

Database Design Project Phase 2 Submission Template

CS 3200 - Spring 2023

This **Phase 2 Template** simply adds pages to the end of your Phase 1 proposal.

Directions:

1. Copy the new pages to the end of your team's Phase 1 proposal. As needed, update "Phase 1" in headers to "Phase 2".
2. Complete all the sections on the subsequent pages.
3. Download a PDF of this document (File Menu > Download > PDF Document).
4. Submit the PDF to Gradescope (in addition to the SQL file for your DB).
 - a. Submission on Gradescope will be by group.
 - b. The team member submitting needs to indicate/choose all team members during the submission process. **If you do not do this, grades will not get properly synced with Canvas.**

Please note, your group can take creative liberties with the look and feel of this document. You can change the fonts, colors, etc. However, please leave the information in the same order as it is in this document.

Additionally, I fully expect that as you're working on Phase 2, your team will want to make some modifications to what you submitted in Phase 1 - maybe you want to update or change some user stories, or maybe you realize two of your personas are actually the same. Feel free to update your Personas and User Stories as you continue to develop your project idea. This is completely reasonable.

Link to your group's copy of this Google Doc:

<https://docs.google.com/document/d/1zsl2fNcXUrK9KLCPzvCsZVVUZHqy5qhBvny7bX-imvU/edit?usp=sharing>

Part 1: Team and Project Info

Team Name:	Healthy Huskies
Product/Project Name:	HuskyHealth

Team Members:

	Name (as appears on Canvas):	Northeastern Email Address:
Member 1 (Point Person)	Jeffrey Pan	pan.je@northeastern.edu
Member 2	Krystal Qiao	qiao.k@northeastern.edu
Member 3	Justin Soto	soto.ju@northeastern.edu
Member 4	Joseph King	king.jos@northeastern.edu
Member 5 (optional)	Emily Liu	liu.emi@northeastern.edu

Part 2: Brief Synopsis of Project/Product

HuskyHealth is a Personal Health Record (PHR) System designed exclusively for the Northeastern University community. As a hub for health data management, HuskyHealth empowers Northeastern students, faculty, and staff to take charge of their health information with ease and security. Tailored to students, HuskyHealth provides a centralized digital hub where users can manage their medical histories, track medications, and receive wellness assistance. The platform is engineered to align with the health dynamics of a diverse student body and campus professionals, ensuring that each user can maintain a complete and up-to-date health profile that complements their active lifestyle. Integrating directly with the university health services, HuskyHealth streamlines the appointment scheduling process, offering an interface to book health consultations, counseling sessions, and wellness check-ups. It also provides timely reminders for upcoming appointments and vaccinations, ensuring that members of the Northeastern community remain proactive about their health. The system boasts a secure communication channel, facilitating confidential conversations between students and healthcare providers. Whether it's a question about a sudden health concern or the need for prescription refills during finals week, HuskyHealth ensures that quality guidance is just a message away. Furthermore, HuskyHealth is a source of personalized wellness education. It delivers tailored content, ranging from stress management strategies during exam periods to nutrition tips for on-the-go students. HuskyHealth thus provides an essential, user-friendly resource for the Northeastern University community, championing health management with ease and efficiency.

Part 3: User Personas

Persona 1: Patient/Student

Name: Maya Chen



Bio:

Maya is a 21-year-old junior majoring in Environmental Science at Northeastern University. She juggles her academic responsibilities with her passion for rock climbing and volunteering at local community gardens. She prefers quick, healthy meals and is always looking for ways to stay healthy on a budget.

Age: 21

Gender: Female

Occupation: Full-time Student

Hobbies: Rock climbing, volunteering, cooking

Likes: Health-conscious eating, outdoor activities, mobile apps for productivity

Dislikes: Time-consuming administrative tasks, complicated app interfaces

User Stories for Persona 1:

- As a student-athlete, I want to efficiently manage my personal health records by logging my various wellness goals so that I can maintain optimal health and performance.
- As a busy student-athlete, I want instant access to my lab results through an app so that I can promptly take necessary actions without it interfering with my studies or training schedule.
- As a student-athlete with a tight schedule, I want to be able to view my scheduled appointments with campus health services through an app and receive timely notifications so that I can manage my time effectively.
- As a student-athlete, I want the ability to quickly contact my doctors or wellness coaches through an app for any health-related advice or concerns so that I can easily manage my

- healthcare needs, especially during peak academic times.
- As a budget-conscious student, I want a billing management feature within the HuskyHealth app that allows me to track bills, insurance claims, and out-of-pocket expenses so that I can maintain control over my healthcare spending.

Persona 2: Doctor

Name: Dr. Samuel Booker



Bio:

Dr. Booker is a 45-year-old general practitioner who has been with Northeastern University's Health and Counseling Services for a decade. He is tech-savvy and embraces innovations that can improve patient care. Outside the clinic, he enjoys cycling, reading historical fiction, and playing the saxophone.

