drug1_idx` (`Drug_Drug_id` ASC) VISIBLE,
  CONSTRAINT `fk_Drug_has_PharmCo_Drug1`
    FOREIGN KEY (`Drug_Drug_id`)
      REFERENCES `mydb`.`Drug` (`Drug_id`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
  CONSTRAINT `fk_Drug_has_PharmCo_PharmCo1`
    FOREIGN KEY (`PharmCo_PharmCo_id`)
      REFERENCES `mydb`.`PharmCo` (`PharmCo_id`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION)
ENGINE = InnoDB;

```

```
-- -----  
-- Table `mydb`.`Supervisor`  
-- -----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Supervisor` (  
  `Supervisor_id` INT NOT NULL,  
  `name` VARCHAR(45) NOT NULL,  
  `email` VARCHAR(45) NOT NULL,  
  `phone_number` VARCHAR(45) NOT NULL,  
  PRIMARY KEY (`Supervisor_id`))  
ENGINE = InnoDB;
```

```
-- -----  
-- Table `mydb`.`contracts`  
-- -----
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`contracts` (  
  `PharmCo_id` INT NOT NULL,  
  `Pharmacy_id` INT NOT NULL,  
  `start_date` VARCHAR(45) NOT NULL,  
  `end_date` VARCHAR(45) NOT NULL,  
  `terms` VARCHAR(555) NOT NULL,  
  `Supervisor_id` INT NOT NULL,  
  PRIMARY KEY (`PharmCo_id`, `Pharmacy_id`),  
  INDEX `fk_PharmCo_has_Pharmacy_Pharmacy1_idx` (`Pharmacy_id` ASC) VISIBLE,  
  INDEX `fk_PharmCo_has_Pharmacy_PharmCo1_idx` (`PharmCo_id` ASC) VISIBLE,  
  INDEX `fk_contracts_Supervisor1_idx` (`Supervisor_id` ASC) VISIBLE,  
  CONSTRAINT `fk_PharmCo_has_Pharmacy_PharmCo1`  
    FOREIGN KEY (`PharmCo_id`)  
    REFERENCES `mydb`.`PharmCo` (`PharmCo_id`)  
    ON DELETE NO ACTION
```

```

    ON UPDATE NO ACTION,
CONSTRAINT `fk_PharmCo_has_Pharmacy_Pharmacy1`
    FOREIGN KEY (`Pharmacy_id`)
    REFERENCES `mydb`.`Pharmacy` (`pharmacy_id`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
CONSTRAINT `fk_contracts_Supervisor1`
    FOREIGN KEY (`Supervisor_id`)
    REFERENCES `mydb`.`Supervisor` (`Supervisor_id`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;

```

```

-----
-- Table `mydb`.`fill`
-----

```

```

CREATE TABLE IF NOT EXISTS `mydb`.`fill` (
  `fill_id` INT NOT NULL,
  `fill_date` VARCHAR(45) NOT NULL,
  `RX_id` INT NOT NULL,
  `Pharmacy_id` INT NOT NULL,
  `PharmCo_id` INT NOT NULL,
  PRIMARY KEY (`fill_id`, `RX_id`),
  INDEX `fk_fill_Prescription1_idx` (`RX_id` ASC) VISIBLE,
  INDEX `fk_fill_Pharmacy1_idx` (`Pharmacy_id` ASC) VISIBLE,
  INDEX `fk_fill_PharmCo1_idx` (`PharmCo_id` ASC) VISIBLE,
  CONSTRAINT `fk_fill_Prescription1`
    FOREIGN KEY (`RX_id`)
    REFERENCES `mydb`.`Prescription` (`RX_id`)
    ON DELETE NO ACTION

```

