DATABASE DESIGN DOCUMENTATION

DESIGN AND IMPLEMENTATION OF DENTAL CLINIC

ENTITIES

1. Branch

Entity captures details of all branches of the dental office pertaining to its geodata. This entity will link to the Room entity.

Attributes:

BRANCH (BRANCH_ID, BRANCH_NAME, MOBILENO, ADDRESSLINE_1¸ ADDRESSLINE_2, CITY, STATE, ZIP, COUNTRY)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
BRANCH_ID	Int	No	PK	Incremental id assigned to each branch by system	(bid)001	(bid)002
BRANCH_NAME	Varchar(30)	No		Name of the Branch	Downtown Crossing	Seaport Avenue
MOBILENO	Varchar(10)	No		Phone number of the Branch	8573768601	9822081760
ADDRESSLINE_1	Varchar(20)	No		Address Line 1	170 Parker Hill Avenue	15 Dorchester Avenue
ADDRESSLINE_2	Varchar(20)	No		Address Line 2	Roxbury Crossing	Winchester Street
CITY	Char(20)	No		City to which the branch belongs	Boston	Cambridge
STATE	Char(20)	No		State to which the branch belongs	Massachusetts	Washington
ZIP	Varchar(10)	No		Zip code of the branch	02120	02115
COUNTRY	Varchar(15)	No		Country to which the branch belongs	India	USA

2. Room

Entity captures details about the various rooms available in the dental office's different branches. This can be used to identify rooms for patient appointments, and for tracking different equipment in each room. This entity will link to other entities such as Room Availability and Equipment.

Attributes:

ROOM (<u>ROOM_ID</u>, <u>BRANCH_ID</u> , ROOM_NAME)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
ROOM_ID	Int	No	PK	Incremental id assigned to each room in the clinic by system	(rid)001	(rid)002
BRANCH_ID	Int	No	FK	Branch ID where the room is present	(bid)001	(bid)002
ROOM_NAME	Varchar (15)	No		Room Name	Pre-op	Hygienist

3. Room Availability

Entity captures details about the various rooms' availability status in the dental office. This will enable scheduling of appointments and usage of the available rooms. This entity links to other entities such as Room and Appointment.

Attributes:

ROOM AVAILABILITY (<u>ROOMAVAILABILITY_ID</u>, <u>ROOM_ID</u>, DATE, STARTTIME, ENDTIME, ISROOMAVAILABLE)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
ROOMAVAILABILITY _ID	Int	No	PK	Incremental id assigned to each room available in the clinic by system	(raid)001	(raid)002
ROOM_ID	Int	No	FK	Room ID whose availability is tracked	(rid)001	(rid)002
DATE	DateTime	No		Date where the room is being tracked	12/12/2021	07/31/2021
STARTTIME	DateTime	No		Start time	15:00	10:35
ENDTIME	DateTime	No		End time	16:00	10:55
ISROOMAVAILABLE	Boolean	No		Room availability Status	Yes	No

4. Patient

Entity captures personal and emergency contact information of a patient. This will be used to book appointment, prescribe treatments and medication, and capture insurance details. This will link to other entities such as Patient Visit, Patient Insurance Details, Patient Pharmacy Information, Appointment and Dentist.

Attributes:

