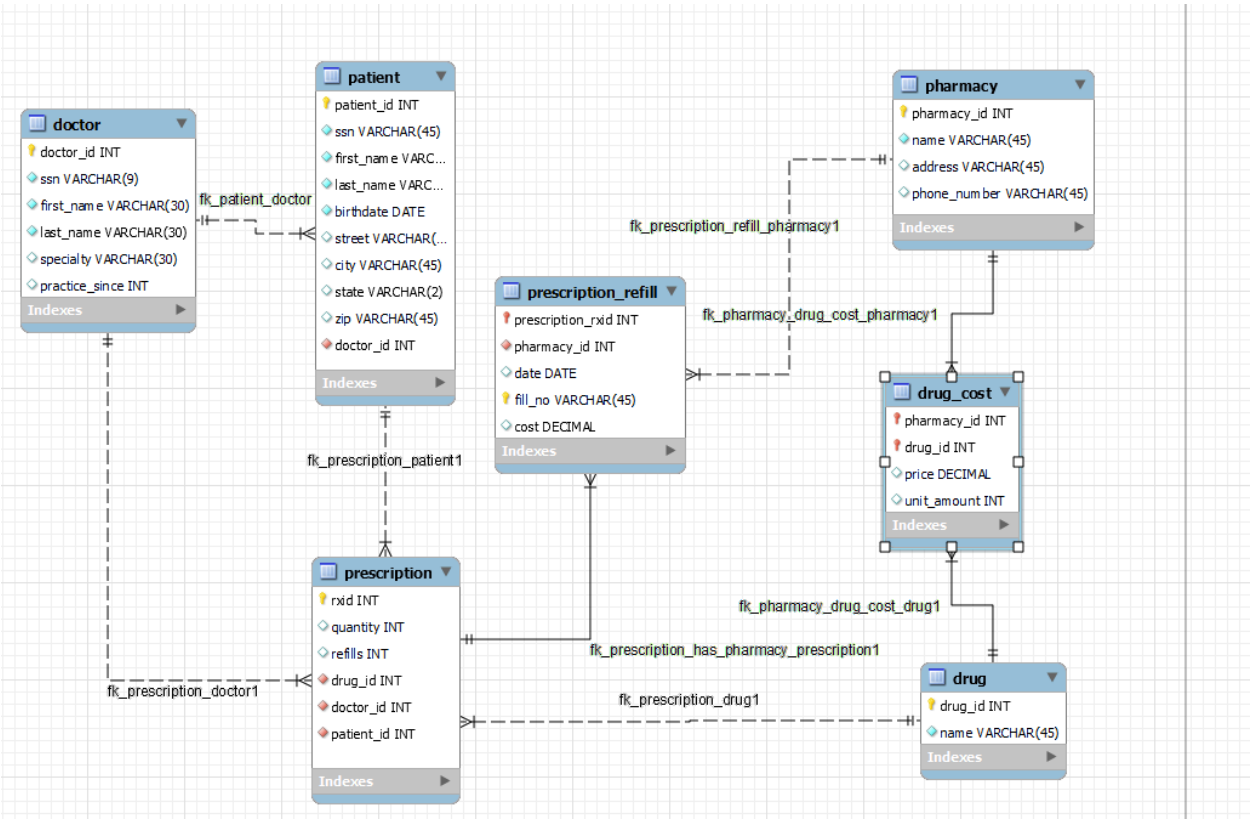
Lab 19: Web App JDBC

Group 7
Khanh Nguyen
Dominick Racela
Gary Kuepper

ER Diagram



This is a design for a database that is used by pharmacies to track patient prescriptions. In addition, the database also stores information about doctors and patients.There are five basic entities: **Doctor**, **Patien**t, **Drug**, **Pharmacy**, and **Prescription**. There are two additional junction tables, **prescription_refill** which is used for entering refills, and **drug_cost** which determines the cost of a drug.

