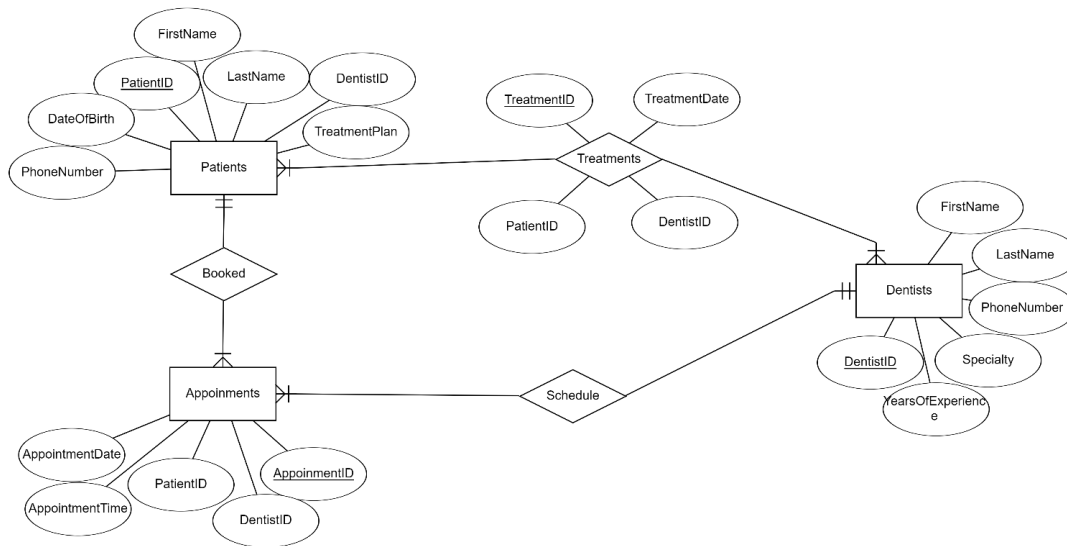


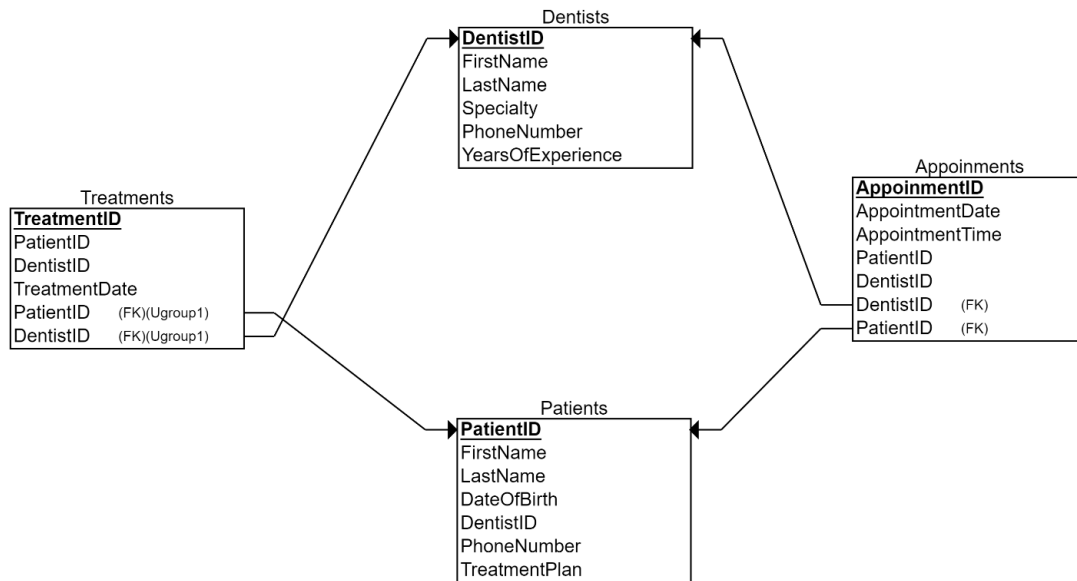
Asma Khan
11/3/2024

Project Proposal Phase 1

ERD Diagram:



Relational Schema:



Entities And Attributes

1- Dentists:

DentistID: (PK)
 FirstName:
 LastName:
 Specialty:
 PhoneNumber:
 YearsOfExperience:

2- Appointments:

AppointmentID: (PK)
 Date:
 Time:
 PatientID: (FK referencing Patients-PatientsID)
 DentistID: (FK referencing Dentists-DentistsID)

3- Patients:

PatientID: (PK)
 FirstName:
 LastName:
 DateOfBirth:
 DentistID (FK referencing Dentists-DentistsID)

PhoneNumber:

TreatmentPlan:

4- Treatment:

TreatmentID (PK)

TreatmentDate

PatientID (FK referencing Patients-PatientID)

DentistID (FK referencing Dentists-DentistsID)

Relationships

1- Booked:

Type: One-to-Many.

It is between patient and appointment.

A patient can have many appointments, but each appointment should be booked by one patient.

2- Schedule:

Type: One-to-Many.

It is between the dentist and appointment.

A dentist can have many appointments with patients, but each appointment should be scheduled with one dentist.

3- Treatments:

Type: Many-to-Many

It is between Patient and Dentist.

A patient can receive many treatments, and a dentist can provide many treatments to the patient.

Project Phase 2:

Dentists Table:

DentistID (PK)	FirstName	LastName	Speciality	PhoneNumber	YearsOfExperience
0001	John	Den	Orthodontist	708-200-0000	10 Years
0002	Kelly	Joe	Pediatrician	708-211-9999	12 Years
0003	Jennifer	Davin	Endodontics	708-000-8888	6 Years
0004	Troy	Newton	Periodontics	708-209-6666	14 Years

Patients Table:

Patient ID (PK)	FirstName	LastName	DateOf Birth	PhoneNumber	Dentist ID (FK)	TreatmentPlan
21	Adam	Leonardo	08-12-2000	708-100-0001	0003	Root Canal in tooth #14 and placement of implants at # 9
22	Nancy	Budz	09-07-2011	708-300-1111	0001	To correct Class II.
56	Reese	Jones	12-28-2019	798-333-6666	0002	Filling in tooth # c and d
45	Katherine	Olson	05-19-1989	334-340-0000	0004	Gum Grafting along with deep scaling.

Appointment Table:

AppntID (PK)	AppntDate	AppntTime	PatientID (FK)	DentistID (FK)
4321	10-10-2019	04:15 PM	56	0002
4501	11-03-2020	10:30 AM	45	0004
3098	04-01-2022	12:15 PM	22	0001
3030	03-23-2023	11:45 AM	22	0003
4490	02-15-2024	01:00 PM	50	0002
3504	03-10-2024	9:00 AM	19	0003

Treatment Table:

TreatmentID (PK)	TreatmentDate	DentistID (FK)	PatientID (FK)	PatientName
B2	10-10-2019	0002	56	Reese John
P1	11-03-2020	0004	45	Katherine Olson
O6	04-01-2022	0001	22	Nancy Budz
R9	03-23-2024	0003	19	Jacob Marc
O4	01-15-2024	0001	72	Angelica Ziel

B8	03-10-2024	0002	98	Olivia Liam
B4	02-15-2024	0002	50	Henry Lucas
R7	03-23-2023	0003	22	Emily William
P2	10-08-2024	0004	78	James Theodore

PROJECT PHASE 3:

CREATE TABLE Patients

```
(
    PatientID INT NOT NULL,
    FirstName CHAR NOT NULL,
    LastName CHAR NOT NULL,
    DateOfBirth INT NOT NULL,
    DentistID INT NOT NULL,
    PhoneNumber NUMERIC NOT NULL,
    TreatmentPlan CHAR NOT NULL,
    PRIMARY KEY (PatientID)
);
```