PATIENT (PATIENT_ID, USER_ID, FNAME, LNAME, PRIMARYBRANCH_ID, DATEOFBIRTH, MOBILENO, EMAIL, ADDRESSLINE_1, ADDRESSLINE_2, CITY, STATE, COUNTRY, ZIPCODE, EMERGENCY CONTACT_NAME, EMERGENCY CONTACT_NUM, EMERGENCY CONTACT_DOB, RELATIONSHIP)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PATIENT_ID	Int	No	PK	Incremental id assigned to a patient by system	(pid)001	(pid)002
USER_ID	Int	No	FK	User ID of a patient whose details are being recorded	(uid)001	(uid)002
FNAME	Char(20)	No		First name of employee	John	Ajay
LNAME	Char(20)	No		Last name of employee	Mathew	Nair
PRIMARYBRANCH _ID	Int	No	FK	Branch ID where the patient usually visits	(bid)001	(bid)002
DATEOFBIRTH	Date	No		Date of birth of patient (MM/DD/YYYY)	04/20/1995	08/20/1995
MOBILENO	Varchar (10)	No		Phone number of the patient	8573768601	9822081760
EMAIL	Varchar (35)	No		Email address of the patient	johnmathew@ gmail.com	ajaynair@ gmail.com
ADDRESSLINE_1	Varchar (20)	No		Address Line 1 of the patient	170 Parker Hill Avenue	15 Dorchester Avenue
ADDRESSLINE_2	Varchar (20)	No		Address Line 2 of the patient	Roxbury Crossing	Winchester Street
CITY	Varchar (15)	No		City of patient	Boston	Cambridge
STATE	Varchar (15)	No		State of the patient	Texas	Massachusetts
COUNTRY	Varchar (15)	No		Country of the patient	India	USA
ZIPCODE	Varchar (10)	No		Zip code of the patient	02115	02120
EMERGENCY CONTACT_NAME	Varchar (20)	No		Emergency contact name of patient	Lakshmi	Bhagyashree
EMERGENCY CONTACT_NUM	Int	No		Phone number of emergency contact	8573768601	9822081760
EMERGENCY CONTACT_DOB	Date	No		Date of birth of the emergency contact	07/11/1960	02/21/1965
RELATIONSHIP	Varchar (10)	No		Emergency contact's	Father	Mother

				relationship to the patient		

5. Appointments

Entity captures details about a specific appointment between a patient and a health service provider in the dental office. Appointment scheduling is done based on a dentist's and office room's availability. This will link to other entities such as Patient, Dentist Availability, Branch and Room Availability.

Attributes:

APPOINTMENTS (<u>APPOINTMENT_ID</u>, <u>PATIENT_ID</u>, <u>DENTISTAVAILABILITY_ID</u>, <u>ROOM_ID</u>, <u>BRANCH_ID</u>, <u>PATIENTVISIT_ID</u>, APPOINTMENT_DATE, APOINTMENTSTATUS, STARTTIME, ENDTIME, REASONOFVISIT, <u>ROOMAVAILABILITY_ID</u>, PATIENT_CONSENT)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
APPOINTMENT_ID	Int	No	PK	Incremental id assigned to each appointment by system	(aid)001	(aid)002
PATIENT_ID	Int	No	FK	ID of patient	(pid)001	(pid)002
DENTIST AVAILABILITY_ID	Int	No	FK	Incremental id assigned to a dentist availability by system	(daid)001	(daid)002
ROOM_ID	Int	No	FK	Room ID where the appointment is taking place	(rid)001	(rid)002
BRANCH_ID	Int	No	FK	Branch ID where the appointment is taking place	(bid)001	(bid)002
PATIENTVISIT_ID	Int	No	FK	Incremental id assigned to each patient visit by system	(pvid)001	(pvid)002
APPOINTMENT_DATE	Datetime	No		Appointment date of patient with health service provider (MM/DD/YYYY)	04/20/2020	08/20/2021
APOINTMENT STATUS	Varchar (15)	No		Appointment Status	Confirmed	Not Confirmed
STARTTIME	Datetime	No		Start time of appointment	15:00	10:35
ENDTIME	Datetime	No		End time of appointment	16:00	10:55
REASONOFVISIT	Varchar (30)	No		Reason of Visit	Tooth Extraction	Cavity Filling
ROOM AVAILABILITY_ID	Int	No	FK	Incremental id assigned by system	(raid)001	(raid)002

PATIENT_ CONSENT	Boolean	No		Consent given by patient to receive dental treatment at the office	Yes	No

6. Patient Visit

Entity captures details about a specific appointment between a patient and a health service provider in the dental office. This will enable to track the medical history, treatment, and billing for every patient. This will link to other entities such as Patient Allergy History, Patient Disorder History, Patient COVID History, Patient Dental History, Patient Prescription, Patient Treatment, Patient Tooth Structure, Patient X-Ray, and Hygienist.