SQL Schema

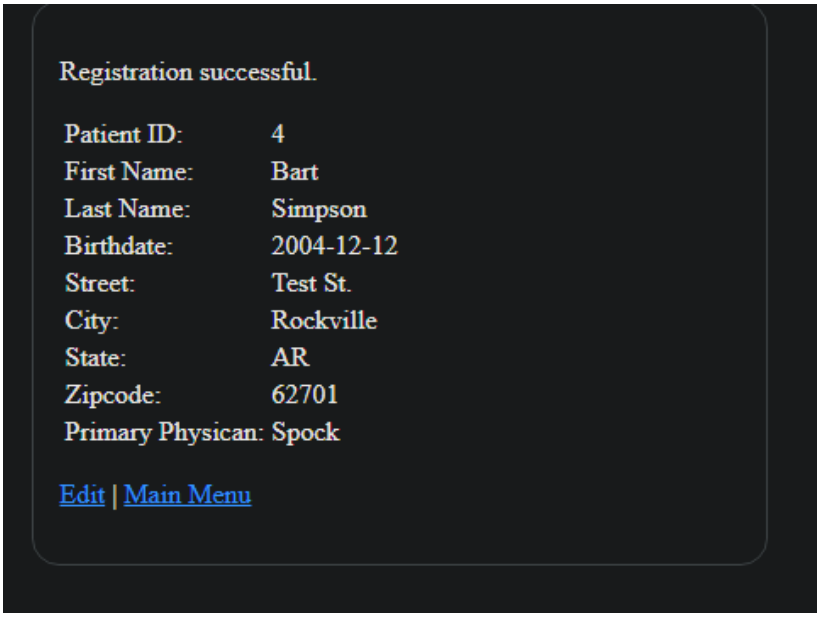
```
CREATE TABLE IF NOT EXISTS `mydb`.`doctor` (
  `doctor_id` INT NOT NULL AUTO_INCREMENT,
  `ssn` VARCHAR(9) NOT NULL,
  `first_name` VARCHAR(30) NOT NULL,
  `last_name` VARCHAR(30) NOT NULL,
  `specialty` VARCHAR(30) NULL,
  `practice_since` INT NULL,
  PRIMARY KEY (`doctor_id`),
  UNIQUE INDEX `ssn_UNIQUE` (`ssn` ASC) VISIBLE)
ENGINE = InnoDB;


-- -----------------------------------------------------
-- Table `mydb`.`patient`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`patient` ;

CREATE TABLE IF NOT EXISTS `mydb`.`patient` (
  `patient_id` INT NOT NULL,
  `ssn` VARCHAR(45) NOT NULL,
  `first_name` VARCHAR(45) NOT NULL,
  `last_name` VARCHAR(45) NOT NULL,
  `birthdate` DATE NOT NULL,
  `street` VARCHAR(45) NULL,
  `city` VARCHAR(45) NULL,
  `state` VARCHAR(2) NULL,
  `zip` VARCHAR(45) 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`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`drug` ;
```