Age: 45

Gender: Male

Occupation: University Doctor

Hobbies: Cycling, reading, playing the saxophone

Likes: Technological advancements in healthcare, efficiency, patient education

Dislikes: Redundant paperwork, missed appointments, lack of patient engagement

User Stories for Persona 2:

- As a dedicated physician, Dr. Booker wants the ability to access and review his patients' digital health records within the app so that he can have a comprehensive view of their health history, leading to more informed consultations and better continuity of care.
- As a busy doctor, Dr. Booker would like a feature in the HuskyHealth app to easily manage his appointment schedule to ensure he can maximize his time with each patient.
- As a healthcare provider, Dr. Booker wants a feature that enables him to upload and share lab results with patients directly through the HuskyHealth app, to streamline the communication process and help patients follow up on their care plans promptly.
- As a physician, Dr. Booker seeks to use an e-prescribing feature within HuskyHealth to send

prescriptions, enhancing efficiency and convenience for his patients.

- As a physician who wants the best for his patients, Dr. Booker desires a secure communication channel within the HuskyHealth app to respond to patient queries, provide follow-up advice, and reinforce treatment adherence.

Persona 3: Wellness Coach

Name: Jordan Lee



Bio:

Jordan is a 28-year-old certified wellness coach who collaborates with Northeastern to promote healthy lifestyles among students and staff. He is all about holistic health, mindfulness, and sustainable habits. Jordan is active on social media, sharing wellness tips, and enjoys urban gardening and pottery.

Age: 28

Gender: Male

Occupation: Wellness Coach

Hobbies: Urban gardening, pottery, social media

Likes: Mindfulness, holistic health, community engagement

Dislikes: Short-term diets, passive health strategies, misinformation online

User Stories for Persona 3:

- As a wellness coach, Jordan wants access to client health records, while maintaining privacy and consent, so that he can tailor wellness programs more effectively to each individual's medical background.
- As a wellness coach, Jordan wants to use the app's scheduling feature to book and manage sessions with clients, optimizing his time and ensuring he can offer personalized attention during each session.
- As a wellness professional, Jordan plans to use HuskyHealth to share educational content like diet plans, weight-loss strategies, and information on wellness activities, enhancing the value

he provides to his clients.

- As a fitness and nutrition expert, Jordan wants the ability to set and monitor goals within the app so that he can work with clients to track their progress in areas such as weight management, fitness levels, and nutritional intake, keeping motivation high and results tangible.
- As a wellness coach, Jordan wants the platform to open up new lines of communication with both patients and healthcare providers, enabling him to stay updated on his clients' health changes and collaborate with doctors to align on the best approaches for patient wellness.

Persona 4: Insurance Provider

Name: Alicia Ramirez



Bio:

Alicia is a 35-year-old insurance claims handler who specializes in student health plans. She's passionate about helping students understand and utilize their health benefits fully. Alicia is a data enthusiast and uses insights to improve service delivery. She enjoys salsa dancing on the weekends and blogs about work-life balance.

Age: 35

Gender: Female

Occupation: Health Insurance Provider

Hobbies: Salsa dancing, blogging, data analysis

Likes: Clarity, informed customers, data-driven decision-making

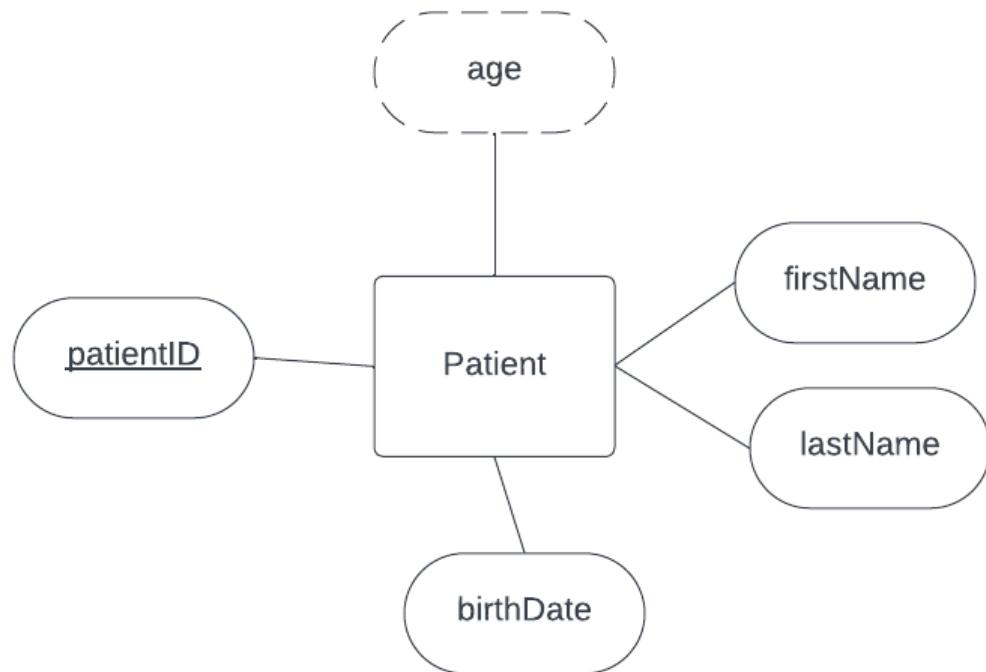
Dislikes: Misunderstandings about coverage, manual data entry, inefficiencies