Attributes:

PATIENT VISIT (PATIENTVISIT_ID, PATIENT_ID, DENTIST_ID HYGIENIST_ID, VISITDATE)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PATIENTVISIT_ ID	Int	No	PK	Incremental id assigned to each patient visit by system	(pvid)001	(pvid)002
PATIENT_ID	Int	No	FK	ID of patient who's in the appointment	(pid)001	(pid)002
DENTIST_ID	Int	No	FK	ID of dentist who's in the appointment	(did)001	(did)002
HYGIENIST_ID	Int	No	FK	ID of hygienist who's in the appointment	(hid)001	(hid)002
VISITDATE	Date	No		Patient Visit date of patient with health service provider (MM/DD/YYYY)	01/20/2020	03/05/2021

7. User

This entity is used to identify the different roles in the dental office system- Patient, Dentist and Hygienist. This will link to other entities such as Patient, Dentist and Hygienist.

Attributes:

USER (USER_ID, EMAIL, PASSWORD, ROLE_ID)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
USER_ID	Int	No	PK	Incremental id assigned to each user by system	(uid)001	(uid)002
EMAIL	Varchar	No		Email address of the user used to login	wayne.rooney @gmail.com	Frank.lampard @gmail.com

PASSWORD	Varchar	No		Password used by user for login	Wayne123	Frank123
ROLE_ID	Int	No	FK	Incremental id assigned to each User Role by system	(rid)001	(rid)002

8. Role

This entity captures details about an employee's role in the company. The role entity only pertains to health service providers, and no other staff of the dental office. This will be linked to the User entity.

Attributes:

ROLE (ROLE_ID, NAME, DESC)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
ROLE_ID	Int	No	PK	Incremental id assigned to each User Role by system	(rid)001	(rid)002
NAME	Varchar(10)	No		Role name of the user	Dentist	Patient
DESC	Varchar(20)	Yes		Designation in the clinic.	Dentist Role	Patient Role

9. Allergy List

Entity captures all the allergies mentioned in the dental office's intake form. The allergy list must be filled by a patient during every visit before their appointment. This will link to the Patient Allergy History entity.

Attributes:

ALLERGY LIST(ALLERGY_ID, NAME, DESC)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
ALLERGY_ID	Int	No	PK	Incremental id assigned to each allergy in the intake form by system	(aid)001	(aid)002
NAME	Varchar (20)	No		Name of allergy present in the intake form	Aspirin	Soy
DESC	Varchar (500)	No		Description of the allergy	If you have an aspirin allergy or sensitivity, you may also have a	Mild signs and symptoms of soy allergy include hives

					reaction to nonsteroidal anti-inflammatory drugs	or itching in and around the mouth.

10. Patient Allergy History

Entity captures the allergy history recorded by a patient during every visit to the dental office. This will be tracked by the intake form filled by a patient. This will track the entire allergy history of a particular patient. This will link to other entities such as Allergy List and Patient Visit.

Attributes:

PATIENT ALLERGY HISTORY (PATIENTALLERGYHISTORY_ID, PATIENTVISIT_ID, ALLERGY_ID, ALLERGY_ANSWER)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PATIENTALLERGY HISTORY_ID	Int	No	PK	Incremental id assigned to each patient's allergy history information by system	(ahid)001	(ahid)002
PATIENT VISIT_ID	Int	No	PK	Incremental id assigned to each patient Visit by system	(pvid)001	(pvid)002
ALLERGY_ID	Int	No	FK	Incremental id assigned to each allergy in the intake form by system	(aid)001	(aid)002
ALLERGY_ ANSWER	Boolean	No		Answer to the allergy check questions in the intake form	True	False

11. Disorder List

Entity captures all the disorders mentioned in the dental office's intake form. The disorder list must be filled by a patient during their first dental office visit. This will link to the Patient Disorder History entity.

Attributes:

DISORDER LIST (DISORDER_ID, NAME, DESC)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
DISORDER _ID	Int	No	PK	Incremental id assigned to each disorder in the intake form by system	(did)001	(did)002

NAME	Varchar (20)	No		Name of disorder present in the intake form	Diabetes	AIDS
DESC	Varchar (20)	No		Description of the disorder	Affects how your body turns food into energy.	Affects your ability to fight diseases

12. Patient Disorder History

Entity captures the disorder history recorded by a patient during their first visit to the dental office. This will be tracked by the intake form filled by a patient. This will track the entire disorder history of a particular patient. This will link to other entities such as Disorder List and Patient.