CREATE TABLE Dentists

```
(
    DentistID INT NOT NULL,
    FirstName CHAR NOT NULL,
    LastName CHAR NOT NULL,
    Specialty CHAR NOT NULL,
    PhoneNumber NUMERIC NOT NULL,
    YearsOfExperience NUMERIC NOT NULL,
    PRIMARY KEY (DentistID)
);
```

CREATE TABLE Appointments

```
(  
    AppointmentID INT NOT NULL,  
    AppointmentDate NUMERIC NOT NULL,  
    AppointmentTime NUMERIC NOT NULL,  
    PatientID INT NOT NULL,  
    DentistID INT NOT NULL,  
    PRIMARY KEY (AppointmentID),  
    FOREIGN KEY (DentistID) REFERENCES Dentists(DentistID),  
    FOREIGN KEY (PatientID) REFERENCES Patients(PatientID)  
);
```

CREATE TABLE Treatments

```
(  
    TreatmentID INT NOT NULL,  
    PatientID INT NOT NULL,  
    DentistID INT NOT NULL,  
    TreatmentDate NUMERIC NOT NULL,  
    PRIMARY KEY (TreatmentID),  
    FOREIGN KEY (PatientID) REFERENCES Patients(PatientID),  
    FOREIGN KEY (DentistID) REFERENCES Dentists(DentistID),  
    UNIQUE (PatientID, DentistID)  
);
```

Project phase 4:

Appointment Table:

AppointmentID	AppointmentDate	AppointmentTime	PatientID	DentistID
3030	2023-03-23	11:15:00	22	3
3098	2022-04-01	12:15:00	22	1
3504	2024-03-10	09:00:18	19	3
4321	2019-10-10	04:15:00	56	2
4490	2024-02-15	01:00:00	50	2
4501	2020-11-03	10:30:00	45	4

Dentists Table:

DentistID	FirstName	LastName	Specialty	PhoneNumber	YearsOfExperience
1	John	Den	Orthodontist	708200000	10
2	Kelly	Joe	Pediatrician	708211999	12
3	Jennifer	Davin	Endodontist	708000888	6
4	Troy	Newton	Periodontist	708209666	14
5	Moosa	Khaled	Maxillofacial surgeon	708222786	20

Patients Table:

PatientID	FirstName	LastName	DateOfBirth	DentistID	PhoneNumber	TreatmentPlan
19	Jacob	Marc	2001-08-11	3	708979999	Root canal in tooth number 17.
21	Adam	Leonardo	2000-08-12	3	7081000001	Root Canal in tooth #14 and placement of implants at # 9
22	Nancy	Budz	2011-07-09	1	7083001111	To correct class II.
45	Katherine	Olson	1989-05-19	4	3343400000	Gum Grafting along with deep scaling.
50	Henry	Lucas	2016-11-20	2	708100301	scaling of upper and lower jaws.
56	Reese	Jones	2019-12-28	2	7083336666	Filling in tooth #c and d

Treatment Table:

TreatmentID	TreatmentDate	PatientID	DentistID
B2	2019-10-10	56	2
B4	2024-02-15	50	2
O6	2022-04-01	22	1
O7	2024-07-12	19	2
P1	2020-11-03	45	4
P9	2022-09-23	50	5
R9	2024-03-23	19	3

```
-- phpMyAdmin SQL Dump
-- version 5.2.0
-- https://www.phpmyadmin.net/
--
-- Host: localhost
```

```

-- Generation Time: Dec 03, 2024 at 04:15 PM
-- Server version: 8.0.30
-- PHP Version: 8.0.0

SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
START TRANSACTION;
SET time_zone = "+00:00";

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8mb4 */;

--
-- Database: `khana07`
--

--
-- Table structure for table `appointments`
--

CREATE TABLE `appointments` (
  `AppointmentID` int NOT NULL,
  `AppointmentDate` date NOT NULL,
  `AppointmentTime` time NOT NULL,
  `PatientID` int NOT NULL,
  `DentistID` int NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

--
-- Dumping data for table `appointments`
--

INSERT INTO `appointments` (`AppointmentID`, `AppointmentDate`,
`AppointmentTime`, `PatientID`, `DentistID`) VALUES
(3030, '2023-03-23', '11:15:00', 22, 3),
(3098, '2022-04-01', '12:15:00', 22, 1),
(3504, '2024-03-10', '09:00:18', 19, 3),
(4321, '2019-10-10', '04:15:00', 56, 2),
(4490, '2024-02-15', '01:00:00', 50, 2),
(4501, '2020-11-03', '10:30:00', 45, 4);

--
-- Table structure for table `dentists`
--

CREATE TABLE `dentists` (
  `DentistID` int NOT NULL,