```
    ON UPDATE NO ACTION,  
CONSTRAINT `fk_fill_Pharmacy1`  
    FOREIGN KEY (`Pharmacy_id`)  
    REFERENCES `mydb`.`Pharmacy` (`pharmacy_id`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION,  
CONSTRAINT `fk_fill_PharmCo1`  
    FOREIGN KEY (`PharmCo_id`)  
    REFERENCES `mydb`.`PharmCo` (`PharmCo_id`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION)  
ENGINE = InnoDB;
```

```
SET SQL_MODE=@OLD_SQL_MODE;  
SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS;  
SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS;
```

## Appendix C: Insert Statements

### -----Doctor insert statements-----

```
insert into doctor values(1, '123456789', 'John', 'pediatrician', 2005);
insert into doctor values(2, '456879123', 'David', 'oncology', 2001);
insert into doctor values(3, '142753869', 'Michael', 'cardiology', 2011);
insert into doctor values(4, '986753421', 'Adam', 'radiology', 1998);
```

### -----Patient insert statements-----

```
insert into patient values(1, '963852741', 'Amanda', 2001, '123 apple st', 'corona', 'MI', 98753, 2);
insert into patient values(2, '161512438', 'Diego', 1990, '123 banana st', 'pomona', 'AR', 95624,
1);
insert into patient values(3, '628456468', 'Isaac', 1985, '123 orange st', 'cave', 'AL', 91013, 3);
insert into patient values(4, '624785924', 'Alex', 2005, '123 pepper st', 'riverdale', 'CA', 81544, 4);
insert into patient values(5, '556464554', 'Bryan', 1999, '123 citrus st', 'monterey', 'OK', 23164,
2);
insert into patient values(6, '545567523', 'Evelyn', 2000, '123 adams st', 'seaside', 'WA', 65415,
2);
insert into patient values(7, '897451234', 'Fred', 1997, '123 main st', 'oakland', 'OR', 92286, 1);
insert into patient values(8, '514345345', 'George', 1999, '123 maple st', 'maryland', 'FL', 91684,
2);
insert into patient values(9, '223352295', 'Hector', 1998, '123 avocado st', 'arrow', 'TX', 62871, 3);
insert into patient values(10, '524355451', 'Jacob', 1999, '123 palm st', 'marina', 'NY', 98157, 1);
```

### -----Drug insert statements-----

```
insert into drug values(1001,'generic1', 'trade1');
insert into drug values(1002,'generic2', 'trade2');
insert into drug values(1003,'generic3', 'trade3');
insert into drug values(1004,'generic4', 'trade4');
insert into drug values(1005,'generic5', 'trade5');
insert into drug values(1006,'generic6', 'trade6');
insert into drug values(1007,'generic7', 'trade7');
insert into drug values(1008,'generic8', 'trade8');
insert into drug values(1009,'generic9', 'trade9');
insert into drug values(1010,'generic10', 'trade10');
insert into drug values(1011,'generic11', 'trade11');
insert into drug values(1012,'generic12', 'trade12');
insert into drug values(1013,'generic13', 'trade13');
insert into drug values(1014,'generic14', 'trade14');
insert into drug values(1015,'generic15', 'trade15');
insert into drug values(1016,'generic16', 'trade16');
```

```
insert into drug values(1017,'generic17', 'trade17');
insert into drug values(1018,'generic18', 'trade18');
insert into drug values(1019,'generic19', 'trade19');
insert into drug values(1020,'generic20', 'trade20');
```

-----**Pharmaceutical Company insert statements**-----