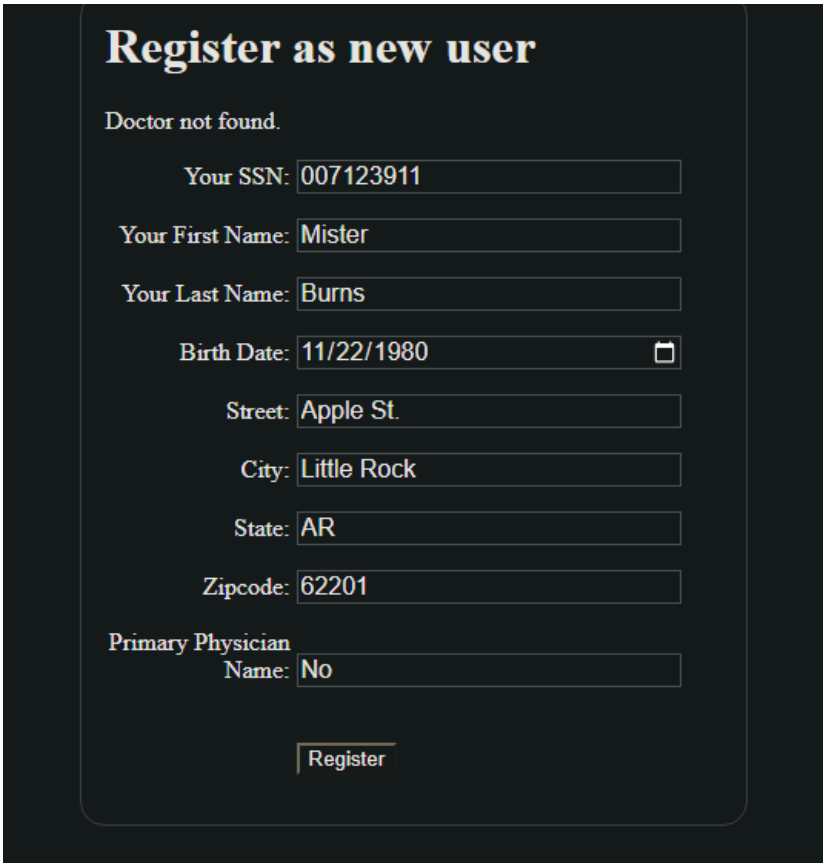
```
CREATE TABLE IF NOT EXISTS `mydb`.`drug` (
  `drug_id` INT NOT NULL,
  `name` VARCHAR(45) NOT NULL,
  PRIMARY KEY (`drug_id`))
ENGINE = InnoDB;


-- -----------------------------------------------------
-- Table `mydb`.`pharmacy`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`pharmacy` ;

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


-- -----------------------------------------------------
-- Table `mydb`.`prescription`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`prescription` ;

CREATE TABLE IF NOT EXISTS `mydb`.`prescription` (
  `rxid` INT NOT NULL,
  `quantity` INT NULL,
  `refills` INT NULL,
  `drug_id` INT NOT NULL,
  `doctor_id` INT NOT NULL,
  `patient_id` INT NOT NULL,
  PRIMARY KEY (`rxid`),
  INDEX `fk_prescription_drug1_idx` (`drug_id` ASC) VISIBLE,
  INDEX `fk_prescription_doctor1_idx` (`doctor_id` ASC) VISIBLE,
  INDEX `fk_prescription_patient1_idx` (`patient_id` ASC) VISIBLE,
  CONSTRAINT `fk_prescription_drug1`
    FOREIGN KEY (`drug_id`)
    REFERENCES `mydb`.`drug` (`drug_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_patient1`
    FOREIGN KEY (`patient_id`)
    REFERENCES `mydb`.`patient` (`patient_id`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;


-- -----------------------------------------------------
-- Table `mydb`.`drug_cost`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`drug_cost` ;

CREATE TABLE IF NOT EXISTS `mydb`.`drug_cost` (
  `pharmacy_id` INT NOT NULL,
  `drug_id` INT NOT NULL,
  `price` DECIMAL NULL,
  `unit_amount` INT 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`.`prescription_refill`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`prescription_refill` ;

CREATE TABLE IF NOT EXISTS `mydb`.`prescription_refill` (
```

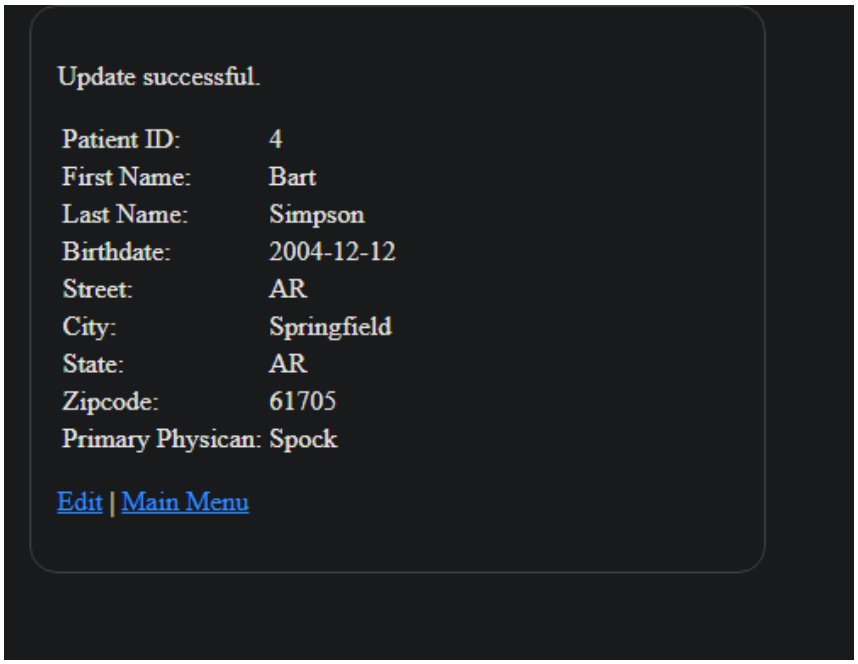
```
  `prescription_rxid` INT NOT NULL,
  `pharmacy_id` INT NOT NULL,
  `date` DATE NULL,
  `fill_no` VARCHAR(45) NOT NULL,
  `cost` DECIMAL NULL,
  PRIMARY KEY (`prescription_rxid`, `fill_no`),
  INDEX `fk_prescription_has_pharmacy_pharmacy1_idx` (`pharmacy_id` ASC) VISIBLE,
  INDEX `fk_prescription_has_pharmacy_prescription1_idx` (`prescription_rxid` ASC) VISIBLE,
  CONSTRAINT `fk_prescription_has_pharmacy_prescription1`
    FOREIGN KEY (`prescription_rxid`)
    REFERENCES `mydb`.`prescription` (`rxid`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
  CONSTRAINT `fk_prescription_has_pharmacy_pharmacy1`
    FOREIGN KEY (`pharmacy_id`)
    REFERENCES `mydb`.`pharmacy` (`pharmacy_id`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;
```

