

DENTAL OFFICE MANAGEMENT SYSTEM

Project Report submission on “Dental Office Data Model”



Northeastern University

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REVISION HISTORY

| Date | Version | Author | Notes |
|-------------|----------------|-----------------|--|
| 11/10/19 | 0.1 | Gayatri Reddiar | Business Rules |
| 11/12/19 | 0.2 | Harrsini Sekar | Patient, Appointment Entity |
| 11/12/19 | 0.3 | Sridhar Prasad | Bills and Payment Entity |
| 11/12/19 | 0.4 | Sanjeev MD | Supplies, Equipment Entity |
| 11/12/19 | 0.5 | Gayatri Reddiar | Provider Entity |
| 11/14/19 | 0.6 | Harrsini Sekar | Final entities list along with attributes based on discussion forum inputs |
| 11/14/19 | 0.7 | Sridhar Prasad | ER model based on tabulated entities |
| 11/14/2019 | 0.8 | Sanjeev MD | Updated the business rules based on the group discussion |
| 11/18/2019 | 0.9 | Sridhar Prasad | In Scope items final update |
| 11/18/2019 | 0.9 | Harrsini Sekar | In Scope items verified |
| 11/19/2019 | 1.0 | Gayatri Reddiar | Out Scope items final update |
| 11/19/2019 | 1.0 | Sanjeev MD | Out Scope items verified |

| | | | |
|------------|-----|-----------------|--|
| 11/23/2019 | 1.1 | Harrsini Sekar | High-Level Diagram final update |
| 11/25/2019 | 1.2 | Sanjeev MD | Data Model final update |
| 11/25/2019 | 1.3 | Sridhar Prasad | Subject areas final update |
| 11/05/2019 | 1.4 | Harrsini Sekar | Patient, Patient Insurance, Patient Allergies, Patient Address, Appointments, Company entity table updated with attributes |
| 12/05/2019 | 1.5 | Sanjeev MD | Teeth, Appointment Billing, Payment, Notes, Prescription, Company Contacts, Session entity table updated with attributes |
| 12/08/2019 | 1.6 | Gayatri Reddiar | Dentist, User Account, Dentist License, Dentist Schedule, Supply, Supply Catalogue, Equipment Catalogue entity table updated with attributes |
| 12/08/2019 | 1.7 | Sridhar Prasad | Location, Treatment Catalogue, Patient Treatment, Patient Teeth, Equipment entity table updated with attributes |
| 12/11/2019 | 1.8 | Gayatri Reddiar | Subject Definitions With Entities Verified |

