

Project 2 deliverable

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Abstract

This a document that will describe all the business rules and display definitions for each of the entities identified in our business, a gym. firstly, we will discuss the upper most important entities, display tables about them and talk about their sub classes and how they enhance the data model as a whole. afterwards, I will discuss the high level knowledge of the business and how these entites came about. Models of the data will be strewn across the document to enhance the understanding.

1. Introduction

The problem domain we seek to solve is organizing our knowledge of our gym business into a clear, concise data model. The key being to represent the core parts of our business, to enhance the experience of out customer and to get insights into what we, the gym, need to do to make it better.

To start off, I will layout the key entities below, which most of our data model will center around.

2. Key Entities

There are two major entities in our model, "People" and "Equipment." From these, most of our data model is derived.

2.1. People

As a gym we "have" many people. People can be many things, employees, customers and personal trainers. Below is a simple table outlining all the properties these people have in common.

Table 1: Person entity

column name	type	typeof key	description
person_id	VARCHAR(6)	primary	The primary identifier of a person.
first	VARCHAR(30)	n/a	The person's first name, UTF8.
last	VARCHAR(30)	n/a	The person's last name, UTF8.
contact_id	VARCHAR(6)	foreign	A contact id linking to an entity's Contact info.
type	VARCHAR(1)	n/a	A char that determines if the user is an employee or customer.
since	DATE	n/a	A date describing when they were a member of the gym.
birth	DATE	n/a	DOB of a user can provide which can be used to offer specials.

2.1.1. Customer

A customer entity is a person who ends up using our services and pays us. Below is the definition of a customer.

Table 2: Customer entity

column name	type	typeof key	description
person_id	VARCHAR(6)	PK/FK	The primary identifier of a customer, from person.
last_pay	DATE	n/a	Indicates if this customer is up to date with their membership fees.
is_active	BOOLEAN	n/a	Programmatically indicates if customer is up to date with payment Determined by since field in parent and last_pay date

2.1.2. Employee

An employee entity is someone we pay to maintain and provide services to the customers through the gym. Below is the entity.

Table 3: Employee entity

column name	type	typeof key	description
person_id	VARCHAR(6)	PK/FK	The primary identifier of a customer, from person.
wage	NUMBER	n/a	amount paid per hour.
type	CHAR(1)	n/a	Determines if the user is a generic employee or a physical therapist or trainer.

2.1.3. Trainer

A trainer is an employee that is responsible for running classes at the gym or offering one on one consulting for customers.

Table 4: Trainer entity

column name	type	typeof key	description
person_id	VARCHAR(6)	PK/FK	The primary identifier of a
code	VARCHAR(6)	n/a	an extra random code that is passed to other entities to ensure only trainers are entered.

2.1.4. Rules

At the end, there are people associated with the gym. They can be divided into customers and employees. Customers have active or inactive memberships and are expected to pay their fees on time. Employees are people of a gym that provide services to the gym; they can also be customers as well. Trainers are a subset of employees which can teach classes or do individual training sessions with customers. For unique constraints, a trainer has a code which is used in other entities to ensure that only trainers are added to classes and services.

