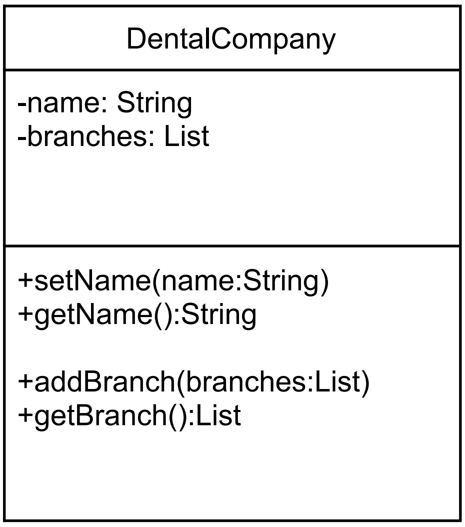
Assignment 2: Software Implementation - OO Project with GUI

1. **UML Class** Diagram and Description

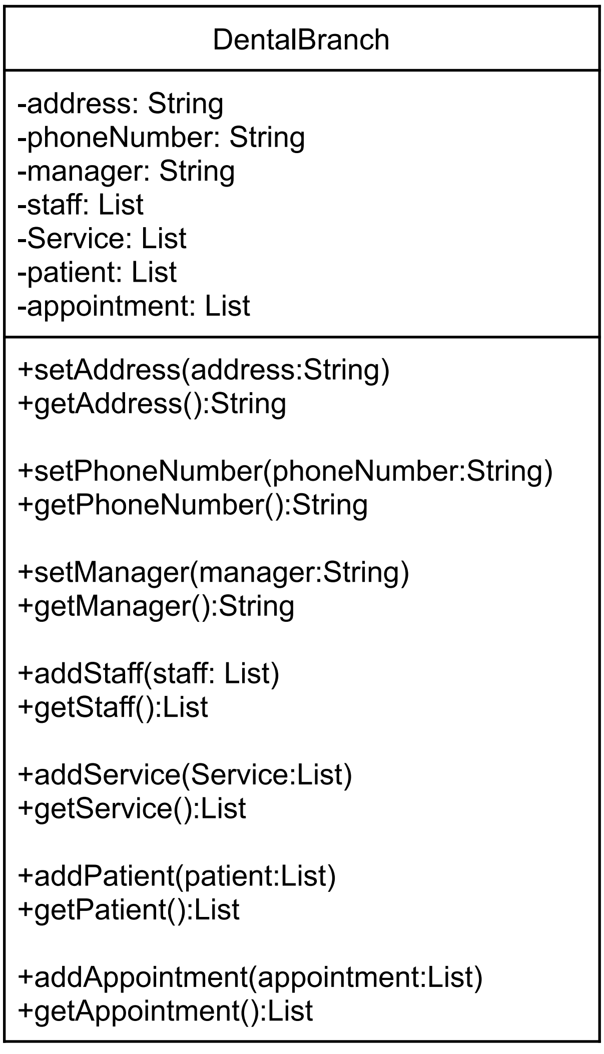


DentalCompany

-name: String
-branches: List

+setName(name:String)
+getName():String

+addBranch(branches:List)
+getBranch():List



DentalBranch

-address: String
-phoneNumber: String
-manager: String
-staff: List
-Service: List
-patient: List
-appointment: List