Attributes:

PATIENT DISORDER HISTORY (PATIENTDISORDERYHISTORY_ID, PATIENT_ID, DISORDER_ID, DISORDER_ANSWER)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PATIENT DISORDERY HISTORY_ID	Int	No	PK	Incremental id assigned to each patient's disorder history information by system	(dhid)001	(dhid)002
PATIENT_ID	Int	No	FK	Patient ID whose disorder history is being recorded	(pid)001	(pid)002
DISORDER_ID	Int	No	FK	Disorder ID that is being tracked for a particular patient	(did)001	(did)002
DISORDER_ ANSWER	Boolean	No		Answer to the disorder check questions in the intake form	True	False

13. Dental History Information List

Entity captures all previous dental history and visit related questions mentioned in the dental office's intake form. This list must be filled by a patient during their first dental office visit. This will link to the Patient Dental History entity.

Attributes:

DENTAL HISTORY INFORMATION LIST (DENTALHISTORY_ID, QUESTION)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
DENTAL HISTORY_ID	Int	No	PK	Incremental id assigned to each Dental History	(dhid)001	(dhid)002

				and visit question by system		
QUESTION	Varchar (200)	No		Dental History and visit Question to be asked to the patient	Have you had any cavities within the past 3 years?	Is there anyone with a history of periodontal disease in your family?

14. Patient Dental History

Entity captures previous dental and visit history recorded by a patient during their first visit to the dental office. This will track the entire dental history of a particular patient. This will link to other entities such as Dental History Information List and Patient.

Attributes:

PATIENT DENTAL HISTORY (<u>PATIENTDENTALHISTORY_ID</u>, <u>DENTALHISTORY_ID</u>, <u>PATIENT_ID</u>, DENTAL_ANSWER)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PATIENTDENTAL HISTORY_ID	Int	No	PK	Incremental id assigned to each patient's dental history information by system	(pdhid)001	(pdhid)002
DENTAL HISTORY_ID	Int	No	FK	Incremental id assigned to each Dental History and visit question by system	(dhid)001	(dhid)002
PATIENT_ID	Int	No	FK	Patient ID whose dental history is being recorded	(pid)001	(pid)002
DENTAL_ ANSWER	Boolean	No		Patient's answer to the dental history questions	True	False

15. COVID Disclosure

Entity captures all COVID-19 related questions mentioned in the dental office's intake form. This list must be filled by a patient during every dental office visit. This will link to the Patient COVID History entity.

Attributes:

COVID DISCLOSURE(<u>COVIDDETAIL_ID</u> , QUESTION)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
COVID DETAIL_ID	Int	No	PK	Incremental id assigned to each Covid-19 disclosure question by system	(cid)001	(cid)002

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
QUESTION	Varchar (500)	No		Question to be asked to the patient	Have you had any cavities within the past 3 years?	Is there anyone with a history of periodontal disease in your family?

16. Patient COVID History

Entity captures COVID history recorded by a patient during every visit to the dental office. This will track the entire COVID history of a particular patient. This will link to other entities such as COVID History Information List and Patient Visit.

Attributes:

PATIENT COVID HISTORY (PATIENTCOVIDHISTORY_ID, COVIDDETAIL_ID , PATIENTVISIT_ID, COVID_ ANSWER)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PATIENTCOVID HISTORY_ID	Int	No	PK	Incremental id assigned to each patient's COVID-19 history information by system	(pchid)001	(pchid)002
COVID DETAIL_ID	Int	No	FK	Incremental id assigned to each Covid-19 disclosure question by system	(cid)001	(cid)002
PATIENT VISIT_ID	Int	No	FK	Patient Visit ID whose Covid History is being recorded	(pvid)001	(pvid)002
COVID_ ANSWER	Boolean	No		Answer to the COVID-19 history questions	True	False

17. Patient Insurance Information

Entity captures all insurance information pertaining to a patient. This will be used for billing. It will link to other entities such as Patient and Patient Pharmacy Information.