Screenshots

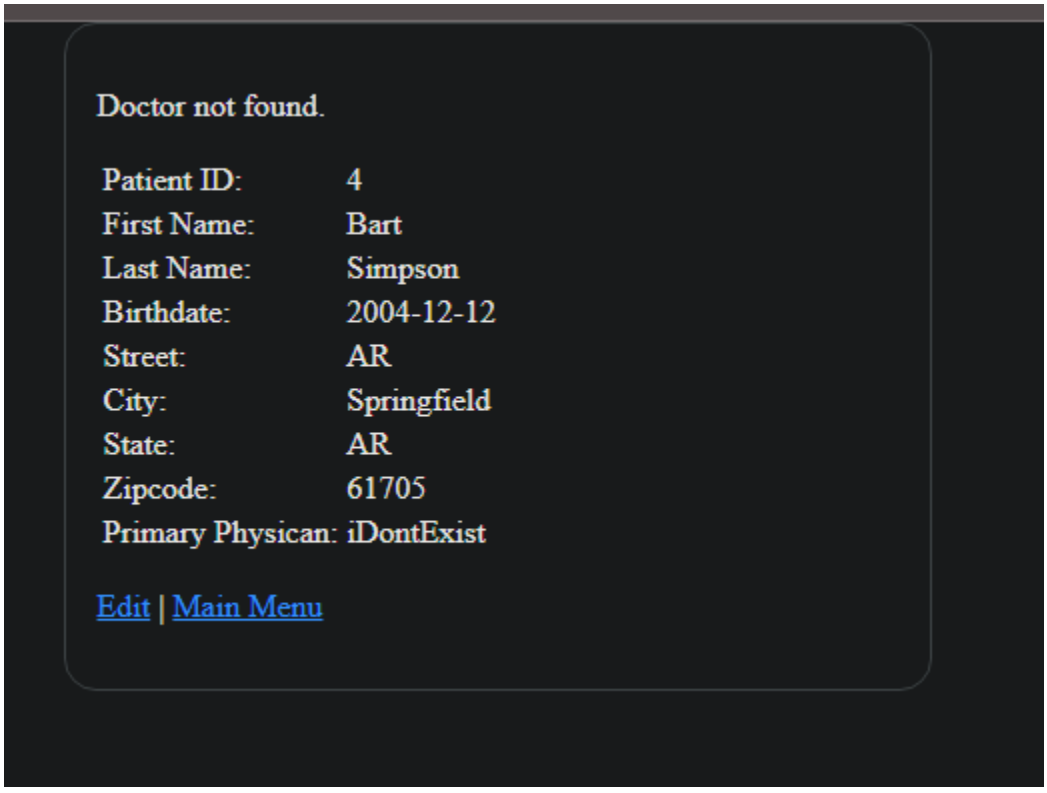
1. Register as a new patient with last name “Simpson”, city “Rockville”, zip code 62701 and a doctor with name “Spock”. Show a successful registration.
   - o 

2. Attempt to register as a new patient with last name “Burns” but with a doctor name that does not exist. Show a screenshot of the patient register form with the error message.
   - o 