1. PURPOSE

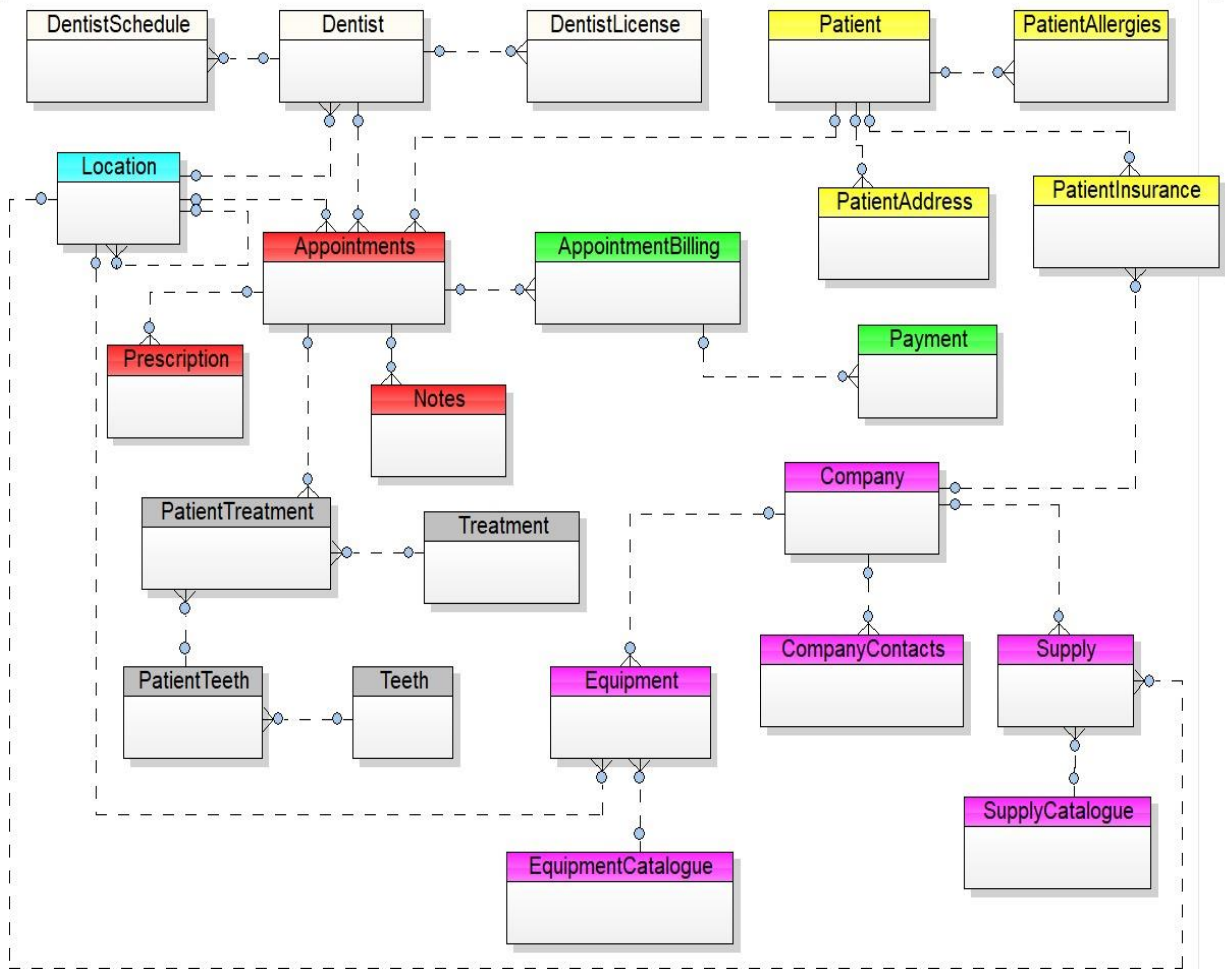
- The purpose of the dentist data model is to build a database system which helps to deliver service to the dentist office.
- This data model ensures that all data objects required by the database are accurately represented. It introduces the various entities involved in the dental eco-system with the various business rules governing such a system.
- The document charts a high-level data model highlighting the interactions between the participating entities.
- This data model will help the dental office to provide solutions to consistent treatment, generate invoice, billing, scheduling and managing the medical records/treatments of the patients.

2. AUDIENCE

- The intended audience of this document is SQL developers who are familiar with the Database system. Readers are not required to know all the details of the DBMS. However, some knowledge of the DBMS basic concepts would be advantageous for reading of this document. Mentioning some intended audiences below,
 - SQL Developers
 - Database Administrators
 - Project Manager/ Admin

3. HIGH LEVEL DIAGRAM:

[1,1]



[2,1]

4. SUBJECT AREAS

Provider/Dentist - The provider cluster / subject is where information regarding the caregivers at the dental facility will be housed. Information captured here will include the data necessary to allow for a provider to perform work on behalf of the facility. Licenses, specializations, login information and general demographic information will be kept in this area. This section should support the other areas within the stem with regards to caregivers for providing services.

The Included Entities are:

- Dentist
- DentistSchedule
- DentistLicense
- UserAccount

Beneficiary/Patient - The beneficiary cluster / subject is where the information regarding the recipient at the dental facility will be stored. Information stored here will include the data of all the facility that are used by the recipient. Patient demographic information, insurance details, Medical History like Allergies will be housed here. This cluster bolsters the other areas with regards to the facility/service obtained from the provider.

The Included Entities are:

- Patient
- PatientAddress
- PatientAllergies
- PatientInsurance

Invoice - The Invoice cluster/Subject is where the information regarding the cost associated with the service provided from the provider. This is stored against the recipient. The invoice generated against the treatment provided, the cost associated with the treatments, Mode of payment, Payment cycle are stored in this cluster. This area aids the other entities to function efficiently to provide proper billing and payment modes to the beneficiary.

The included Entities are,

- Payment
- Appointment Billing

Appointment- The appointment cluster/ subject is where the information regarding the appointment scheduled between the provider and the beneficiary is housed. Appointment information, Treatment to be done, room details, provider and the beneficiary details are stored. This area supports the other areas with respect to the efficient service and schedules.

The included Entities are,

- Appointments
- Prescription
- Notes
- Location

Inventory - The inventory cluster/ subject aids in the storage of the supplies and equipment available in the dental facility for the patient. Supplies available, equipment, medicine stock and all the stocks used for the service towards the beneficiary will be housed here. This bolsters the other area to provide consistent supply of the items to provide continuous service to the patient.