+setAddress(address:String)
+getAddress():String

+setPhoneNumber(phoneNumber:String)
+getPhoneNumber():String

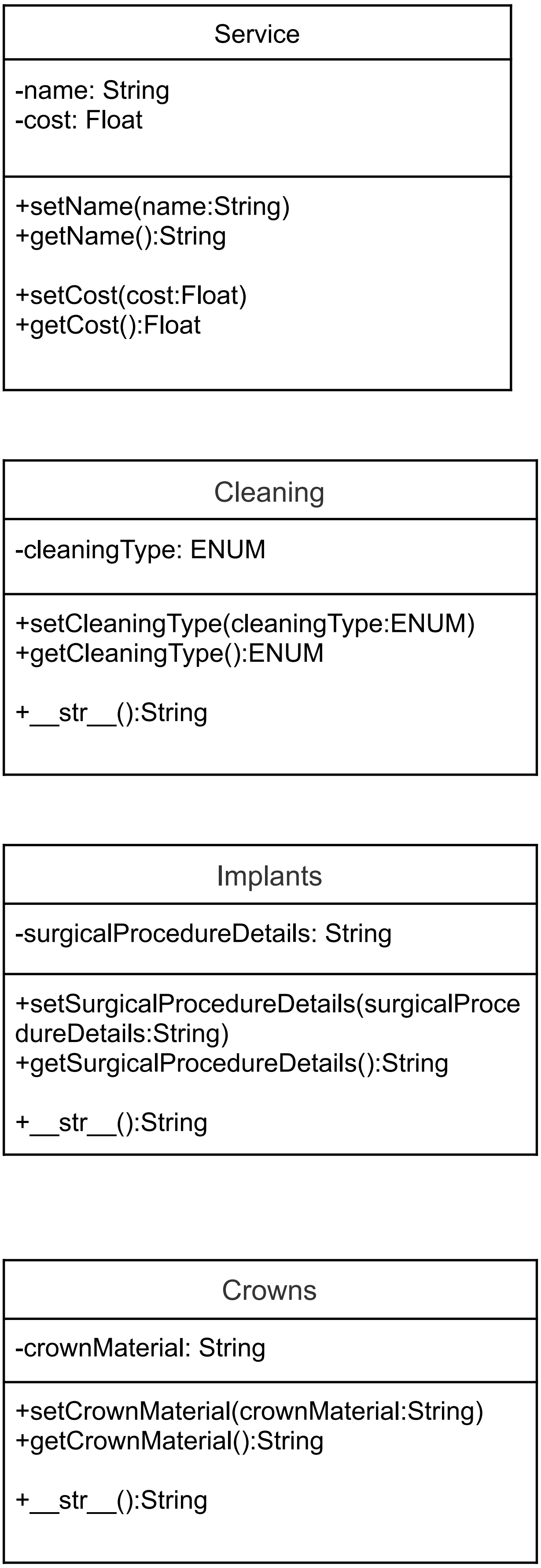
+setManager(manager:String)
+getManager():String

+addStaff(staff: List)
+getStaff():List

+addService(Service:List)
+getService():List

+addPatient(patient:List)
+getPatient():List

+addAppointment(appointment:List)
+getAppointment():List



Service

-name: String
-cost: Float

+setName(name:String)
+getName():String

+setCost(cost:Float)
+getCost():Float

Cleaning

-cleaningType: ENUM

+setCleaningType(cleaningType:ENUM)
+getCleaningType():ENUM

+__str__():String

Implants

-surgicalProcedureDetails: String

+setSurgicalProcedureDetails(surgicalProcedureDetails:String)
+getSurgicalProcedureDetails():String