User Stories for Persona 4:

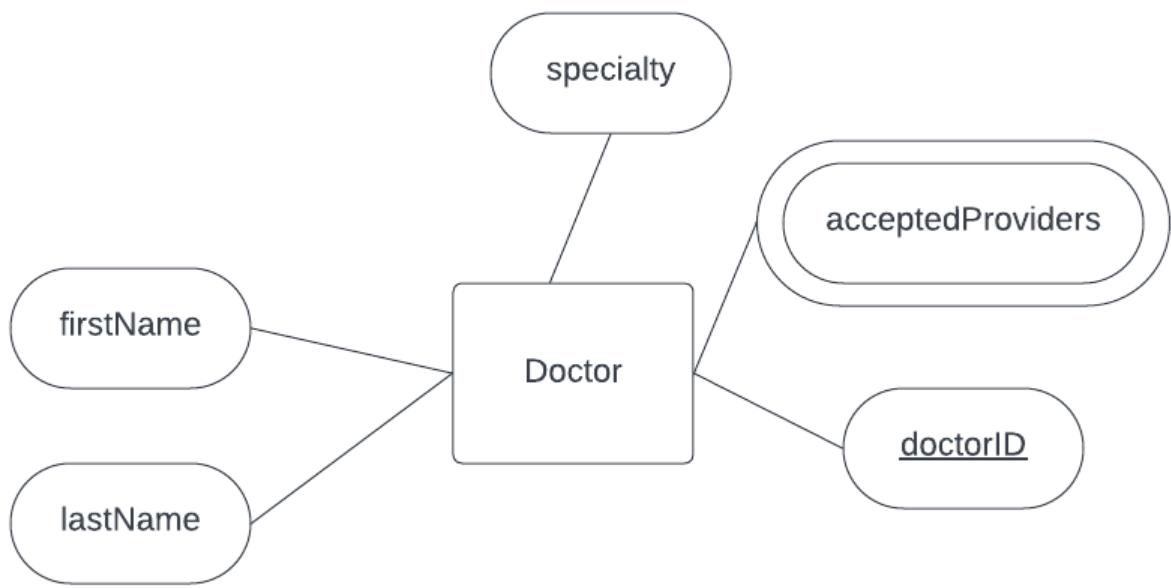
- As an insurance provider, Alicia would value the ability to view a patient's medical history while ensuring privacy compliance, so that she can better understand their needs and guide them to the right coverage package
- As an insurance package designer, Alicia wants to use HuskyHealth to craft and adjust bespoke coverage packages for students and staff, ensuring that their health benefits are well-suited to their lifestyles and medical needs.
- As a healthcare fund manager, Alicia wants the platform to enable her to oversee and allocate funds more efficiently, ensuring that appointments, visits, and medications are covered without causing financial stress to the insured.
- As an insurance coordinator, Alicia wants a direct line to doctors and specialists via HuskyHealth so that she can resolve any issues swiftly, facilitate approvals, and coordinate better care for the insured.