The included Entities are:

- Company

- CompanyContacts
- EquipmentCatalogue
- SupplyCatalogue
- Supply
- Equipment

Treatment: The treatment cluster/ subject is where the information regarding the treatment/procedures/services provided in the dental facility for the patient. Treatment details, Teeth in which the procedures are done, cost associated with the treatment will be housed here. This bolsters the other area to provide consistent treatment and to keep a track of the teeth details against each patient.

The included Entities are:

- Treatment
- PatientTreatment
- PatientTeeth
- Teeth

5. NOUN DEFINITIONS WITH ATTRIBUTES

1). Patient: - This entity is a simple dictionary to store all the personal data of the patient(receiver) in the dental system. The details will be gathered during the first patient visit to the dental office. The table will be populated by the unique Patient ID and the hospital record number (HRN). This person makes an appointment for a visit to the dentist and pays for the medical treatment. It is a summary of the patient's demographic details.

| Attribute | Datatype | Constraint | Definition |
|----------------------|--------------|--------------------------------------|---|
| patientID | Integer | Primary key | Primary key for the patient ID |
| | | Identity (1,1) | |
| patientHRN | Varchar (10) | NOT NULL, | 'MA001' |
| firstName | Varchar (50) | NOT NULL | First name of the patient is mandatory. |
| middleName | Varchar (50) | | |
| lastName | Varchar (50) | | |
| gender | Char (1) | M - Male F - Female O - Others | Gender of the patient is captured. |
| emailID | Varchar (50) | | abc@abc.com |
| contactNumber | Char (10) | NOT NULL | 5655871234 |
| dob | date | | |

2). PatientInsurance: - This entity contains all the insurance and the associated insurance providing companyID that is to be claimed by the patient. It can hold a maximum of three insurance details per patient.

| Attribute | Datatype | Constraint | Definition |
|---------------------------|-----------|--|--|
| patientInsuranceID | Integer | PrimaryKey | |
| | | Identity (1,1) | |
| patientID | Integer | Foreign key References Patient (patientID) NOT NULL | |
| companyID | Integer | Foreign key References Company (companyid) NOT NULL | |
| insuranceNumber | Char (20) | NOT NULL | Mandatory field to fetch insurance details of the patient. |

3). PatientAllergies: - The allergies and its details are added in this entity. Each patient may have different allergies so a table to record data related to patient's allergy. It will have patients ID and the allergy he is associated with. It is not specific to any appointment so we will have patient id in this table instead of appointment ID.

| Attribute | Datatype | Constraint | Definition |
|--------------------|---------------|---|--|
| allergyID | Integer | Primary key | Primary key for allergyID |
| | | Identity (1,1) | |
| patientID | | Foreign key References Patient (patientID) NOT NULL | |
| description | Varchar (500) | NOT NULL | Description about the allergy is recorded. |
| type | Varchar (50) | NOT NULL | "FOOD ALLERGY" |

4). PatientAddress: - Entity that houses the address details of the patients. This entity provides no restriction on the number of addresses against a patient.

| Attribute | Datatype | Constraint | Definition |
|------------------|--------------|---|---------------------------|
| addressID | Integer | Primary key | Primary key for allergyID |
| | | Identity (1,1) | |
| patientID | | Foreign key References Patient (patientID) NOT NULL | |
| street | Varchar (50) | NOT NULL | 226 Parker Avenue |
| aptNumber | Char (5) | | 77 |
| city | Varchar (25) | NOT NULL | Boston |
| state | Char (2) | NOT NULL | MA |
| zipCode | Char (5) | NOT NULL | 02120 |

4). Dentist: - This entity houses the demographic details i.e. the personal data of a provider in the dental system. This person must be licensed by the state they are operating in to perform general dentistry. The cost associated with the block of consultation/treatment is recorded here.

| Attribute | DataType | Constraints | Definition |
|----------------------|----------------|--------------------------------------|--|
| dentistID | Integer | Primary Key Identity (1,1) | Primary key for the dentist. |
| | | | |
| dentistHRN | Varchar (20) | NOT NULL | Unique identification number provided to the dentist. Example 'GH001' HRN – Hospital Record Number. |
| firstName | Varchar (50) | NOT NULL | "SANJEEV" |
| middleName | Varchar (50) | | It can be Null. |
| lastName | Varchar (50) | | "MD", It can be Null. |
| doj | Date | | "05/05/1995" Holds the date dentist joined the office |
| contactNumber | Char (10) | NOT NULL | 5876554235 |
| emailID | Varchar (50) | | abcd@abc.com |
| gender | Char (1) | M - Male F - Female O - Others | 'M' |
| aptNumber | Char (5) | | #16 |
| street | Varchar (50) | NOT NULL | 226 Parker Hill Avenue |
| city | Varchar (25) | NOT NULL | Boston |
| state | Char (2) | NOT NULL | MA |
| zipCode | Char (5) | NOT NULL | 02120 |
| cost | Decimal (18,2) | NOT NULL | |