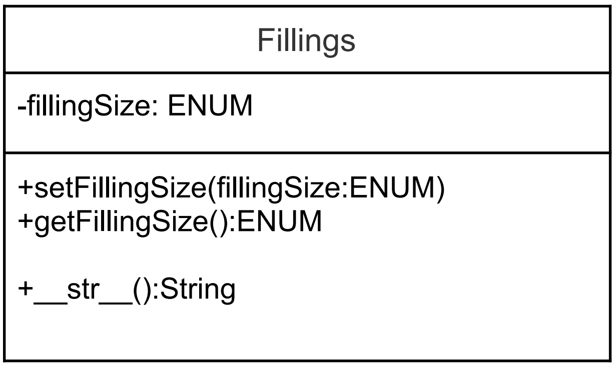
+__str__():String

Crowns

-crownMaterial: String

+setCrownMaterial(crownMaterial:String)
+getCrownMaterial():String

+__str__():String

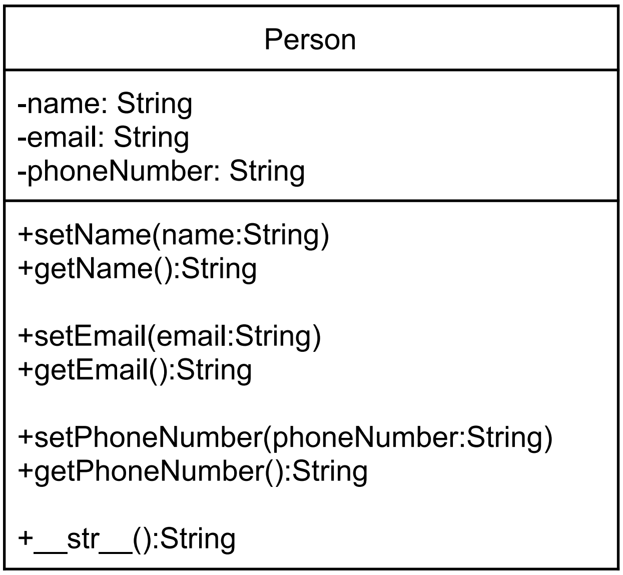


Fillings

-fillingSize: ENUM

+setFillingSize(fillingSize:ENUM)
+getFillingSize():ENUM

+__str__():String



Person

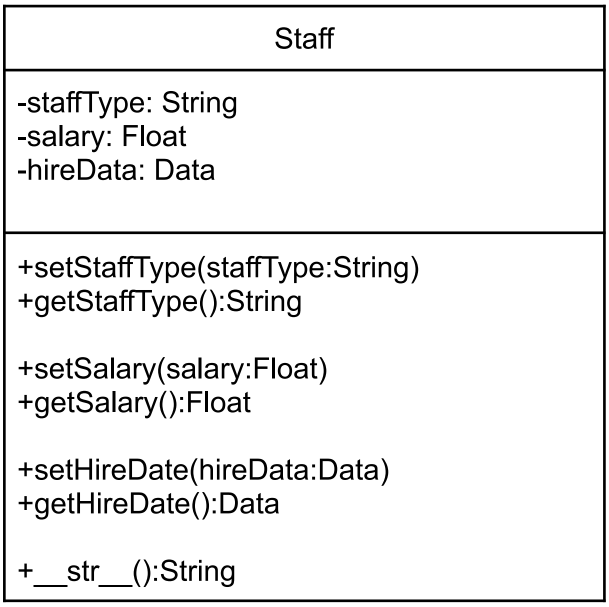
-name: String
-email: String
-phoneNumber: String

+setName(name:String)
+getName():String

+setEmail(email:String)
+getEmail():String

+setPhoneNumber(phoneNumber:String)
+getPhoneNumber():String

+__str__():String



Staff

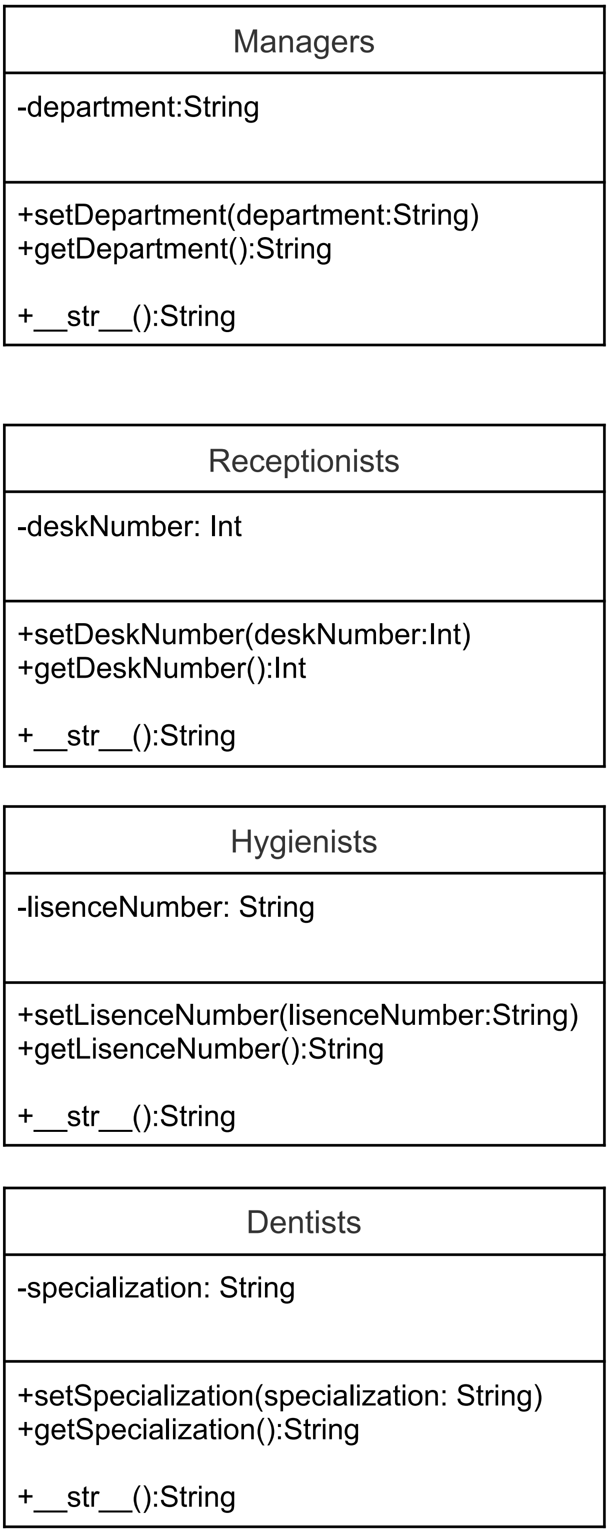
-staffType: String
-salary: Float
-hireData: Data