Part 4: Localized ER Diagrams

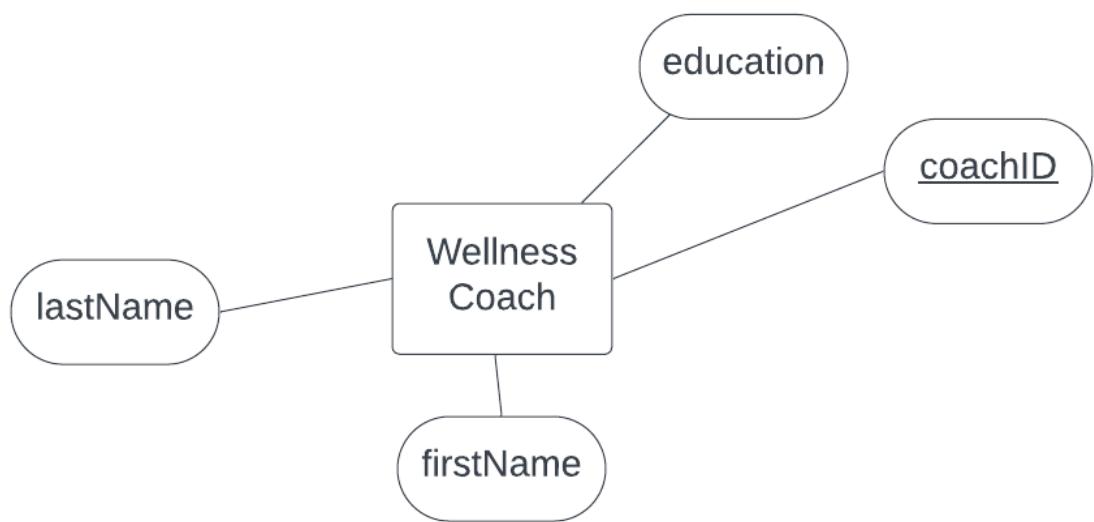
User Persona 1: Patient/Student



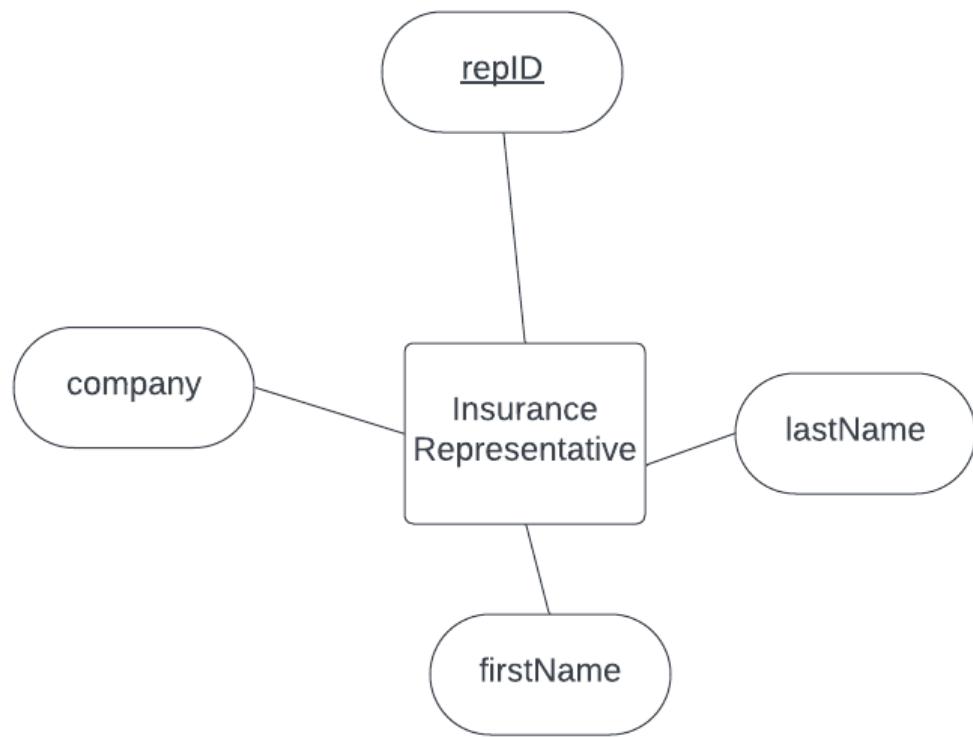
User Persona 2: Doctor



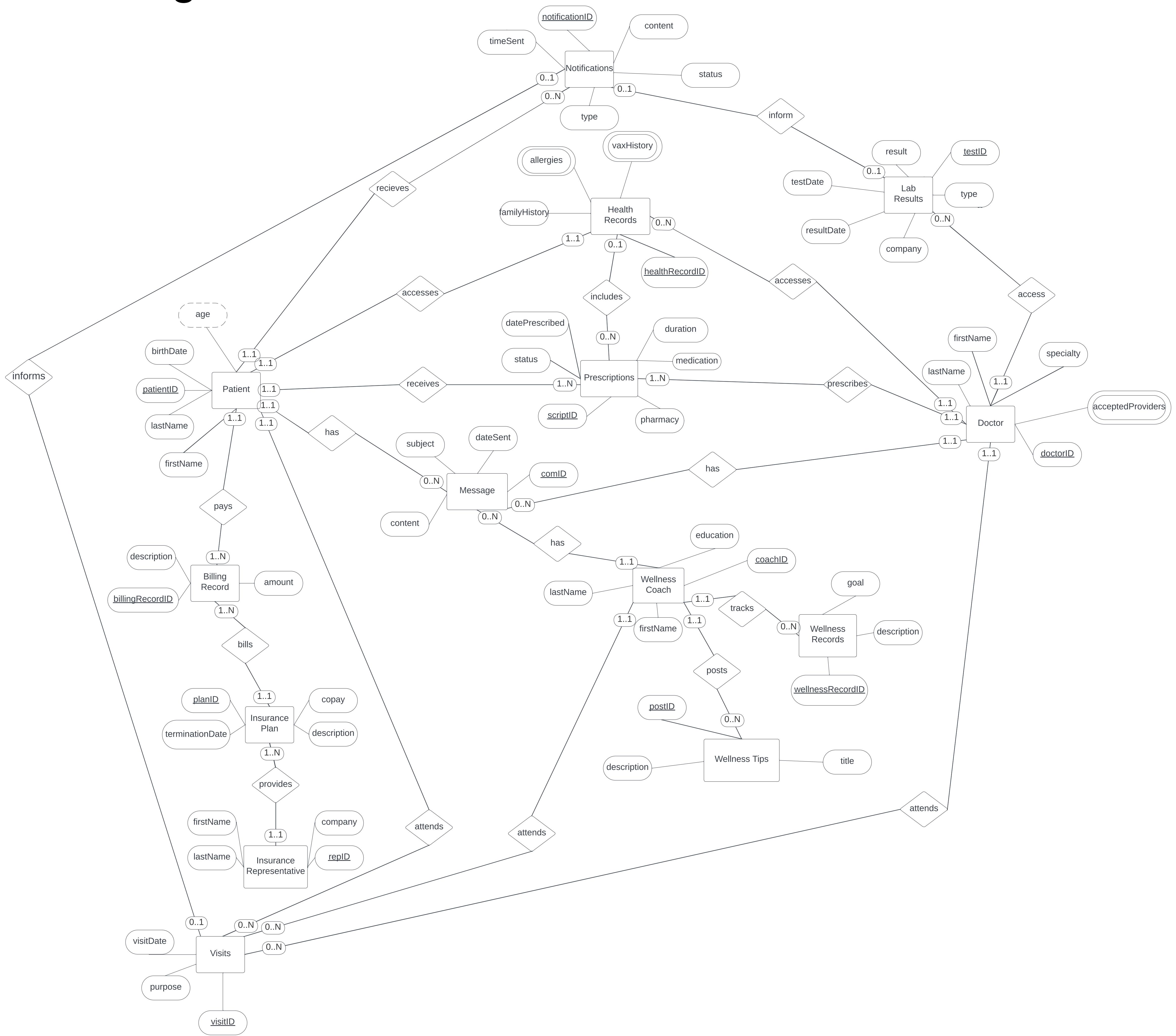
User Persona 3: Wellness Coach



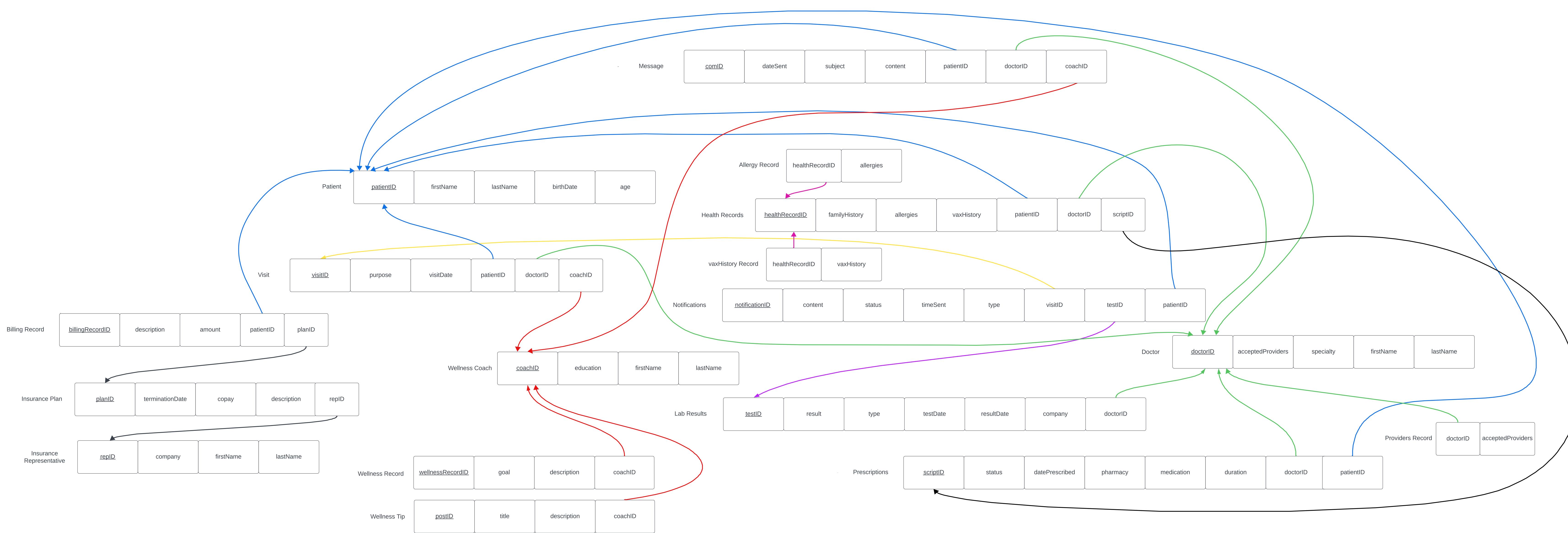
User Persona 4: Insurance Provider



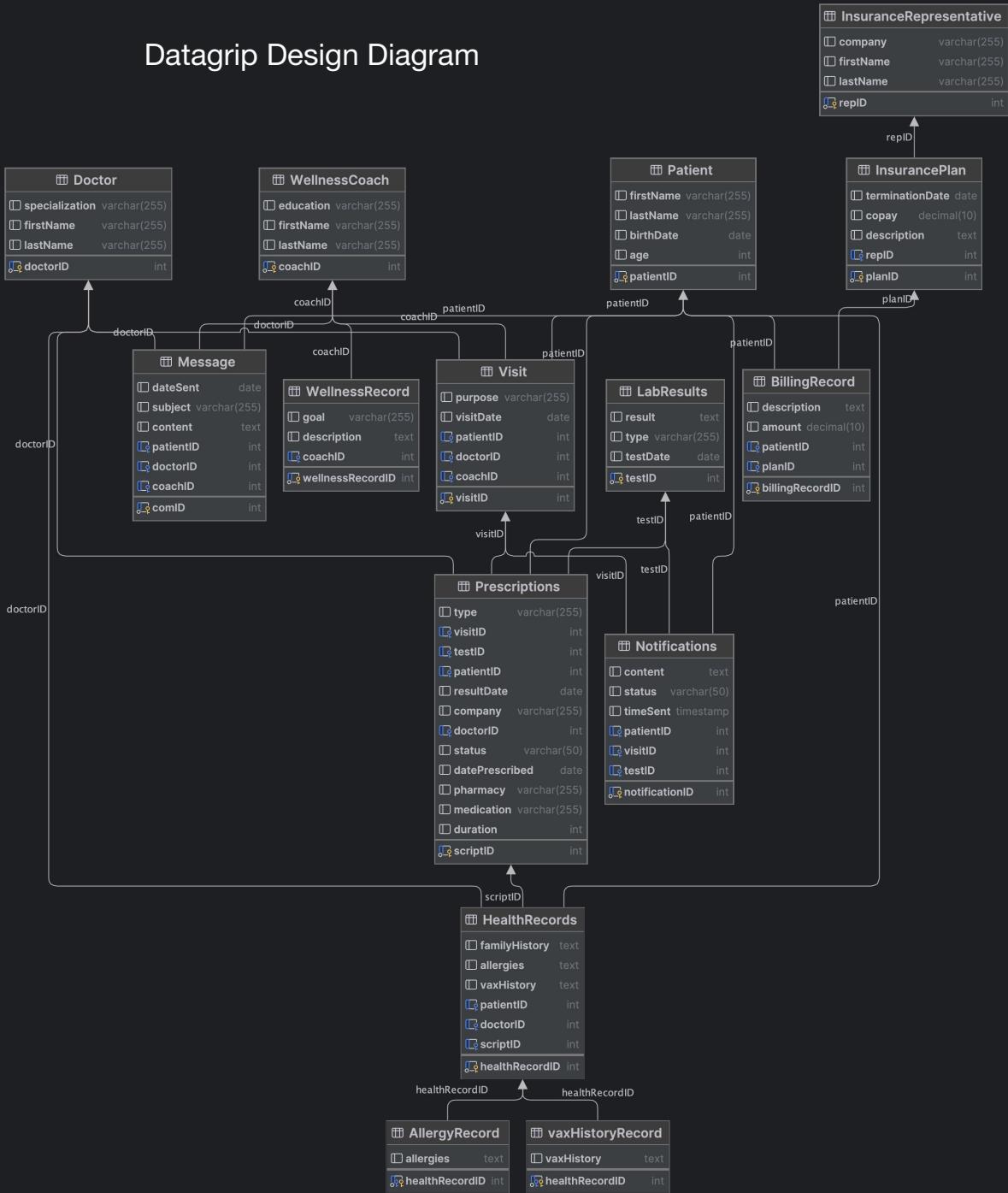
ER Diagram



Relational Diagram



Datagrip Design Diagram



```
# creating database HuskyHealth
CREATE DATABASE IF NOT EXISTS HuskyHealth;

# use the database
USE HuskyHealth;

# creating the Patient table
CREATE TABLE IF NOT EXISTS Patient
(
    patientID INT PRIMARY KEY,
    firstName VARCHAR(255),
    lastName VARCHAR(255),
    birthDate DATE,
    age INT
);

# updating the age to be the timestamp difference between birth date and
current date
UPDATE Patient SET age = TIMESTAMPDIFF(YEAR, birthDate, CURDATE());

# creating the Doctor table
CREATE TABLE IF NOT EXISTS Doctor (
    doctorID INT PRIMARY KEY,
    specialization VARCHAR(255),
    firstName VARCHAR(255),
    lastName VARCHAR(255)
);

# creating WellnessCoach table
CREATE TABLE IF NOT EXISTS WellnessCoach (
    coachID INT PRIMARY KEY,
    education VARCHAR(255),
    firstName VARCHAR(255),
    lastName VARCHAR(255)
);

# creating InsuranceRepresentative table
CREATE TABLE IF NOT EXISTS InsuranceRepresentative (
    repID INT PRIMARY KEY,
    company VARCHAR(255),
    firstName VARCHAR(255),
    lastName VARCHAR(255)
);