5). DentistLicense: - The entity which holds the License details of the dentist. The state in which the dentist can practice with the associated license is recorded here. The expiry date is also listed here.

| Attribute | DataType | Constraints | Definition |
|----------------------|-----------|--|--------------------------------------|
| licenseId | Integer | Primary Key Identity (1,1) | Primary key for the dentist license. |
| | | | |
| licenseNumber | Char (16) | NOT NULL | 5677125498765245 |
| state | Char (2) | NOT NULL | MA |
| expiry | Date | Not NULL | 05/23/2020 |
| dentistID | integer | Foreign key References Dentist (dentistID) NOT NULL | |

6). DentistSchedule: - The schedule of the dentist is included here. The number of the days the dentist is available and working hours can be taken from here.

| Attribute | Data Type | Constraints | Definition |
|-------------------|-----------|---|--------------------------------------|
| scheduleID | Integer | Primary Key Identity (1,1) | Primary key for the dentist schedule |
| dayOfWeek | Char (1) | 1 -Monday 2 -Tuesday 3 -Wednesday 4 -Thursday 5 -Friday 6 -Saturday 7 -Sunday NOT NULL | |
| dentistID | integer | Foreign key Ref Dentist (dentistID) NOT NULL | |
| startTime | time | NOT NULL | 08:00:00. Schedule start time |
| endTime | time | NOT NULL | 09:00:00. Endtime of the schedule. |
| locationID | Integer | Foreign key references Location (location ID) NOT NULL | |

7). Location: - This entity hosts the location details and the location type such as Rooms or Building. It includes the room details where the patient meets the dentist as per the appointment given. The availability of the room can be calculated from here to the appointment.

| Attribute | Datatype | Constraint | Definition |
|-------------------------|--------------|---|--|
| locationID | Integer | Primary Key Identity (1,1) | |
| name | Varchar (50) | NOT NULL | Each location's name is being captured. |
| type | char (2) | RO – Room BU – Building OR – Organization NOT NULL | Type of the location is being captured in this column. |
| parentLocationID | Integer | Foreign key references Location(locationID) | Immediate parent of the location is recorded. |

9). Appointments: - Entity which has the collective information of Patient's schedule with the Dental service provider. Unique Appointment ID for each person will be created for every visit. The appointment time along with the location details and type of update are also captured.

| Attribute | Datatype | Constraint | Definition |
|----------------------|----------|--|---|
| appointmentID | Integer | PrimaryKey Identity(1,1) | |
| patientID | Integer | Foreign key References Patient (patientID) NOT NULL | ID of the Patient involved in the appointment is recorded. |
| dentistId | Integer | Foreign key references Dentist (dentistID) NOT NULL | |
| locationID | Integer | Foreign key references Location (locationID) NOT NULL | |
| startTime | Datetime | NOT NULL | 03/03/2019 |
| endTime | Datetime | | |
| updateType | Char (1) | 1 – Admitted 2 – Completed 3 – Cancelled 4 – Missed 5 – Rescheduled by Admin 6 - Rescheduled | Type of update that has been made is recorded in this table. |
| billingID | Integer | Foreign key references Billing(billingID) | One or more appointments can be billed under a single bill id and payment can be made for the same. |

10). AppointmentBilling: - The details of the bill generated based on the cost of the treatment provided by the dentist to the patient are stored here.

| Attribute | Data Type | Constraint | Definition |
|--------------------|---------------|-------------|---|
| billingID | Integer | Primary key | |
| comments | Varchar (100) | | Optional column to hold comments made for an appointment. |
| billTime | DateTime | NOT NULL | |
| isCompleted | Bit | NOT NULL | 0 – Not Completed 1 - Completed |

11). Payment: - This entity gathers all the payment related information made by a patient for his treatment. The payment type, balance, debit and credit related information can be found here.