```



```

    `FirstName` char(100) CHARACTER SET utf8mb4 COLLATE utf8mb4_0900_ai_ci
NOT NULL,
    `LastName` char(100) CHARACTER SET utf8mb4 COLLATE utf8mb4_0900_ai_ci
NOT NULL,
    `Specialty` char(100) CHARACTER SET utf8mb4 COLLATE utf8mb4_0900_ai_ci
NOT NULL,
    `PhoneNumber` int NOT NULL,
    `YearsOfExperience` int NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

--
-- Dumping data for table `dentists`
--

INSERT INTO `dentists` (`DentistID`, `FirstName`, `LastName`, `Specialty`,
`PhoneNumber`, `YearsOfExperience`) VALUES
(1, 'John', 'Den', 'Orthodontist', 708200000, 10),
(2, 'Kelly', 'Joe', 'Pediatrician', 708211999, 12),
(3, 'Jennifer', 'Davin', 'Endodontist', 708000888, 6),
(4, 'Troy', 'Newton', 'Periodontist', 708209666, 14),
(5, 'Moosa', 'Khaled', 'Maxillofacial surgeon', 708222786, 20);

-- -----

--
-- Table structure for table `patients`
--

CREATE TABLE `patients` (
  `PatientID` int NOT NULL,
  `FirstName` char(100) CHARACTER SET utf8mb4 COLLATE utf8mb4_0900_ai_ci
NOT NULL,
  `LastName` char(100) CHARACTER SET utf8mb4 COLLATE utf8mb4_0900_ai_ci
NOT NULL,
  `DateOfBirth` date NOT NULL,
  `DentistID` int NOT NULL,
  `PhoneNumber` decimal(10,0) NOT NULL,
  `TreatmentPlan` char(100) CHARACTER SET utf8mb4 COLLATE
utf8mb4_0900_ai_ci NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;

--
-- Dumping data for table `patients`
--

INSERT INTO `patients` (`PatientID`, `FirstName`, `LastName`,
`DateOfBirth`, `DentistID`, `PhoneNumber`, `TreatmentPlan`) VALUES
(19, 'Jacob', 'Marc', '2001-08-11', 3, '708979999', 'Root canal in tooth
number 17.'),
(21, 'Adam', 'Leonardo', '2000-08-12', 3, '7081000001', 'Root Canal in
tooth #14 and placement of implants at # 9'),
(22, 'Nancy', 'Budz', '2011-07-09', 1, '7083001111', 'To correct class
II.'),