# creating Visit table
CREATE TABLE IF NOT EXISTS Visit (
    visitID INT PRIMARY KEY,
    purpose VARCHAR(255),
    visitDate DATE,
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```

patientID INT,
doctorID INT,
coachID INT,
FOREIGN KEY (patientID) REFERENCES Patient(patientID) ON UPDATE CASCADE ON
DELETE CASCADE,
FOREIGN KEY (doctorID) REFERENCES Doctor(doctorID) ON UPDATE CASCADE ON
DELETE SET NULL,
FOREIGN KEY (coachID) REFERENCES WellnessCoach(coachID) ON UPDATE CASCADE ON
DELETE SET NULL
);

# creating LabResults table
CREATE TABLE IF NOT EXISTS LabResults (
    testID INT PRIMARY KEY,
    result TEXT,
    type VARCHAR(255),
    testDate DATE
);

# creating Prescriptions table
CREATE TABLE IF NOT EXISTS Prescriptions (
    scriptID INT PRIMARY KEY,
    type VARCHAR(255),
    visitID INT,
    testID INT,
    patientID INT,
    resultDate DATE,
    company VARCHAR(255),
    doctorID INT,
    status VARCHAR(50),
    datePrescribed DATE,
    pharmacy VARCHAR(255),
    medication VARCHAR(255),
    duration INT,
    FOREIGN KEY (visitID) REFERENCES Visit(visitID) ON UPDATE CASCADE ON DELETE
SET NULL,
    FOREIGN KEY (testID) REFERENCES LabResults(testID) ON UPDATE CASCADE ON
DELETE SET NULL,
    FOREIGN KEY (patientID) REFERENCES Patient(patientID) ON UPDATE CASCADE ON
DELETE CASCADE,
    FOREIGN KEY (doctorID) REFERENCES Doctor(doctorID) ON UPDATE CASCADE ON
DELETE SET NULL
);

# creating HealthRecords table
CREATE TABLE IF NOT EXISTS HealthRecords (