| Attribute | Data Type | Constraint | Definition |
|---------------------------|----------------|--|---|
| paymentID | Integer | Primary key | |
| billingId | Integer | Foreign Key references Billing (billingID) NOT NULL | |
| paymentCost | Decimal (18,2) | NOT NULL | The amount that has been paid is stored in this column. |
| paymentType | Char (10) | NOT NULL | Type of payment is recorded |
| paymentDate | Datetime | NOT NULL | Date when the payment was made is recorded |
| patientInsuranceId | Integer | Foreign Key references Insurance(patientInsuranceID) | The insurance of the patient if he chooses to pay part of the bill using insurance. |
| status | TinyInt | NOT NULL | 0 – Initiated 1 – Pending 2 – Completed 3 – Cancelled |

12). Treatment: Defined set of Dental Treatment plan with description, Unique Treatment ID, Treatment cost are stored in this entity.

| Attributes | Datatype | Constraint | Definition |
|--------------------|----------------|-------------------------------|---|
| treatmentID | Integer | Primary key Identity (1,1) | |
| description | Varchar (max) | | Detailed information regarding the steps to be carried out for the treatment. |
| cost | Decimal (18,2) | NOT NULL | |
| name | Varchar (50) | NOT NULL | “GUM SURGERY” |

13). Supply: - A stock of resource that are used by the people in the dental office inclusive of the provider that are billed during a treatment. Inventory count related information are also included here. This table consist of the supplies that’s required by the dentist to carry out a treatment. Count of the available supplies in a room are stored in the entity.

| Attribute | Datatype | Constraint | Definition |
|--------------------------|----------|--|---|
| supplyID | Integer | Primary Key | |
| companyID | Integer | Foreign key References Company (companyID) NOT NULL | The vendor associated with the supply. |
| supplyCount | Integer | NOT NULL | Count of availability of supply in one particular room. |
| locationID | Integer | Foreign key references Location (locationID) NOT NULL | |
| supplyCatalogueID | Integer | Foreign key references Supply Catalogue (supplyCatalogueID) NOT NULL | |

14). Prescription: - This entity holds the details of the medication provided by the Dental practitioner to the patient during each visit of the treatment period. It hosts the medication id which is a unique identifier.

| Attribute | Datatype | Constraint | Definition |
|-----------------------|----------|---|--|
| prescriptionID | Integer | Primary Key Identity (1,1) | |
| appointmentID | Integer | Foreign key References Appointment (appointmentID) NOT NULL | The appointment in which the medication is being prescribed is recorded here. |
| medicationID | GUID | Foreign key References Medication (medicationID) NOT NULL | This ID we get from the external database which will have the associated medication related details. |
| form | Char (2) | IN – Injection CA – Capsule TA - Tablet | Form of the medication is recorded here. |

15). Company: - The Insurance provider, Equipment provider and Supply provider are added in this single entity.

| Attribute | Datatype | Constraint | Definition |
|------------------|--------------|-------------------------------|--|
| companyID | Integer | Primary key Identity (1,1) | |
| name | Varchar (50) | NOT NULL | Name of the company is recorded. “ABC” |
| emailId | Varchar (50) | NOT NULL | abc@abc.com |

16). Equipment: - This entity hosts all the equipment’s provided by any third-party provider to the dental office. The dental office requires to be in touch with the vendor time to time, for assistance or maintenance and the information regarding the same are stored over here.

| Attributes | Datatype | Constraint | Definition |
|-----------------------------|----------|---|------------|
| equipmentID | Integer | PrimaryKey | |
| equipmentCatalogueID | Integer | Foreignkey References Equipment (equipmentCatalogueID) NOT NULL | |

| | | | |
|------------------------|----------|--|---|
| companyID | Integer | Foreign key References Company (companyID) NOT NULL | The associated vendor for the equipment is linked here. |
| locationID | Integer | Foreign key References Location (locationID) NOT NULL | Current location of the equipment is stored. |
| nextMaintenance | DateTime | | Next Maintenance due date is recorded. |
| purchaseDate | Date | NOT NULL | Date in which the equipment was bought. |

17). PatientTreatment: - In order to break the many to many relationships between the appointment and the treatment table, PatientTreatment table is introduced, which helps in breaking into one to many relationships. This holds the treatment, tooth details against an appointment.

| Attributes | Datatype | Constraint | Definition |
|---------------------------|----------|---|--|
| patientTreatmentID | Integer | Primary Key | |
| | | Identity (1,1) | |
| patientToothID | Integer | Foreign key References PatientTeeth (patientToothID) | Treatment done for a tooth |
| appointmentID | Integer | Foreign key References Appointment (appointmentID) NOT NULL | Appointment in which the treatment is carried out. |
| treatmentID | Integer | Foreign key references Treatment (treatmentID) NOT NULL | |