```
insert into pharmco values(2001,'name1', '4671444149');
insert into pharmco values(2002,'name2', '1958744575');
insert into pharmco values(2003,'name3', '9470586786');
insert into pharmco values(2004,'name4', '3525269464');
insert into pharmco values(2005,'name5', '4864554659');
insert into pharmco values(2006,'name6', '3891762295');
insert into pharmco values(2007,'name7', '8020588593');
insert into pharmco values(2008,'name8', '5338040041');
insert into pharmco values(2009,'name9', '2300529816');
insert into pharmco values(2010,'name10', '6572661920');
insert into pharmco values(2011,'name11', '4059846866');
insert into pharmco values(2012,'name12', '2652038545');
insert into pharmco values(2013,'name13', '1531908329');
insert into pharmco values(2014,'name14', '4142456506');
insert into pharmco values(2015,'name15', '1884517035');
insert into pharmco values(2016,'name16', '3910553578');
insert into pharmco values(2017,'name17', '8783089216');
insert into pharmco values(2018,'name18', '5842269581');
insert into pharmco values(2019,'name19', '5031471496');
insert into pharmco values(2020,'name20', '8791851335');
```

-----**Pharmacy insert statements**-----

```
insert into pharmacy values(3001,'pharmacy1', '6619881957', '123 random street', 'city1', 'state1',
'91867');
insert into pharmacy values(3002,'pharmacy2', '6522969641', '124 random street', 'city2', 'state2',
'91578');
insert into pharmacy values(3003,'pharmacy3', '5911653675', '125 random street', 'city3', 'state3',
'91289');
insert into pharmacy values(3004,'pharmacy4', '4429667304', '126 random street', 'city4', 'state4',
'91000');
insert into pharmacy values(3005,'pharmacy5', '6589126931', '127 random street', 'city5', 'state5',
'90711');
insert into pharmacy values(3006,'pharmacy6', '8077649812', '128 random street', 'city6', 'state6',
'90422');
```



```

insert into pharmacy values(3007,'pharmacy7', '3452602786', '129 random street', 'city7', 'state7',
'90133');
insert into pharmacy values(3008,'pharmacy8', '5392876045', '130 random street', 'city8', 'state8',
'89844');
insert into pharmacy values(3009,'pharmacy9', '4326634634', '131 random street', 'city9', 'state9',
'89555');
insert into pharmacy values(3010,'pharmacy10', '6400190457', '132 random street', 'city10',
'state10', '89266');
insert into pharmacy values(3011,'pharmacy11', '1307196720', '133 random street', 'city11',
'state11', '88977');
insert into pharmacy values(3012,'pharmacy12', '9811307950', '134 random street', 'city12',
'state12', '88688');
insert into pharmacy values(3013,'pharmacy13', '6993265082', '135 random street', 'city13',
'state13', '88399');
insert into pharmacy values(3014,'pharmacy14', '2917702874', '136 random street', 'city14',
'state14', '88110');
insert into pharmacy values(3015,'pharmacy15', '6159964507', '137 random street', 'city15',
'state15', '87821');
insert into pharmacy values(3016,'pharmacy16', '5535593836', '138 random street', 'city16',
'state16', '87532');
insert into pharmacy values(3017,'pharmacy17', '8523232057', '139 random street', 'city17',
'state17', '87243');
insert into pharmacy values(3018,'pharmacy18', '1652190991', '140 random street', 'city18',
'state18', '86954');
insert into pharmacy values(3019,'pharmacy19', '1087664759', '141 random street', 'city19',
'state19', '86665');
insert into pharmacy values(3020,'pharmacy20', '2860420187', '142 random street', 'city20',
'state20', '86376');

```

-----**Supervisor insert statements**-----