    healthRecordID INT PRIMARY KEY,
    familyHistory TEXT,
    allergies TEXT,

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vaxHistory TEXT,
patientID INT,
doctorID INT,
scriptID INT,
    FOREIGN KEY (patientID) REFERENCES Patient(patientID) ON UPDATE CASCADE ON
DELETE SET NULL,
    FOREIGN KEY (doctorID) REFERENCES Doctor(doctorID) ON UPDATE CASCADE ON
DELETE SET NULL,
    FOREIGN KEY (scriptID) REFERENCES Prescriptions(scriptID) ON UPDATE CASCADE
ON DELETE SET NULL
);

# creating Message table
CREATE TABLE IF NOT EXISTS Message (
comID INT PRIMARY KEY,
dateSent DATE,
subject VARCHAR(255),
content TEXT,
patientID INT,
doctorID INT,
coachID INT,
    FOREIGN KEY (patientID) REFERENCES Patient(patientID) ON UPDATE CASCADE ON
DELETE CASCADE,
    FOREIGN KEY (doctorID) REFERENCES Doctor(doctorID) ON UPDATE CASCADE ON
DELETE SET NULL,
    FOREIGN KEY (coachID) REFERENCES WellnessCoach(coachID) ON UPDATE CASCADE ON
DELETE SET NULL
);

# creating InsurancePLan table
CREATE TABLE IF NOT EXISTS InsurancePlan (
planID INT PRIMARY KEY,
terminationDate DATE,
copay DECIMAL,
description TEXT,
repID INT,
    FOREIGN KEY (repID) REFERENCES InsuranceRepresentative(repID) ON UPDATE
CASCADE ON DELETE SET NULL
);

# creating BillingRecord table
CREATE TABLE IF NOT EXISTS BillingRecord (
billingRecordID INT PRIMARY KEY,
description TEXT,
amount DECIMAL,
patientID INT,
planID INT,
    FOREIGN KEY (patientID) REFERENCES Patient(patientID) ON UPDATE CASCADE ON
DELETE CASCADE,