Attributes:

PATIENT INSURANCE INFORMATION (PATIENTINSURANCE_ID, PATIENT_ID , INSURANCE_NUMBER, INSURANCECOMPANYNAME , POLICYGROUPNO, DIVISION, CERTIFICATENO, RELATIONSHIPTOPATIENT , INSURANCETYPE)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2

PATIENT INSURANCE_ID	Int	No	PK	Incremental id assigned to each patient's insurance detail by system	(pid)001	(pid)002
PATIENT_ID	Int	No	PK	Patient ID whose insurance details are being recorded	(pid)001	(pid)002
INSURANCE_ NUMBER	Int	No		Insurance number of the patient	AA123456C	MR133456D
INSURANCE COMPANYNAME	Int	No		Insurance provider of the patient	United Health	CVS
POLICYGROUPNO	Int	No		Policy Group No of the insurance	4564987	1234897
DIVISION	Char	No		Division of the insurance company	Illinois	Nevada
CERTIFICATENO	Int	No		Certificate number of the insurance	451278	568987
RELATIONSHIP TOPATIENT	Varchar (20)	No		Relationship of the insurance owner to the patient	SELF	FATHER
INSURANCETYPE	Varchar (10)	No		Insurance Type	PRIMARY	SECONDARY

18. Tooth Chart

Entity captures details assigned to each tooth based on the tooth chart provided by the dental office. This will help identifying the tooth structure of a patient. This entity will link to the Patient Tooth Structure entity.

Attributes:

TOOTH CHART (TOOTH_ID, TOOTHNAME, TOOTHNUMBER, TYPE)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
TOOTH_ID	Int	No	PK	Incremental id assigned to each human tooth by system	(tid)001	(tid)002
TOOTHNAME	Varchar(20)	No		Tooth Name	Left Maxillary Central Incisor'	Right Maxillary Cuspid
TOOTH NUMBER	Varchar(30)	No		Tooth Number	2nd Incisor	1st Canine
TYPE	Varchar(20)	No		Tooth Type	Incisors	Canines

19. Patient Tooth Structure

Entity captures details about the patient's tooth structure recorded during their visit based on the dental office's tooth chart. This will link to other entities such as Patient Visit and Tooth Chart.

Attributes:

PATIENT TOOTH STRUCTURE (TOOTHSTRUCTURE_ID, PATIENTVISIT_ID, TOOTH_ID, REMARKS)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
TOOTH STRUCTURE_ID	Int	No	PK	Incremental id assigned to each patient's teeth structure by system	(tsid)001	(tsid)002
PATIENTVISIT_ID	Int	No	PK	Patient ID whose teeth structure is being recorded	(pvid)001	(pvid)002
TOOTH_ID	Int	No	FK	Incremental id assigned to each human tooth by system	(tid)001	(tid)002
REMARKS	Varchar (100)	No		Remarks about the patient's teeth structure	Crooked teeth	Damaged pulp in teeth

20. Medicine List

Entity captures details about different medicines. This list will be used to prescribe medication to a patient. This will link to the Patient Prescription entity.

Attributes:

MEDICINE LIST(MEDICINE_ID, NAME, DESC)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
MEDICINE_ID	Int	No	PK	Incremental id assigned to each medicine by system	(mid)001	(mid)002
NAME	Varchar (20)	No		Medicine's name	Doxycycline	Muscle relaxants
DESC	Varchar (20)	No		Description of the medication	Helps treat periodontal disease	Used to reduce your stress to stop you from grinding your teeth

21. Patient Prescription

Entity captures details about the patient prescription recorded during each visit to the dental office. This will link to the Medicine List entity.

Attributes:

PATINET PRESCRIPTION (<u>PRESCIPTION_ID</u>, <u>PATIENTVISIT_ID</u>, DATE, <u>MEDICINE_ID</u>, DOSAGEINSTRUCTION)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PRESCIPTION_ID	Int	No	PK	Incremental id assigned to each patient prescription by system	(prid)001	(prid)002
PATIENTVISIT_ID	Int	No	FK	Incremental id assigned to each patient visit by system	(pid)001	(pid)002
DATE	Date			Date when the prescription was given to the patient	04/20/2020	01/11/2021
MEDICINE_ID	Int	No	FK	Medicine ID that is being prescribed to a patient	(mid)001	(mid)002
DOSAGE INSTRUCTION	Varchar (100)	No		Instructions about the medication dosage prescribed to a patient	10mg with every meal	Take one hour before eating

22. Treatment List

Entity captures details all the treatments provided by the dental office. It will list all the treatments provided along with their cost. This will link to the Patient Treatment entity.

