PRIVATE ORTHODONTIC PRACTICE

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| DATABASE SYSTEM DESIGN | Rebecca Troy | 20088744  Database Fundamentals |

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# Business Description

This private Orthodontic Practice – Straight Smiles Are Worthwhile – is a business recently established to correct and perfect the alignment of its patients’ teeth and jaws. Being a small private practice, Straight Smiles Are Worthwhile operate relatively simply. They rely on effective consultations and accurate treatment plans in order to set their patients on the path to straighter smiles.

Patients book their own consultations in which they are orally examined by professional orthodontists. If necessary, a unique treatment plan is then tailored specially for that patient by the orthodontist based on this consultation. Treatment plans prescribe braces or clear aligners for a period of time. Treatment plans may also generate a number of follow-up appointments and procedures if necessary.

The database for this organisation keeps track of the business’s patients, employed orthodontists, and any consultations or treatment plans that are generated within the business.

Each patient has their own unique PPS number stored, as well as their name, address, phone number and their date of birth. Each patient may choose to store up to 3 phone numbers in the business database.

Consultations are stored with a generated unique ID number as well as the date the consultation took place and a short description about the examination and findings. One patient may book many consultations. The date the patient booked each consultation is noted.

Orthodontists are identified by their unique staff ID number. Their full name, salary (measured annually), and their contracted hours per week are also stored in the database. One orthodontist carries out many consultations. As the organisation is relatively new, an assistance or ‘buddying’ system is in place where an orthodontist may be assigned up to 2 assistant orthodontists to help them if necessary. Every orthodontist is assigned one staff member they may assist, but not every orthodontist requires assistance. This information is stored in the database by referring to the orthodontist that has been assigned assistance as the ‘AssistedStaff’.

A consultation may or may not generate a single treatment plan, uniquely defined by an ID number. This unique treatment plan stores the name of the plan, the duration (or length) of the plan, the cost, and a short description. A patient may or may not be given a single treatment plan. One treatment plan prescribes and creates a single set of braces, which would have not existed without the treatment plan in question. The brace type and manufacturer are stored.

A single treatment plan may or may not generate a number of follow-up appointments. The IDs, dates, and descriptions of these appointments are stored.

# Conceptual Data Model

Diagram

Description automatically generated

*Conceptual Data Model demonstrating the various business entities and relationships/associations*

# Logical Data Model

Mapping the entity types, attributes, and relationship types from the Conceptual Data Model into a set of relations:

Patient(PPS, fname, lname, StreetNo, StreetName, County, DOB)

Primary Key PPS

Consultation(ConsultationId, ConsultationDate, Description, PPS, DateBooked, OrthodontistId)

Primary Key ConsultationId

Foreign Key PPS references Patient(PPS)

Foreign Key OrthodontistId references Orthodontist(OrthodontistId)

Orthodontist(StaffId, firstName, lastName, Salary, ContractedHoursPerWeek, AssistedStaffId)

Primary Key StaffId

Foreign Key AssistedStaffId references Orthodontist(StaffId)

TreatmentPlan(PlanId, PlanName, LengthOfPlan, Description, Cost, ConsultationId, PPS)

Primary Key PlanId

Foreign Key ConsultationId references Consultation(ConsultationId)

Foreign Key PPS references Patient(PPS)

FollowUpAppointment(AppointmentId, AppointmentDate, Description, PlanId)

Primary Key AppointmentId

Foreign Key PlanId references TreatmentPlan(PlanId)

Braces(PlanId, Type, Supplier)

Primary Key PlanId, Type

Foreign Key PlanId references TreatmentPlan(PlanId)

PatientPhones(PhoneNo, PPS)

Primary Key PhoneNo

Foreign Key PPS references Patient(PPS)