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    FOREIGN KEY (planID) REFERENCES InsurancePlan(planID) ON UPDATE CASCADE ON
DELETE SET NULL
);

# creating WellnessRecord table
CREATE TABLE IF NOT EXISTS WellnessRecord (
    wellnessRecordID INT PRIMARY KEY,
    goal VARCHAR(255),
    description TEXT,
    coachID INT,
    FOREIGN KEY (coachID) REFERENCES WellnessCoach(coachID) ON UPDATE CASCADE ON
DELETE SET NULL
);

# creating AllergyRecord table
CREATE TABLE IF NOT EXISTS AllergyRecord (
    healthRecordID INT,
    allergies TEXT,
    PRIMARY KEY (healthRecordID),
    FOREIGN KEY (healthRecordID) REFERENCES HealthRecords(healthRecordID) ON
UPDATE CASCADE ON DELETE CASCADE
);

# creating vaxhistoryRecord table
CREATE TABLE IF NOT EXISTS vaxHistoryRecord (
    healthRecordID INT,
    vaxHistory TEXT,
    PRIMARY KEY (healthRecordID),
    FOREIGN KEY (healthRecordID) REFERENCES HealthRecords(healthRecordID) ON
UPDATE CASCADE ON DELETE CASCADE
);

# creating Notifications table
CREATE TABLE IF NOT EXISTS Notifications (
    notificationID INT PRIMARY KEY,
    content TEXT,
    status VARCHAR(50),
    timeSent TIMESTAMP,
    patientID INT,
    visitID INT,
    testID INT,
    FOREIGN KEY (patientID) REFERENCES Patient(patientID) ON UPDATE CASCADE ON
DELETE CASCADE,
    FOREIGN KEY (visitID) REFERENCES Visit(visitID) ON UPDATE CASCADE ON DELETE
SET NULL,
    FOREIGN KEY (testID) REFERENCES LabResults(testID) ON UPDATE CASCADE ON
DELETE SET NULL
);