18). Notes: - Doctor might want to pass information related to patient to other doctor in that case a separate entity would be required to store comments for a patient in an appointment. In this way we can store remarks or comments that has been given in any given appointment.

| Attribute | Datatype | Constraint | Definition |
|----------------------|---------------|---|---|
| notesID | Integer | Primary Key Identity (1,1) | |
| description | Varchar (max) | NOT NULL | For every appointment dentist may want to add comments which are stored here. |
| appointmentID | Integer | Foreign key References Appointment (appointmentID) NOT NULL | |

19). SupplyCatalogue: - The details of the supply are stored here. This detail is split from the supply entity to resolve many to many relationships.

| Attribute | Datatype | Constraint | Definition |
|--------------------------|---------------|-------------|---|
| supplyCatalogueID | Integer | Primary Key | |
| name | Varchar (50) | NOT NULL | Predefined supply name. |
| description | Varchar (max) | | Description of the supply and its uses. |

20). EquipmentCatalogue: - The details of the equipment are stored here. This detail is split from the Equipment entity to resolve many to many relationships. This acts as Associative Entity.

| Attributes | Datatype | Constraint | Definition |
|-----------------------------|---------------|-------------------------------|---|
| equipmentCatalogueID | Integer | Primary key Identity (1,1) | |
| name | Varchar (50) | NOT NULL | Name of the equipment is stored in this column. |
| description | Varchar (max) | | Description about the equipment is recorded. |

21). Teeth: - It holds the information of each teeth uniquely identified by a teethID. It is to record the details on which teeth the dentist performs the treatment on. Each teethID will have teeth name which is associated to the patientTreatment entity.

| Attribute | DataType | Constraint | Definition |
|--------------------|--------------|-----------------------|---|
| teethID | Integer | Primary key, NOT NULL | |
| position | Char (2) | NOT NULL | Like the position in which tooth is placed. |
| description | Varchar(max) | | Detailed description about the tooth |
| name | Varchar(50) | NOT NULL | Each tooth and its associated medical name |

22). PatientTeeth: - The teeth details with respect to one patient are stored here. The data populated are based on the PatientTeethID.

| Attribute | DataType | Constraint | Definition |
|-----------------------|----------|--|--|
| patientToothID | Integer | Primary key, NOT NULL | |
| patientID | Integer | Foreign Key references Patient(patientID) NOT NULL | |
| teethID | Integer | Foreign Key references Teeth(teethID) NOT NULL | |
| updateDate | DateTime | NOT NULL | Date in which the procedure is done on a particular tooth |
| isRemoved | bit | NOT NULL | Whether teeth is present or not 1- Absent 0- Present |

23). CompanyContacts: - The Entity that holds the contact details of the company. One company can provide Insurance, Supply or Equipment. Thus, this entity holds the details of their supplies.

| Attribute | Datatype | Constraint | Definition |
|----------------------|--------------|---|------------|
| contactID | Integer | Primary key | |
| | | Identity (1,1) | |
| companyID | Integer | Foreign key References Company (companyID) NOT NULL | |
| contactNumber | Char (10) | NOT NULL | 1234567890 |
| contactName | Varchar (50) | NOT NULL | “HITESH” |
| department | Varchar (30) | | “Supply” |

24). UserAccount: - Entity that holds the login credentials of the dentist to access the database management system. The password stored here are encrypted.

| Attribute | Datatype | Constraint | Definition |
|--------------------|-----------------|---|--------------------|
| userName | Varchar (20) | NOT NULL | |
| password | Varbinary (300) | NOT NULL | Encrypted password |
| role | Varchar(10) | NOT NULL | |
| dentistID | Integer | Foreign key References Dentist (dentistID) | |
| createdBy | Integer | Foreign key References UserAccount (userID) | |
| dateCreated | DateTime | NOT NULL | |
| userID | Integer | PrimaryKey | |

25). SystemConfig: - This holds the configuration details that aids in appointment booking of the dentist.

| Attribute | Datatype | Constraint | Definition |
|--------------|----------------|-------------------------------|--|
| ID | Integer | Primary key Identity (1,1) | |
| name | Varchar (100) | NOT NULL | Set of configurations related to the dentist office Example 'Blocks' |
| value | Decimal (18,0) | NOT NULL | Value associated with the configuration eg. 20 |

26). Session: - This holds the amount of time spent by the user, which aids in the way to track the session time.

