Assignment 2: Software Implementation - OO Project with GUI

ICS220 - Programming Fundamentals
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The UML class diagram represents a system for a dental company. It has several classes which are the following: DentalBranch,DentalService,Patient, Staff, Manager, Receptionist, Hygienist, and Appointment. DentalBranch represents a dental clinic and it has attributes such as address, phone number, and manager. DentalService represents a service that the clinic provides and has attributes such as serviceName, serviceID, and serviceCost. Patient class represents a patient coming into the clinic which has attributes patientName, patientID, and phoneNumber. Staff class represents a staff member working at the clinic and has attributes staffName, staffID, staffPhoneNumber, and staffEmail. The Manager, Receptionist, Hygienist, and Dentist classes all inherit attributes and methods of class Staff and each one of them have additional attributes as well. Manager class has an additional attribute(department) showing the department they are in charge of. The Receptionist class has an attribute(shiftHours) which shows their shifts.The Hygienist and Dentist classes have additional attributes(yearsExperience) highlighting their years of experience.
From this UML class diagram we can highlight the relationships between the classes. There is a ‘is a’ relationship between the Staff class and the Dentist, Hygienist, Receptionist, and Manager class, where these four classes inherit from the staff class.
There is association between the DentalBranch and Staff where there is a one to many association as one dental branch can have many staff members, but each staff member would only belong to one branch.

There is association between Service and Appointment where the service has many to many associations with the appointment class, where each appointment can have one or more services and each service can be offered in many appointments.

Another relationship is composition between Patient and Appointment where the Patient has one to many composition with the appointments , where each patient can book many appointments but each appointment would only belong to one patient.