```

insert into supervisor values(4001,'Savannah', 'Savannah753@gmail.com', '9965765670');
insert into supervisor values(4002,'Alisson', 'Alisson753@gmail.com', '4972716202');
insert into supervisor values(4003,'Abbie', 'Abbie753@gmail.com', '3321630993');
insert into supervisor values(4004,'Leyla', 'Leyla753@gmail.com', '9575309989');
insert into supervisor values(4005,'Lydia', 'Lydia753@gmail.com', '3564199990');
insert into supervisor values(4006,'Will', 'Will753@gmail.com', '3994543740');
insert into supervisor values(4007,'Maleah', 'Maleah753@gmail.com', '7954573644');
insert into supervisor values(4008,'Johnathon', 'Johnathon753@gmail.com', '7221985291');
insert into supervisor values(4009,'Gavin', 'Gavin753@gmail.com', '2049016088');
insert into supervisor values(4010,'Mary', 'Mary753@gmail.com', '6753373581');

```

insert into supervisor values(4011,'Santino', 'Santino753@gmail.com', '6078404378');  
insert into supervisor values(4012,'Isaiah', 'Isaiah753@gmail.com', '3247284454');  
insert into supervisor values(4013,'Isabel', 'Isabel753@gmail.com', '1581999801');  
insert into supervisor values(4014,'Jaylon', 'Jaylon753@gmail.com', '7133587774');  
insert into supervisor values(4015,'Curtis', 'Curtis753@gmail.com', '3931343975');  
insert into supervisor values(4016,'Elliott', 'Elliott753@gmail.com', '9528114404');  
insert into supervisor values(4017,'Marcos', 'Marcos753@gmail.com', '2519542130');  
insert into supervisor values(4018,'Brice', 'Brice753@gmail.com', '4074720466');  
insert into supervisor values(4019,'Roland', 'Roland753@gmail.com', '5943070208');  
insert into supervisor values(4020,'Darnell', 'Darnell753@gmail.com', '9205446323');

-----Prescription insert statements-----

insert into prescription values(5001,93,'2022-01-08', 'Lorem ipsum dolor sit amet, consectetur ',  
1,5,4, 1019);  
insert into prescription values(5002,28,'2021-02-15', 'Lorem ipsum dolor sit amet, consectetur ',  
0,3,4, 1006);  
insert into prescription values(5003,38,'2021-10-08', 'Lorem ipsum dolor sit amet, consectetur ',  
0,4,4, 1019);  
insert into prescription values(5004,22,'2022-04-06', 'Lorem ipsum dolor sit amet, consectetur ',  
0,2,3, 1006);  
insert into prescription values(5005,69,'2019-06-14', 'Lorem ipsum dolor sit amet, consectetur ',  
1,4,4, 1001);  
insert into prescription values(5006,97,'2021-12-22', 'Lorem ipsum dolor sit amet, consectetur ',  
1,10,3, 1006);  
insert into prescription values(5007,65,'2019-05-07', 'Lorem ipsum dolor sit amet, consectetur ',  
1,10,4, 1005);  
insert into prescription values(5008,37,'2021-03-07', 'Lorem ipsum dolor sit amet, consectetur ',  
1,1,4, 1008);  
insert into prescription values(5009,36,'2019-05-03', 'Lorem ipsum dolor sit amet, consectetur ',  
0,9,3, 1007);  
insert into prescription values(5010,60,'2021-05-22', 'Lorem ipsum dolor sit amet, consectetur ',  
0,5,3, 1012);  
insert into prescription values(5011,21,'2020-12-19', 'Lorem ipsum dolor sit amet, consectetur ',  
1,4,2, 1019);  
insert into prescription values(5012,39,'2019-03-14', 'Lorem ipsum dolor sit amet, consectetur ',  
0,5,4, 1020);  
insert into prescription values(5013,97,'2019-12-24', 'Lorem ipsum dolor sit amet, consectetur ',  
0,3,2, 1018);  
insert into prescription values(5014,23,'2021-08-08', 'Lorem ipsum dolor sit amet, consectetur ',  
0,6,4, 1004);

```
insert into prescription values(5015,36,'2019-05-01', 'Lorem ipsum dolor sit amet, consectetur ',
1,2,4, 1006);
insert into prescription values(5016,48,'2020-12-08', 'Lorem ipsum dolor sit amet, consectetur ',
1,6,4, 1017);
insert into prescription values(5017,98,'2019-07-05', 'Lorem ipsum dolor sit amet, consectetur ',
0,1,2, 1011);
insert into prescription values(5018,37,'2019-06-11', 'Lorem ipsum dolor sit amet, consectetur ',
1,10,4, 1008);
insert into prescription values(5019,19,'2019-06-08', 'Lorem ipsum dolor sit amet, consectetur ',
1,9,3, 1010);
insert into prescription values(5020,83,'2019-11-20', 'Lorem ipsum dolor sit amet, consectetur ',
0,9,2, 1008);
```

-----**PharmCo\_has\_drug insert statements**-----