```

```
(45, 'Katherine', 'Olson', '1989-05-19', 4, '3343400000', 'Gum Grafting
along with deep scaling.'),
(50, 'Henry', 'Lucas', '2016-11-20', 2, '708100301', 'scaling of upper and
lower jaws.'),
(56, 'Reese', 'Jones', '2019-12-28', 2, '7083336666', 'Filling in tooth #c
and d');
```

```
-- -----
```

```
--
-- Table structure for table `treatments`
--
```

```
CREATE TABLE `treatments` (
  `TreatmentID` varchar(100) NOT NULL,
  `TreatmentDate` date NOT NULL,
  `PatientID` int NOT NULL,
  `DentistID` int NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
```

```
--
-- Dumping data for table `treatments`
--
```

```
INSERT INTO `treatments` (`TreatmentID`, `TreatmentDate`, `PatientID`,
`DentistID`) VALUES
('B2', '2019-10-10', 56, 2),
('B4', '2024-02-15', 50, 2),
('O6', '2022-04-01', 22, 1),
('P1', '2020-11-03', 45, 4),
('R9', '2024-03-23', 19, 3);
```

```
--
-- Indexes for dumped tables
--
```

```
--
-- Indexes for table `appointments`
--
```

```
ALTER TABLE `appointments`
  ADD PRIMARY KEY (`AppointmentID`),
  ADD KEY `DentistID` (`DentistID`),
  ADD KEY `PatientID` (`PatientID`);
```

```
--
-- Indexes for table `dentists`
--
```

```
ALTER TABLE `dentists`
  ADD PRIMARY KEY (`DentistID`);
```

```
--
-- Indexes for table `patients`
--
```

```
ALTER TABLE `patients`
```

```

    ADD PRIMARY KEY (`PatientID`);

--
-- Indexes for table `treatments`
--
ALTER TABLE `treatments`
  ADD PRIMARY KEY (`TreatmentID`),
  ADD UNIQUE KEY `PatientID` (`PatientID`,`DentistID`),
  ADD KEY `DentistID` (`DentistID`);

--
-- Constraints for dumped tables
--

--
-- Constraints for table `appointments`
--
ALTER TABLE `appointments`
  ADD CONSTRAINT `appointments_ibfk_1` FOREIGN KEY (`DentistID`) REFERENCES
`dentists` (`DentistID`),
  ADD CONSTRAINT `appointments_ibfk_2` FOREIGN KEY (`PatientID`) REFERENCES
`patients` (`PatientID`);

--
-- Constraints for table `treatments`
--
ALTER TABLE `treatments`
  ADD CONSTRAINT `treatments_ibfk_1` FOREIGN KEY (`PatientID`) REFERENCES
`patients` (`PatientID`),
  ADD CONSTRAINT `treatments_ibfk_2` FOREIGN KEY (`DentistID`) REFERENCES
`dentists` (`DentistID`);
COMMIT;

/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;

```

PROJECT Phase 5:

Query 1: Find total number of appointments per dentist.

```

SELECT DentistID, COUNT(appointmentID) AS TotalAppointments
FROM appointments
GROUP BY DentistID;

```

DentistID	TotalAppointments
1	1
2	2
3	2
4	1

This query will help us to find how many appointments each dentist has, also, with this query they can find if dentists are overloaded or not, and their demands by patients.

Query 2: Find out how many patients had treatment in 2024.

```
SELECT DISTINCT PatientID, TreatmentDate
FROM treatments
WHERE YEAR(TreatmentDate) = 2024;
```

PatientID	TreatmentDate
50	2024-02-15
19	2024-07-12
19	2024-03-23

This query helps us to determine upcoming follow-ups, and future scheduling.

Query 3: Find dentist by their specialty field:

```
SELECT FirstName, LastName, Specialty
FROM dentists;
```

FirstName	LastName	Specialty
John	Den	Orthodontist
Kelly	Joe	Pediatrician
Jennifer	Davin	Endodontist
Troy	Newton	Periodontist
Moosa	Khaled	Maxillofacial surgeon

When patients call to ask a dentist for specific treatment, it is easier to assign dentist based on specialty.

Query 4: Find the total number of treatments each patients had received

```
SELECT PatientID, COUNT(TreatmentID) AS TotalTreatments
FROM treatments
```

GROUP BY PatientID;

PatientID	TotalTreatments
19	2
22	1
45	1
50	2
56	1

The above query shows how many times a patient went through dental treatment. Also, it helps to determine future treatment plans. It also helps to build a dentist-patient relationship.

Query 5: Find specific patient's appointment history.

```
SELECT AppointmentID, AppointmentDate, AppointmentTime, DentistID
FROM appointments
WHERE PatientID = 22;
```

AppointmentID	AppointmentDate	AppointmentTime	DentistID
3030	2023-03-23	11:15:00	3
3098	2022-04-01	12:15:00	1

It keeps track of patients appointment history.