+setStaffType(staffType:String)
+getStaffType():String

+setSalary(salary:Float)
+getSalary():Float

+setHireDate(hireData:Data)
+getHireDate():Data

+__str__():String



Managers

-department:String

+setDepartment(department:String)
+getDepartment():String

+__str__():String

Receptionists

-deskNumber: Int

+setDeskNumber(deskNumber:Int)
+getDeskNumber():Int

+__str__():String

Hygienists

-lisenceNumber: String

+setLisenceNumber(lisenceNumber:String)
+getLisenceNumber():String

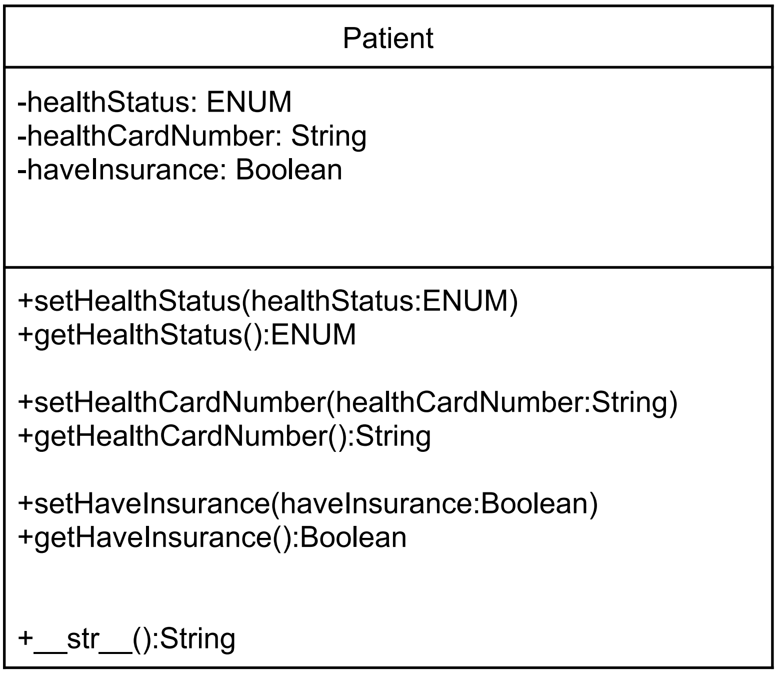
+__str__():String

Dentists

-specialization: String

+setSpecialization(specialization: String)
+getSpecialization():String

+__str__():String



Patient

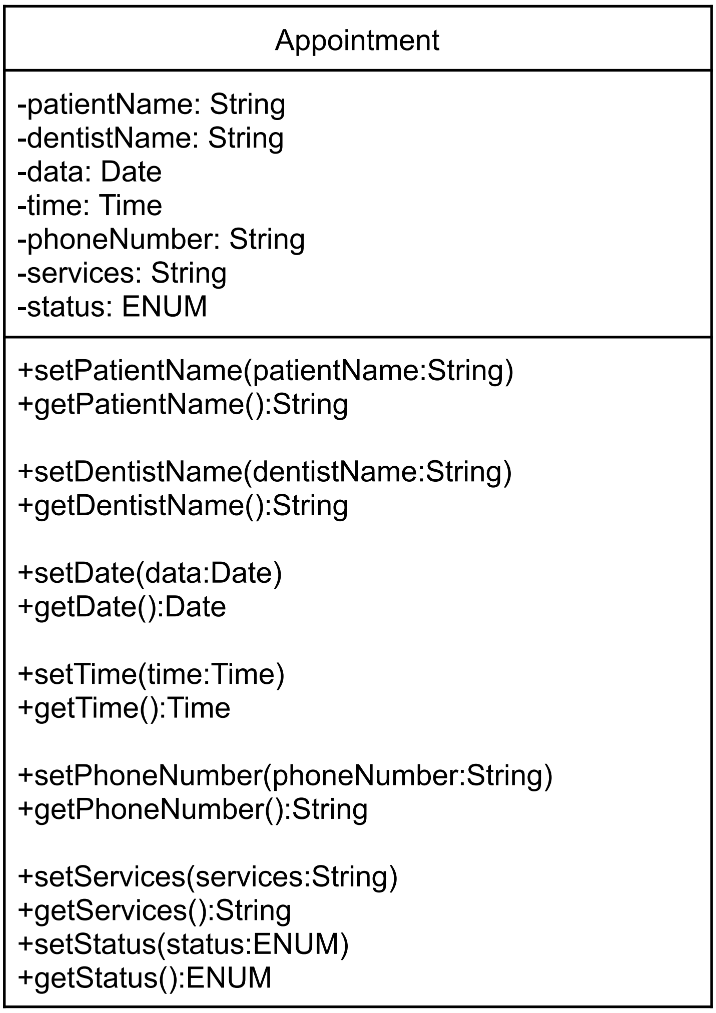
-healthStatus: ENUM
-healthCardNumber: String
-haveInsurance: Boolean