Attributes:

TREATMENT LIST (<u>TREATMENT_ID</u>, NAME, DESC, COST)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
TREATMENT_ID	Int	No	PK	Incremental id assigned to each treatment type by system	(tid)001	(tid)002
NAME	Varchar(30)	no		Name of the treatment	Dental implants	Dental Fillings
DESC	Varchar (100)			Description of the treatment	The best and most permanent way to replace	Dental fillings are used to treat

					real teeth is with dental implants.	teeth that have cavities or decay
COST	Int			Cost of the treatment in dollars	150	245

23. Patient Treatment

Entity captures details pertaining to all the treatments performed on a patient during every visit. This will track the entire treatment history of a particular patient. This will link to other entities such as Treatment List and Patient Visit.

Attributes:

PATIENT TREATMENT (<u>PATIENTTREATMENT_ID</u>, <u>PATIENTVISIT_ID</u>, <u>TREATMENT_ID</u>, REMARKS)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PATIENT TREATMENT_ ID	Int	No	PK	Incremental id assigned to each treatment type by system	(ptid)001	(ptid)002
PATIENTVISIT_ ID	Int	No	FK	Incremental id assigned to each patient Visit by system	(pvid)001	(pvid)002
TREATMENT_ ID	Varchar (30)	No	FK	Treatment technique	(tid)001	(tid)002
REMARKS	Varchar (30)	No		Remarks about the patient's treatment	Root Canal Successful	Teeth Extraction completed

24. Dentist Availability

Entity captures the working hours and days list of a dentist in the dental office. This will enable scheduling of appointments based on the dentist's available hours. This will link to other entities such as Dentist and Appointment entities.

Attributes:

DENTIST AVAILABILITY (<u>DENTISTAVAILABILITY_ID</u>, <u>DENTIST_ID</u>, DATE, STARTTIME, ENDTIME, ISDENTISTAVAILABLE)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
DENTIST AVAILABILITY_ID	Int	No	PK	Incremental id assigned to a dentist availability by system	(daid)001	(daid)002
DENTIST_ID	Int	No	FK	Dentist ID whose availability is being tracked	(did)001	(did)002
DATE	Date	No		Date where the dentist's availability is being tracked	11/01/2021	02/03/2021
STARTTIME	Time	No		Start Time of availability on a given date	9:00	8:00
ENDTIME	Time	No		End Time of availability on a given date	17:00	16:00
ISDENTIST AVAILABLE	Boolean	No		Check dentist's availability	True	False

25. Dentist

Entity captures all the dentists working in the dental office. It will capture all their personal information. This will link to other entities such as User, Patient and Dentist Availability.

Attributes:

DENTIST (DENTIST_ID, FNAME, LNAME, MOBILENO, EMAIL, ADDRESSLINE_1, ADDRESSLINE_2, CITY, STATE, ZIPCODE, COUNTRY, DATEOFBIRTH, CERTIFICATENO, SPECIALIZATION)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
DENTIST_ID	Int	No	PK	Incremental id assigned to a dentist by system	(did)001	(did)002
USER_ID	Int	No	FK	Incremental id assigned to a user by system	(yid)001	(uid)002
FNAME	Char(20)	No		First name of dentist	John	Ajay
LNAME	Char(20)	No		Last name of dentist	Mathew	Nair
MOBILENO	Varchar(10)	No		Phone number of the dentist	8573768601	9822081760
EMAIL	Varchar(50)	No		Email address of the dentist	johnmathew @gmail.com	ajaynair@ gmail.com
ADDRESSLINE_1	Varchar(30)	No		Address Line 1 of the dentist	170 Parker Hill Avenue	15 Dorchester Avenue
ADDRESSLINE_2	Varchar(30)	No		Address Line 2 of the dentist	Roxbury Crossing	Winchester Street
CITY	Varchar(15)	No		City of dentist	Boston	Cambridge

STATE	Varchar(15)	No		State of dentist	Texas	Massachusetts
ZIPCODE	Varchar(10)	No		Zip code of dentist	02115	02120
COUNTRY	Varchar(15)	No		Country of dentist	India	USA
DATEOFBIRTH	Date			Date of Birth of Dentist	11/20/2014	05/20/2000
CERTIFICATENO	Int			Certificate No of Dentist	456123545	485967123
SPECIALIZATION	Varchar(15)			Specialization of Dentist	Pediatric dentistry	Periodontics

26. Hygienist

Entity captures all the hygienists working in the dental office. It will capture all their personal information. This will link to other entities such as User and Patient Visit.