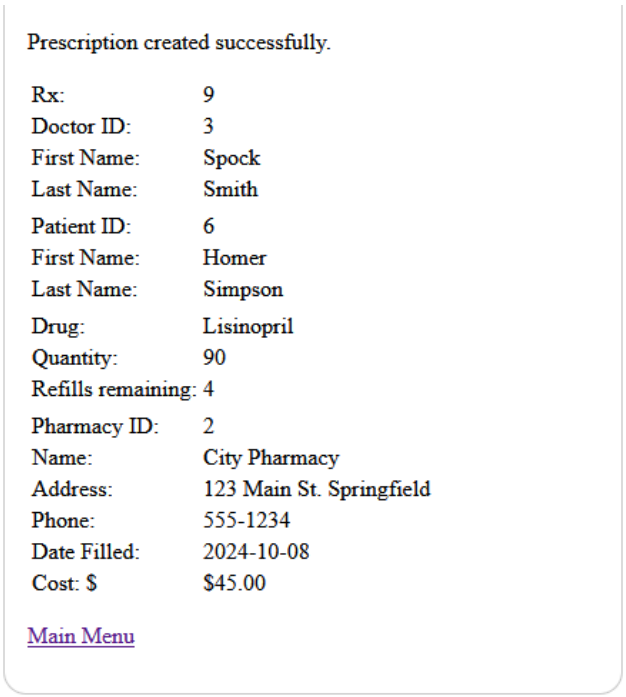
3. Get the profile for patient “Simpson” and edit the patient record for “Simpson” and change city to Springfield and zip code to 61705. Show the web page of the successful update.



4. Edit the patient record for “Simpson”. Attempt to change the doctor’s name to a doctor that does not exist. Show the error message and edit patient form.



5. Create a prescription for the patient “Simpson” and doctor “Spock” for a drug “lisinopril” and quantity 90. Show the screen with the success message and prescription display.

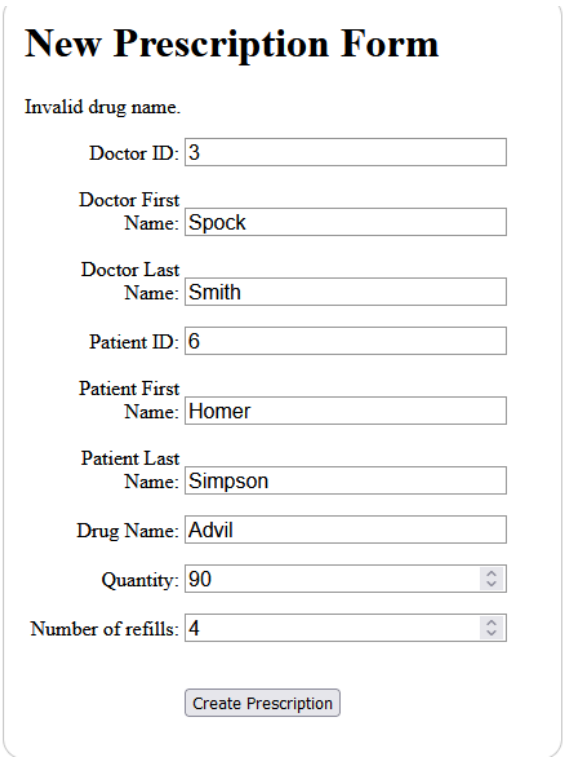


Prescription created successfully.

Rx:	9
Doctor ID:	3
First Name:	Spock
Last Name:	Smith
Patient ID:	6
First Name:	Homer
Last Name:	Simpson
Drug:	Lisinopril
Quantity:	90
Refills remaining:	4
Pharmacy ID:	2
Name:	City Pharmacy
Address:	123 Main St. Springfield
Phone:	555-1234
Date Filled:	2024-10-08
Cost: $	$45.00

Main Menu

6. Attempt to create a prescription with an invalid drug name. Show a screen with the create prescription form and error message.



New Prescription Form

Invalid drug name.

Doctor ID: 3

Doctor First Name: Spock

Doctor Last Name: Smith

Patient ID: 6

Patient First Name: Homer

Patient Last Name: Simpson

Drug Name: Advil

Quantity: 90

Number of refills: 4

Create Prescription

7. Attempt to fill a prescription with an invalid pharmacy name.

8. Attempt to fill a prescription with an invalid rxid.

9. Fill the prescription with success.