| Attribute | Datatype | Constraint | Definition |
|-------------------|----------|-------------------------------|------------|
| sessionID | Integer | Primary key Identity (1,1) | |
| userID | Integer | | |
| loginTime | DateTime | NOT NULL | |
| logoutTime | DateTime | | |

27). InstallationAudit: - This holds the details of the file used while execution of the scripts that has been run against DB.

| Attribute | Datatype | Constraint | Definition |
|----------------------|---------------|-------------------------------|--|
| ID | Integer | Primary key Identity (1,1) | |
| scriptRunTime | DateTime | NOT NULL | 11/14/2019 11:41:00 |
| scriptName | Varchar (100) | NOT NULL | Script file that has been executed 'GreenField Database Script' |

6. BUSINESS RULES

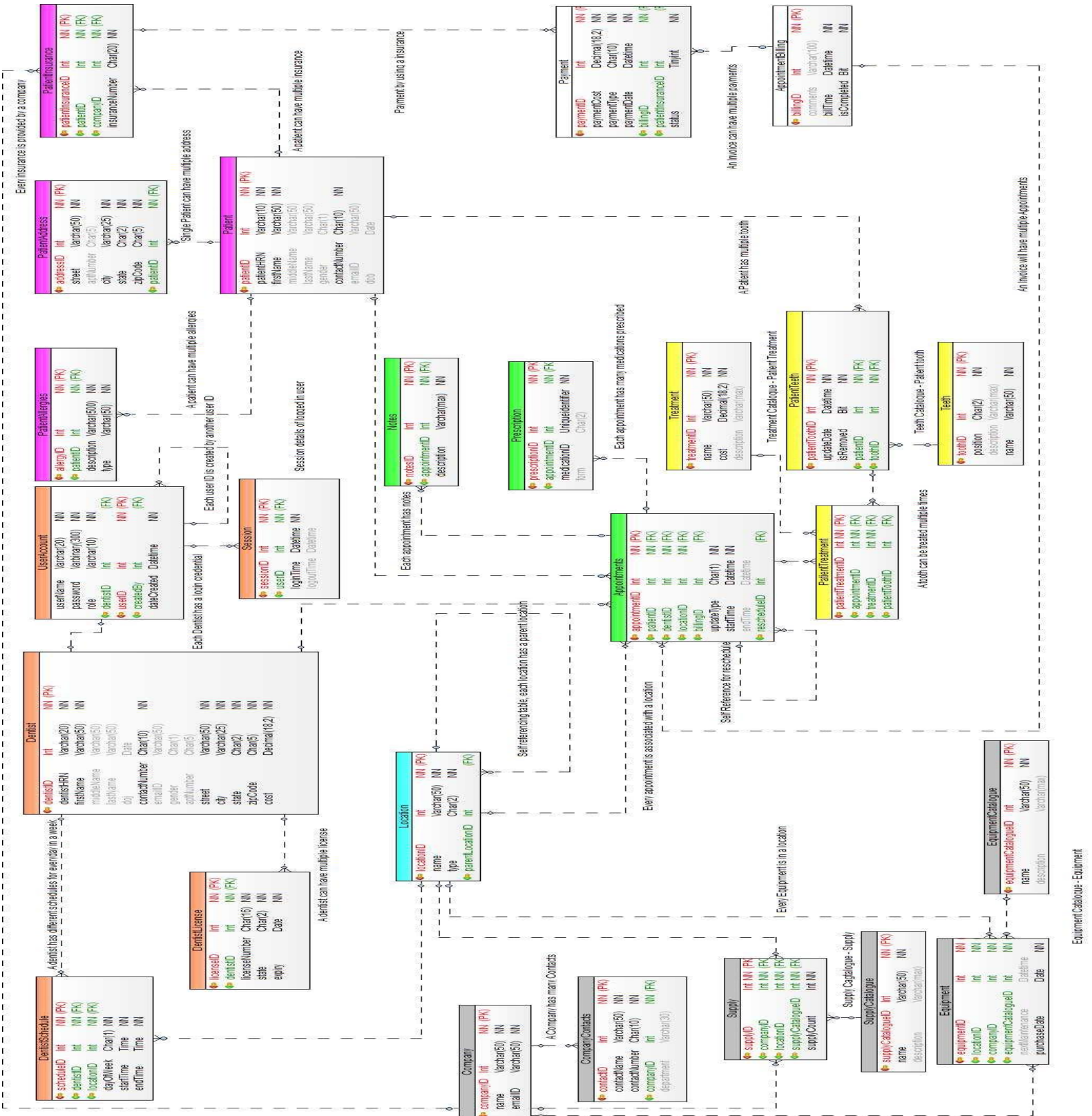
INSCOPE ITEMS :-


| ID | RULE | AREA |
|-------------|---|--------------------|
| IS01 | Capture the patient related details such as contact number, address and provide Hospital Record Number and identification number to the patient | Patient |
| IS02 | Patients insurance details are captured, and it can be multiple but less than three | Patient |
| IS03 | Allergies related to a patient is recorded in an entity | Patient |
| IS04 | License of the dentist is captured, and dentist can have more than one | Patient |
| IS05 | Each appointment has a dentist, patient and the location | Appointment |
| IS06 | Each appointment has a start date and end date | Appointment |
| IS07 | Each prescription is linked with an appointment | Appointment |
| IS08 | Equipment's detail along with current location of equipment is recorded | Inventory |
| IS09 | Type of medication given to the patient (injection, capsule, tablet) | Appointment |
| IS10 | Dentist demographic details such as contact number, address is captured in the dentist entity | Dentist |
| IS11 | Each dentist will have their own time of visit which has to be recorded | Appointment |
| IS12 | Appointments are grouped and billed as a single bill based on the requirement | Invoice |
| IS13 | Reminder or notes related to a patient during future visits | Appointment |
| IS14 | Insurance provider details should be captured | Inventory |
| IS15 | Dentist's license details should be recorded | Dentist |
| IS16 | Equipment's maintenance details should be recorded | Inventory |
| IS17 | Each dentist can have one appointment at a time | Dentist |
| IS18 | Room location details associated with any treatment should be captured | Appointment |
| IS19 | Equipment and supplies are bought from multiple vendors is captured | Inventory |
| IS20 | All available treatments along with cost should be captured | Treatment |