```

```

/*
Creating examples

*/
-- Examples for each table

-- Patient Table
INSERT INTO Patient (patientID, firstName, lastName, birthDate, age)
VALUES
    (1, 'John', 'Doe', '1990-05-15', TIMESTAMPDIFF(YEAR, '1990-05-15',
CURDATE())),
    (2, 'Jane', 'Smith', '1985-08-22', TIMESTAMPDIFF(YEAR, '1985-08-22',
CURDATE()));

-- Doctor Table
INSERT INTO Doctor (doctorID, specialization, firstName, lastName)
VALUES
    (1, 'Cardiologist', 'Dr. Michael', 'Johnson'),
    (2, 'Pediatrician', 'Dr. Susan', 'Williams');

-- WellnessCoach Table
INSERT INTO WellnessCoach (coachID, education, firstName, lastName)
VALUES
    (1, 'Certified Nutritionist', 'Coach David', 'Miller'),
    (2, 'Fitness Trainer', 'Coach Emily', 'Taylor');

-- InsuranceRepresentative Table
INSERT INTO InsuranceRepresentative (repID, company, firstName, lastName)
VALUES
    (1, 'HealthInsure', 'Mark', 'Anderson'),
    (2, 'SecureCare', 'Laura', 'Smith');

-- Visit Table
INSERT INTO Visit (visitID, purpose, visitDate, patientID, doctorID, coachID)
VALUES
    (1, 'Regular Checkup', '2023-02-10', 1, 1, NULL),
    (2, 'Sports Injury', '2023-03-15', 2, 2, 1);

-- LabResults Table
INSERT INTO LabResults (testID, result, type, testDate)
VALUES
    (1, 'Normal', 'Blood Test', '2023-02-15'),
    (2, 'Positive', 'COVID-19', '2023-03-20');

```

```

-- Prescriptions Table
INSERT INTO Prescriptions (scriptID, type, visitID, testID, patientID,
resultDate, company, doctorID, status, datePrescribed, pharmacy, medication,
duration)
VALUES
    (1, 'Medication', 1, NULL, 1, '2023-02-10', 'PharmaCare', 1, 'Active',
'2023-02-10', 'HealthPharm', 'Aspirin', 7),
    (2, 'Lab Test', 2, 2, 2, '2023-03-15', 'LabHealth', 2, 'Pending',
'2023-03-15', NULL, NULL, NULL);

-- HealthRecords Table
INSERT INTO HealthRecords (healthRecordID, familyHistory, allergies,
vaxHistory, patientID, doctorID, scriptID)
VALUES
    (1, 'No significant family history', 'Pollen', 'Flu, Hepatitis B', 1, 1, 1),
    (2, 'Heart disease in family', 'Penicillin', 'COVID-19', 2, 2, 2);

-- Message Table
INSERT INTO Message (comID, dateSent, subject, content, patientID, doctorID,
coachID)
VALUES
    (1, '2023-02-20', 'Follow-up Appointment', 'Please schedule a follow-up
appointment.', 1, 1, NULL),
    (2, '2023-03-25', 'Wellness Program', 'Join our fitness program starting
next month!', 2, NULL, 1);

-- InsurancePlan Table
INSERT INTO InsurancePlan (planID, terminationDate, copay, description, repID)
VALUES
    (1, '2023-12-31', 30.00, 'Comprehensive Health Plan', 1),
    (2, '2023-11-30', 20.00, 'Basic Coverage', 2);

-- BillingRecord Table
INSERT INTO BillingRecord (billingRecordID, description, amount, patientID,
planID)
VALUES
    (1, 'Consultation Fee', 50.00, 1, 1),
    (2, 'Lab Test Charge', 25.00, 2, 2);

-- WellnessRecord Table
INSERT INTO WellnessRecord (wellnessRecordID, goal, description, coachID)
VALUES
    (1, 'Weight Loss', 'Achieve a healthy weight through diet and exercise.',
1),
    (2, 'Stress Management', 'Learn techniques to manage stress and improve
mental well-being.', 2);

-- AllergyRecord Table
INSERT INTO AllergyRecord (healthRecordID, allergies)

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VALUES
(1, 'Pollen, Dust'),
(2, 'Penicillin, Peanuts');

-- VaxHistoryRecord Table
INSERT INTO vaxHistoryRecord (healthRecordID, vaxHistory)
VALUES
(1, 'Flu, Hepatitis B'),
(2, 'COVID-19, Influenza');

-- Notifications Table
INSERT INTO Notifications (notificationID, content, status, timeSent,
patientID, visitID, testID)
VALUES
(1, 'Your lab results are ready.', 'Unread', '2023-02-15 08:00:00', 1, NULL,
NULL),
(2, 'Upcoming appointment reminder.', 'Unread', '2023-03-15 10:30:00', 2, 2,
NULL);
```