Attributes:

HYGIENIST (HYGIENIST_ID, FNAME, LNAME, MOBILENO, EMAIL, ADDRESSLINE_1, ADDRESSLINE_2, CITY, STATE, ZIPCODE, COUNTRY, DATEOFBIRTH, CERTIFICATENO, SPECIALIZATION)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
HYGIENIST_ID	Int	No	PK	Incremental id assigned to a hygienist by system	(did)001	(did)002
USER_ID	Int	No	FK	Incremental id assigned to a user by system	(yid)001	(uid)002
FNAME	Char(20)	No		First name of hygienist	John	George
LNAME	Char(20)	No		Last name of hygienist	Mark	Seemon
MOBILENO	Varchar (10)	No		Phone number of the hygienist	8573768601	9822081760
EMAIL	Varchar (35)	No		Email address of hygienist	johnmark@ gmail.com	seemon.g@ gmail.com
ADDRESS LINE_1	Varchar (20)	No		Address Line 1 of hygienist	170 Parker Hill Avenue	15 Dorchester Avenue
ADDRESS LINE_2	Varchar (20)	No		Address Line 2 of hygienist	Roxbury Crossing	Winchester Street
CITY	Varchar (15)	No		City of hygienist	Boston	Cambridge
STATE	Varchar (15)	No		State of hygienist	Texas	Massachusetts
ZIPCODE	Varchar (10)	No		Zip code of hygienist	02115	02120
COUNTRY	Varchar (15)	No		Country of hygienist	India	USA
DATEOF BIRTH	Date			Date of Birth of hygienist	11/20/2014	05/20/2000

CERTIFICATE NO	Int			Certificate No of hygienist	456123545	485967123
SPECIALIZAT ION	Varchar (15)			Specialization of hygienist	Pediatric dentistry	Periodontics

27. Equipment List

This entity will capture the list of all equipment available in a particular branch and room of a dental office. This can be used to schedule treatments for patients based on their health issues. This will link to other entities such as Branch and Room.

Attributes:

EQUIPMENT LIST(EQUIPMENT_ID, EQUIPMENT, ROOM_ID)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
EQUIPMENT_ ID	Int	No	PK	Incremental id assigned to each equipment by system	(eeid)001	(eeid)002
EQUIPMENT	Varchar(30)	No		Equipment name	X- ray viewer	Endomotor
ROOM_ID	Int	No	FK	Room ID where the equipment is present/ used	(rid)001	(rid)002

28. Payment

Entity captures payment details during every visit of a patient. This will link to other entities such as Patient Visit and Billing.

Attributes:

PAYMENT (PAYMENT_ID, BILLING_ID, PATIENTVISIT_ID, PAYMENT_ DATE, PAYMENTAMOUNT, PAYMENTSTATUS)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PAYMENT_ID	Int	No	PK	Incremental id assigned to each payment by system	(pid)001	(pid)002
BILLING_ID	Int	No	FK	Billing ID whose payment is being processed	(pid)001	(pid)002
PAYMENT_ DATE	Date	No		Date when the patient made the payment (MM/DD/YYYY)	04/20/2020	08/20/2021

PAYMENT_ AMOUNT	Int	No		Amount paid by patient (in dollars)	70	100
PAYMENT_ STATUS	Varchar(15)	No		Payment Status	Complete	In Complete

29. Billing

Entity captures details about the bill generated for each patient during every visit to the dental office. This will link to other entities such as Payment and Patient Treatment.

Attributes:

BILLING (BILLING_ID, PATIENTTREATMENT_ID, PRICE, TAXPRICE, TOTALCOST, PAYMENTSTATUS)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
BILLING_ID	Int	No	PK	Incremental id assigned to each bill generated by system	(bid)001	(bid)002
PATIENT TREATMENT_ID	Int	No	FK	Patient treatment ID for which the bill is being generated	(pid)001	(pid)002
PRICE	Int	No		Total price generated (in dollars)	10	15
TAXPRICE	Int	No		Tax levied on the bill (in dollars)	8	9
TOTALCOST	Int	No		Total Cost (in dollars)	18	24
PAYMENTSTATUS	Varchar (15)	No		Payment Status	Successful	Failed

30. Pharmacy Information

Entity captures geodata and contact information pertaining to each patient's preferred pharmacy store. This will enable the dental office to send the patient's prescriptions directly to the pharmacy. This will link to other entities such as Patient and Patient Insurance Information.