+setHealthStatus(healthStatus:ENUM)
+getHealthStatus():ENUM

+setHealthCardNumber(healthCardNumber:String)
+getHealthCardNumber():String

+setHaveInsurance(haveInsurance:Boolean)
+getHaveInsurance():Boolean

+__str__():String



Appointment

-patientName: String
-dentistName: String
-data: Date
-time: Time
-phoneNumber: String
-services: String
-status: ENUM

+setPatientName(patientName:String)
+getPatientName():String

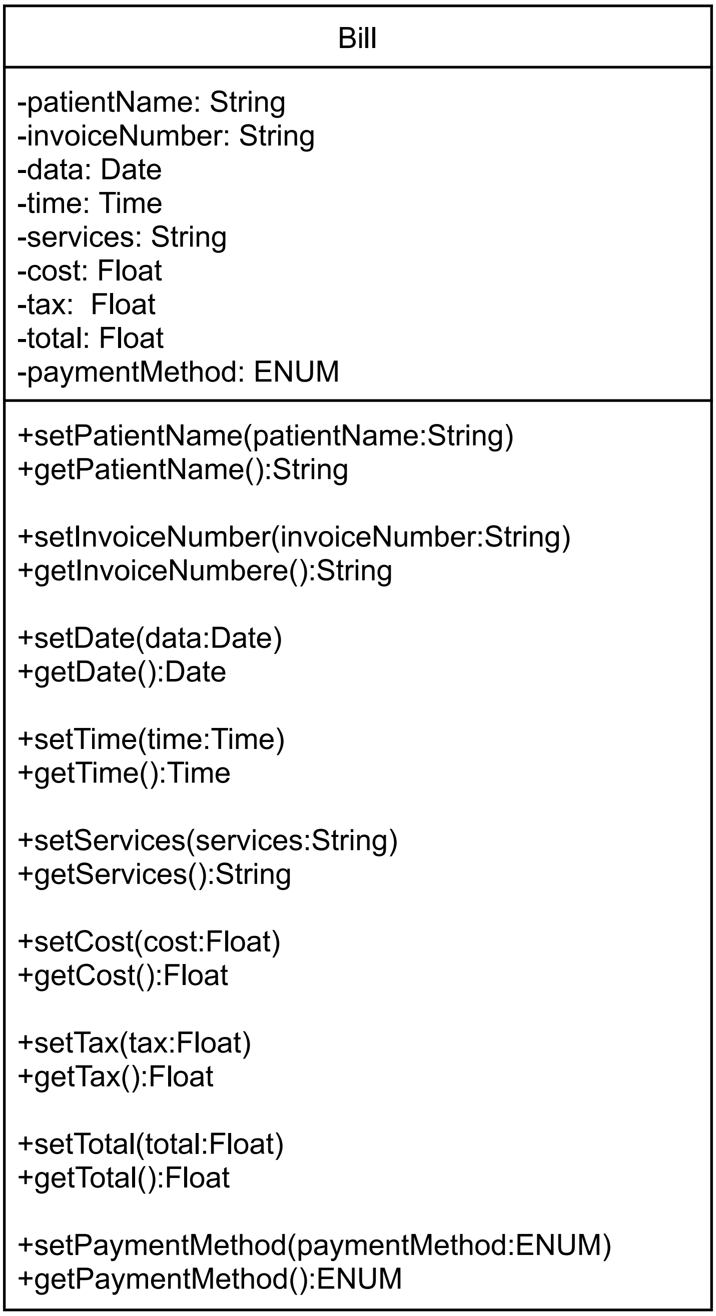
+setDentistName(dentistName:String)
+getDentistName():String

