```sql
DROP TABLE IF EXISTS VaccineRecord;
DROP TABLE IF EXISTS Appointment;
DROP TABLE IF EXISTS PatientUser;
DROP TABLE IF EXISTS DoctorUser;
DROP TABLE IF EXISTS AdminUser;
DROP TABLE IF EXISTS GPSurgery;



#create GPSurgery table (we added it so that the application may contain multiple
GP Surgeries in future)
CREATE TABLE GPSurgery
(

    surgeryCode             INTEGER(4) AUTO_INCREMENT,
    surgeryName             VARCHAR(50),
    openingHour             DECIMAL(2,2),
    closingHour             DECIMAL(2,2),
    CONSTRAINT pk_gp_surgery PRIMARY KEY (surgeryCode)

);
ALTER TABLE GPSurgery AUTO_INCREMENT=1000;

#create PatientUser table
CREATE TABLE PatientUser
(
    userId              INTEGER(8)      AUTO_INCREMENT,
    NHSNumber           INTEGER         NOT NULL UNIQUE,
    forename            TEXT            NOT NULL,
    surname             TEXT            NOT NULL,
    userEmail           VARCHAR(50)     NOT NULL UNIQUE,
    contactNo           VARCHAR(20)     NOT NULL,
    userPassword        VARCHAR(20)     NOT NULL,
    personDOB           DATE            NOT NULL,
    postCode            TEXT            NOT NULL,
    registrationStatus  INTEGER(1)      NOT NULL,
    surgeryCode         INTEGER,
    updaterUserId       INTEGER,
    CONSTRAINT pk_patient_user PRIMARY KEY (userId),
    CONSTRAINT p_sc_fk FOREIGN KEY (surgeryCode) REFERENCES GPSurgery(surgeryCode),
    CONSTRAINT p_upd_fk FOREIGN KEY (updaterUserId) REFERENCES PatientUser(userId)
);
ALTER TABLE PatientUser AUTO_INCREMENT=10000000;

#create DoctorUser table
CREATE TABLE DoctorUser
(
    userId              INTEGER(7)      AUTO_INCREMENT,
    licenceNo           INTEGER(8)      NOT NULL UNIQUE,
    forename            VARCHAR(50)     NOT NULL,
    surname             VARCHAR(50)     NOT NULL,
```

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    userEmail              VARCHAR(50)     NOT NULL UNIQUE,
    contactNo              VARCHAR(20)     NOT NULL,
    userPassword           VARCHAR(20)     NOT NULL,
    surgeryCode            INTEGER(8),

    CONSTRAINT pk_doctor_user PRIMARY KEY (userId),
    CONSTRAINT d_sc_fk FOREIGN KEY (surgeryCode) REFERENCES GPSurgery(surgeryCode)

);

ALTER TABLE DoctorUser AUTO_INCREMENT=1000000;


#create AdminUser table
CREATE TABLE AdminUser
(
    userId                 INTEGER(6)      AUTO_INCREMENT,
    forename               VARCHAR(50)     NOT NULL,
    surname                VARCHAR(50)     NOT NULL,
    userEmail              VARCHAR(50)     NOT NULL UNIQUE,
    contactNo              VARCHAR(20)     NOT NULL,
    userPassword           VARCHAR(20)     NOT NULL,
    surgeryCode            INTEGER(8),

    CONSTRAINT pk_admin_user PRIMARY KEY (userId),
    CONSTRAINT adm_sc_fk FOREIGN KEY (surgeryCode) REFERENCES
GPSurgery(surgeryCode)

);
ALTER TABLE AdminUser AUTO_INCREMENT=100000;




#create Appointment table
CREATE TABLE Appointment
(
    bookingRefNo              INTEGER(10) AUTO_INCREMENT,
    NHSNumber                 INTEGER NOT NULL,
    licenceNo                 INTEGER NOT NULL,
    canceledBy                INTEGER,
    surgeryCode               INTEGER NOT NULL,
    appointmentStatus         VARCHAR(1),
    appointmentTime           DECIMAL(2,2),
    patientNotes              VARCHAR(300),
    CONSTRAINT pk_appointment PRIMARY KEY (bookingRefNo, NHSNumber, licenceNO),
    CONSTRAINT app_nhs_fk FOREIGN KEY (NHSNumber) REFERENCES PatientUser
(NHSNumber),
    CONSTRAINT app_ln_fk FOREIGN KEY (licenceNo) REFERENCES DoctorUser (licenceNo),
    CONSTRAINT app_adcan_fk FOREIGN KEY (canceledBy) REFERENCES AdminUser (userId),
```

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    CONSTRAINT app_pcan_fk FOREIGN KEY (canceledBy) REFERENCES PatientUser
(userId),
    CONSTRAINT app_sc_fk FOREIGN KEY (surgeryCode) REFERENCES GPSurgery
(surgeryCode)

);



#create VaccineRecord table
CREATE TABLE VaccineRecord
(
    doseNo                  INTEGER NOT NULL,
    NHSNumber               INTEGER NOT NULL,
    vaccinationDate         DATE NOT NULL,
    vaccineManufacturer     TEXT NOT NULL,
    diseaseTargeted         TEXT NOT NULL,
    vaccineType             TEXT NOT NULL,
    product                 TEXT NOT NULL,
    vaccineBatchNumber      TEXT NOT NULL,
    countryOfVaccination    TEXT NOT NULL,
    authority               TEXT NOT NULL,
    vaccineSite             TEXT NOT NULL,
    totalSeriesOfDoses      INTEGER NOT NULL,
    displayName             TEXT NOT NULL,
    snomedCode              INTEGER NOT NULL,
    dateEntered             DATE NOT NULL,
    procedureCode           INTEGER NOT NULL,
    booster                 BOOLEAN NOT NULL,
    licenceNo               INTEGER NOT NULL,
    CONSTRAINT pk_vaccine_record PRIMARY KEY (NHSNumber, doseNo),
    CONSTRAINT fk1 FOREIGN KEY (NHSNumber) REFERENCES PatientUser(NHSNumber),
    CONSTRAINT fk2 FOREIGN KEY (licenceNo) REFERENCES DoctorUser(licenceNo)

);
```