```
insert into pharmco_has_drug values(1012,2020);
insert into pharmco_has_drug values(1013,2004);
insert into pharmco_has_drug values(1012,2008);
insert into pharmco_has_drug values(1001,2019);
insert into pharmco_has_drug values(1012,2001);
insert into pharmco_has_drug values(1009,2008);
insert into pharmco_has_drug values(1009,2004);
insert into pharmco_has_drug values(1010,2020);
insert into pharmco_has_drug values(1006,2006);
insert into pharmco_has_drug values(1017,2007);
insert into pharmco_has_drug values(1005,2007);
insert into pharmco_has_drug values(1005,2016);
insert into pharmco_has_drug values(1006,2014);
insert into pharmco_has_drug values(1004,2011);
insert into pharmco_has_drug values(1019,2008);
insert into pharmco_has_drug values(1003,2007);
insert into pharmco_has_drug values(1015,2017);
insert into pharmco_has_drug values(1013,2005);
insert into pharmco_has_drug values(1002,2019);
insert into pharmco_has_drug values(1005,2017);
```

-----**Contract insert statements**-----

```
insert into contracts values(2015, 3016,'41399', '44778', 'Ut enim ad minim veniam, quis nostrud
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint
```

occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4003);

insert into contracts values(2007, 3015,'41302', '43816', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4007);

insert into contracts values(2005, 3013,'41156', '43692', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4016);

insert into contracts values(2020, 3007,'41421', '44823', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4011);

insert into contracts values(2017, 3012,'41558', '44584', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4009);

insert into contracts values(2008, 3001,'41971', '44152', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4019);

insert into contracts values(2008, 3015,'41472', '42583', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4008);

insert into contracts values(2007, 3010,'41995', '43830', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4012);

insert into contracts values(2001, 3009,'41697', '44393', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint

occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4005);

insert into contracts values(2014, 3017,'41686', '44180', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4015);

insert into contracts values(2009, 3014,'41708', '43086', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4012);

insert into contracts values(2018, 3010,'42141', '42573', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4013);

insert into contracts values(2015, 3009,'41677', '43001', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4005);

insert into contracts values(2006, 3010,'41427', '44672', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4012);

insert into contracts values(2007, 3006,'41505', '42560', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4014);

insert into contracts values(2001, 3013,'41739', '44265', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4016);

insert into contracts values(2012, 3018,'41778', '43263', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint

occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4001);

insert into contracts values(2002, 3014,'41897', '42952', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4017);

insert into contracts values(2001, 3004,'42098', '43614', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4001);

insert into contracts values(2008, 3016,'42195', '43130', 'Ut enim ad minim veniam, quis nostrud  
exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in  
reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint  
occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.',  
4020);

#### -----**Drug\_price insert statements**-----

insert into drug\_price values(3005,1006, '118');  
insert into drug\_price values(3019,1017, '131');  
insert into drug\_price values(3009,1007, '111');  
insert into drug\_price values(3015,1009, '20');  
insert into drug\_price values(3002,1005, '87');  
insert into drug\_price values(3003,1010, '112');  
insert into drug\_price values(3008,1019, '80');  
insert into drug\_price values(3001,1010, '85');  
insert into drug\_price values(3005,1005, '36');  
insert into drug\_price values(3010,1003, '79');  
insert into drug\_price values(3002,1019, '85');  
insert into drug\_price values(3016,1003, '149');  
insert into drug\_price values(3017,1010, '102');  
insert into drug\_price values(3007,1016, '99');  
insert into drug\_price values(3004,1006, '58');  
insert into drug\_price values(3018,1016, '73');  
insert into drug\_price values(3019,1012, '43');  
insert into drug\_price values(3003,1019, '126');  
insert into drug\_price values(3020,1003, '99');  
insert into drug\_price values(3002,1002, '16');

-----**Fill insert statements**-----