+setDate(data:Date)
+getDate():Date

+setTime(time:Time)
+getTime():Time

+setPhoneNumber(phoneNumber:String)
+getPhoneNumber():String

+setServices(services:String)
+getServices():String
+setStatus(status:ENUM)
+getStatus():ENUM



Bill

-patientName: String
-invoiceNumber: String
-data: Date
-time: Time
-services: String
-cost: Float
-tax: Float
-total: Float
-paymentMethod: ENUM

+setPatientName(patientName:String)
+getPatientName():String

+setInvoiceNumber(invoiceNumber:String)
+getInvoiceNumbere():String

+setDate(data:Date)
+getDate():Date

+setTime(time:Time)
+getTime():Time

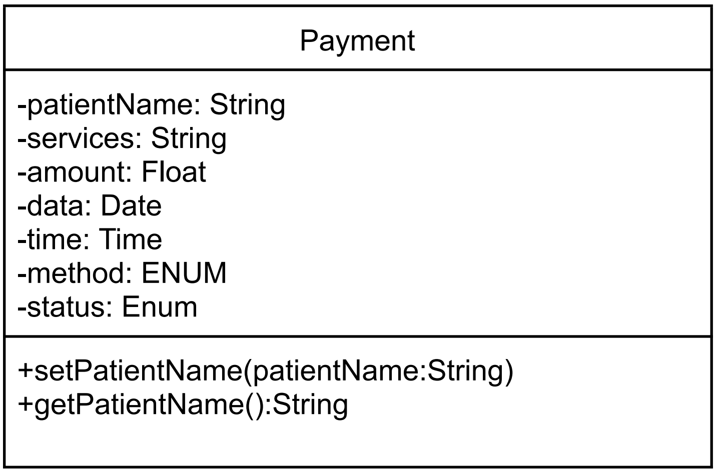
+setServices(services:String)
+getServices():String

+setCost(cost:Float)
+getCost():Float

+setTax(tax:Float)
+getTax():Float

+setTotal(total:Float)
+getTotal():Float

+setPaymentMethod(paymentMethod:ENUM)
+getPaymentMethod():ENUM



Payment

-patientName: String
-services: String
-amount: Float
-data: Date
-time: Time
-method: ENUM
-status: Enum

+setPatientName(patientName:String)
+getPatientName():String

+setServices(services:String)
+getServices():String

+setAmount(total:Float)
+getAmountl():Float

+setDate(data:Date)
+getDate():Date

+setTime(time:Time)
+getTime():Time

+setStatus(status:ENUM)
+getStatus():ENUM

Relationships:
dentalCompany has one to many assosction with **dentalBranch**. One dentalCompany can have many branches, while each dentalBranch is related to one dentalCompany. It is a composition as if the dentalCompany was removed, the branch cannot still exist independently since it is related and managed through the company.

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dentalBranch has one-to-many association with **Staff**. One dentalBranch can have a lot of staff, while each staff is related to one dentalBranch. It is a composition since the branch cannot exist without staff, and staff should be related to a branch. The staff would be impacted and unable to continue operating in the same capacity as before if the branch were to be eliminated or ceased to exist. The branch would also be impacted if its staff were to be fired or depart and would have to hire new employees to fill their positions.

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dentalBranch has many-to-many relationship with **Service.** One dentalBranch can have many services, and each service can be related to multiple dental branches. The same service may be provided by more than one dentalBranch and vice versa. There is no ownership or containment link between the entities, and each one may interact with several instances of the other while remaining separate from it.

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dentalBranch has one-to-many association with **Pateint**. One dentalBranch can have a lot of patients, while each patient is related to one dentalBranch. It is a composition since the branch cannot exist without patients, and a patient should be related to a branch. The patients would be impacted and unable to receive treatment if the branch were to be eliminated or ceased to exist. The branch would also be impacted if it has no patients, it won't be able to gain profit or continue operating.

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dentalBranch has one-to-many association with **Appointment**. One dentalBranch can have a lot of appointments, while each appointment is related to one dentalBranch. It is a composition since the branch cannot exist without appointments, and an appointment should be related to a branch. The appointment would be impacted if the branch were to be eliminated or ceased to exist. The branch would also be impacted if it has no appointments, it won't be able to gain profit or continue operating, also there will be disorganization.