Attributes:

PHARMACY INFORMATION (PHARMACY_ID, PATIENT_ID, PATIENTINSURANCE_ID, PHARMACY_NAME, MOBILENO, ADDRESSLINE_1, ADDRESSLINE_2, CITY, STATE, ZIPCODE, COUNTRY)

Attribute	Data Type	Allows NULL	Key	Description	Example 1	Example 2
PHARMACY _ID	Int	No	PK	Incremental id assigned to a pharmacy by system	(phid)001	(phid)002
PATIENT INSURANCE _ID	Int	No	FK	Incremental id assigned to each patient's insurance detail by system	(piid)001	(piid)002
PHARMACY _NAME	Char(30)	No		Name of the pharmacy	CVS Health	Walgreens

MOBILENO	Varchar(10)	No		Contact number of the pharmacy	8573768601	9822081760
ADDRESSLINE_1	Varchar(30)	No		Address Line 1 of the pharmacy	170 Parker Hill Avenue	15 Dorchester Avenue
ADDRESSLINE_2	Varchar(30)	No		Address Line 2 of the pharmacy	Roxbury Crossing	Winchester Street
CITY	Varchar(20)	No		City of the pharmacy	Boston	Cambridge
STATE	Varchar(20)	No		State of the pharmacy	Texas	Massachusetts
ZIPCODE	Varchar(10)	No		Zip code of the pharmacy	02115	04140
COUNTRY	Varchar(15)	No		Country of the pharmacy	India	USA

BUSINESS RULES

Terminology to be used to define our business rules:

1. **IS – In Scope**
2. **OS – Out of scope**
3. **PS – Potential Scope**

Rule Number	Business Rule
IS-01.0	The dental office has multiple locations.
IS-01.1	Each location has several rooms.
IS-01.2	Each room has a purpose (Hygienist, General, Endodontic, Orthodontic).
IS-02.1	All locations have at least one General and one Hygienist room.
IS-04.0	All patients should have an emergency contact saved to reach out to in case of an urgent matter.
IS-05.0	All patients under the age of 18 should have a guardian whose details should be saved.
IS-06.0	We are only focusing on the dental office employees who participate in giving care to the patients.
IS-07.0	A patient can have more than one insurance information saved to their record.
IS-08.0	The allergies section must be filled by a patient before every dental office visit.
IS-09.0	Once the patient is at the clinic, his/ her medical history will be entered and will be updated on monthly basis.
IS-10.0	A patient must fill COVID related disclosure form prior to each visit to the Dental Office.
IS-11.0	The disorders section of an intake form must be filled during the first visit of a patient.
IS-12.0	The dental history and visits section of an intake form must be filled during the first visit of a patient.
IS-13.0	Each patient will have a primary dentist saved to their profile.
IS-14.0	Each patient will have a primary branch which they frequent the most.
IS-15.0	A patient can book an appointment in other branches other than their primary branch.
IS-16.0	Patient will book the appointment with the dentist. A patient cannot walk in without an appointment.

IS-17.0	A doctor can go to multiple branches of the dental office.
IS-18.0	During the appointment, the hygienist will perform his/her regular checkup and procedure after which the patient will be attended to by the dentist
IS-19.0	Dentist will examine the teeth structure of the patient and prescribe the respective treatment.
IS-20.0	Patient and Dentist can schedule their further appointment based on the treatment prescribed.
IS-21.0	After every visit the dentist will add the medical prescription to the patient
IS-22.0	Not every appointment will have a prescription associated with it.
IS-23.0	Doctor would be able to view the entire medical and treatment history of the patient including the teeth that were operated on and the medicines prescribed.
IS-24.0	Based on the patient's visit and the treatment provided, the payment would be processed, and the bill would be generated.
OS-01.0	Employees in support staff such as front desk, billing will not be considered.
OS-02.0	Employee salary is not required.
OS-03.0	Benefits and Services that are covered by the provider.
PS-01.0	Tracking condition or status of an equipment can be considered in future scope.

ENTITY DIAGRAM