| IS21 | Each treatment will be linked to an appointment | Treatment |
| IS22 | Teeth data of each patient is unique and should be captured | Patient |
| IS23 | Patient can use one or multiple payment modes | Invoice |
| IS24 | Each dentist can have multiple appointments scheduled in a day | Dentist |
| IS25 | All the billable materials used by the dentist must be captured | Inventory |
| IS26 | Every supply used by dentist must be tracked in terms of quantity | Inventory |
| IS27 | A payment against an invoice can be made in installments | Invoice |
| IS28 | Each appointment will be billed by only one doctor | Appointment |
| IS29 | A patient can book multiple appointments with the same doctor | Appointment |
| IS30 | One location can have multiple rooms, but a room can only be mapped to its corresponding location | Appointment |
| IS31 | A dentist can give only one prescription per appointment | Appointment |
| IS32 | There can be multiple treatments for treating the same condition | Treatment |

OUTSCOPE ITEMS :-

| ID | RULE |
|------|--|
| OS01 | Payroll and human resource information |
| OS02 | People who work in the office but do not participate in patient care |
| OS03 | Order of medication (Or, then and and) are not captured since it is dentist office |
| OS04 | Roles and authorization for the logged in user |
| OS05 | Dispense related details are not recorded |
| OS06 | Job History of the dentist is not recorded |
| OS07 | Cost involved for using supplies that are not billed |
| OS08 | Feedback from the patients |
| OS09 | Providers SSN is not captured |
| OS10 | Multiple appointments at a single time |
| OS11 | Allergic reaction to medicines |
| OS12 | Patient transfers is not relevant |
| OS13 | Clinic leasing/parking information including cost |
| OS14 | Online medical services |
| OS15 | Patient membership plans |
| OS16 | Operational/Financial tracking |
| OS17 | Miscellaneous equipment/supplies |
| OS18 | Vendor/Pharmacy details |
| OS19 | Medicines of non-dental nature |
| OS20 | Cost of medicines |
| OS21 | Patient's employment details |
| OS22 | Secondary employment details of dentist |
| OS23 | Status of prescription as it is always in approved state once given by dentist |
| OS24 | Clinic address information |
| OS25 | Non-Dental procedures |
| OS26 | Cost of the equipment |

8. ER DATA MODEL



| SystemConfig | | | |
|--|---------------|----|------|
|  ID | Int | NN | (PK) |
| name | Varchar(100) | NN | |
| value | Decimal(18,0) | NN | |

| InstallationAudit | | | |
|--|--------------|----|--|
|  ID | Int | NN | |
| scriptName | Varchar(100) | NN | |
| scriptRunTime | Datetime | NN | |

9. ABBREVIATIONS

HRN – Hospital Record Number.