```
insert into fill values(6001,'2022-03-08', 5001, 3001, 2008);
insert into fill values(6002,'2021-05-15', 5002, 3015, 2015);
insert into fill values(6003,'2021-12-08', 5003, 3009, 2017);
insert into fill values(6004,'2022-07-06', 5004, 3014, 2007);
insert into fill values(6005,'2019-08-14', 5005, 3012, 2012);
insert into fill values(6006,'2021-12-31', 5006, 3003, 2009);
insert into fill values(6007,'2019-07-07', 5007, 3017, 2019);
insert into fill values(6008,'2021-05-07', 5008, 3005, 2013);
insert into fill values(6009,'2019-06-03', 5009, 3020, 2018);
insert into fill values(6010,'2021-07-22', 5010, 3018, 2014);
insert into fill values(6011,'2020-12-29', 5011, 3004, 2007);
insert into fill values(6012,'2019-04-14', 5012, 3009, 2011);
insert into fill values(6013,'2019-12-28', 5013, 3004, 2015);
insert into fill values(6014,'2021-09-08', 5014, 3020, 2006);
insert into fill values(6015,'2019-06-01', 5015, 3018, 2002);
insert into fill values(6016,'2020-12-28', 5016, 3013, 2005);
insert into fill values(6017,'2019-07-15', 5017, 3009, 2018);
insert into fill values(6018,'2019-06-21', 5018, 3011, 2015);
insert into fill values(6019,'2019-06-18', 5019, 3005, 2005);
insert into fill values(6020,'2019-11-30', 5020, 3004, 2010);
```

## Appendix D: SQL Statements

1. *How many prescriptions did radiology and cardiology write in May 2019 and June 2019?*

```
select specialty, count(prescription_date) as prescriptions_given
from prescription join doctor using(doctor_id)
where specialty = 'radiology' and (prescription_date like '2019-05%' or prescription_date
like '2019-06%')
union
select specialty, count(prescription_date) as prescriptions_given
from prescription join doctor using(doctor_id)
where specialty = 'cardiology' and (prescription_date like '2019-05%' or prescription_date
like '2019-06%');
```

2. *Create a view named "filldata" showing columns generic name, quantity, pharmacy name, and fill\_date. What drugs and their quantity were used to fill prescriptions from 2018 to 2019 by pharmacy9?*

```
create view fillData as
    select drug.genericName, prescription.quantity, pharmacy.name, fill.fill_date
    from fill join prescription using(rx_id) join drug using(drug_id)
        join pharmacy using(pharmacy_id)
    order by fill.fill_date;

select genericName, quantity
from filldata
where name = 'pharmacy9' and (fill_date like '2018%' or fill_date like '2019%')
order by genericName;
```

3. *List the doctor name, prescription date, rx id, and patient name of prescriptions written by doctors with at least 20 years of experience.*

```
select doctor.name as doctor_name, prescription_date, RX_id, patient.name as
patient_name
from prescription join doctor using(doctor_id) join patient using(patient_id)
where 2022 - year_started >= 20;
```

4. *List the name and specialty of doctors that have 3 or more patients.*

```
select doctor.name, specialty
from doctor join patient using(doctor_id)
group by doctor.name
```



having count(patient\_id) >=3;

5. *List all Pharmaceutical companies that produce drugs with id 1005 and 1012.*

select \*

from pharmco\_has\_drug join pharmco on pharmco\_has\_drug.PharmCo\_PharmCo\_id  
pharmco.PharmCo\_id

where Drug\_Drug\_id = 1005 or Drug\_Drug\_id = 1012;