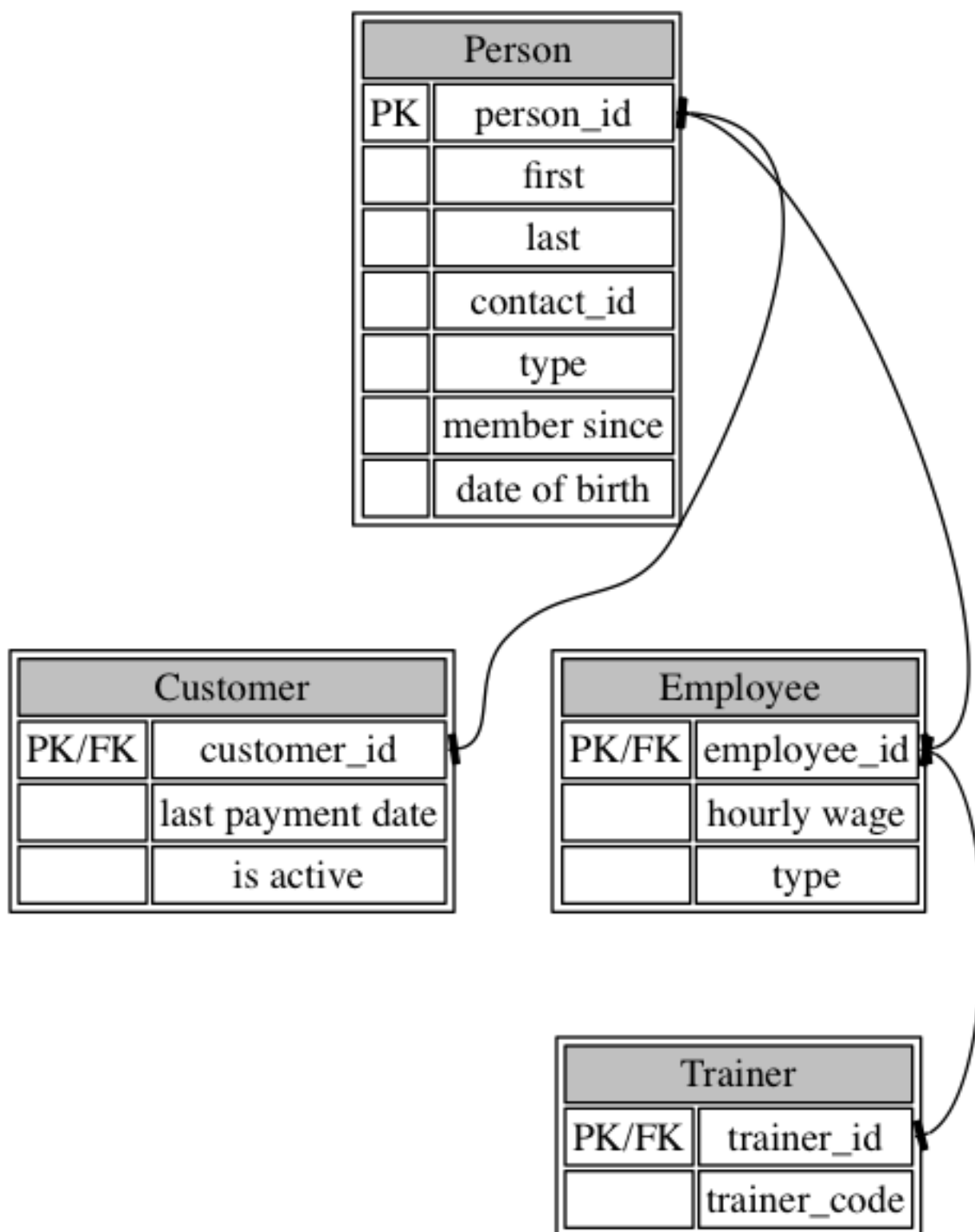


Figure 1: Entity relationships for persons

2.2. Equipment

A gym has numerous amounts of workout related equipment. Below is an entity used to identify this equipment at a high level.

Table 5: Gym Equipment.

column name	type	typeof key	description
equip_id	VARCHAR(6)	primary	The primary identifier of the gear.
name	VARCHAR(30)	n/a	name of the gear.
brand	VARCHAR(30)	n/a	brand name of the gear.
type	CHAR(1)	n/a	A char that determines if the equipment is a machine or if it is A free weight or a weightlifting component
value	NUMBER	n/a	A number describing its current estimated value to the business.
since	DATE	n/a	A date describing when the gear was added to the gym.

2.2.1. Weightlifting Equipment

This is a subtype of equipment which describes simpler equipment involved mostly with weight training. Examples: plates, dumbdells, 2" olympic bars.

Table 6: Weightlifting Equipment Entity

column name	type	typeof key	description
equip_id	VARCHAR(6)	primary	The primary identifier of the gear.
weight	NUMBER	n/a	The weight of the weight equipment
type	VARCHAR(20)	n/a	The type of weight product this is. e.g. plate, bar, dumbbell, etc.
diameter	NUMBER	n/a	For bars and plates; This describes the diameter of the hole that the plate has in its center and what plates will fit on a bar. generally should only be 2 inches. This is null for dumbbells.

2.2.2. Machine Equipment

A subtype of equipment which describes products like treadmills and other “machine” training devices. This also describes things like powercages and squat racks which might have more use in weightlifting. This is a subtype because unlike weightlifting gear, machines can go “out of order,” generally must be maintained frequently, can have replacement parts and various other information.

Table 7: Machine Equipment Entity

column name	type	typeof key	description
equip_id	VARCHAR(6)	primary	The primary identifier of the gear.
type	VARCHAR(20)	n/a	The type of machine this is. e.g. treadmill, powercage, bench...
in_order	BOOLEAN	n/a	If the machine is functioning as expected.
maintained	DATE	n/a	Last maintained at this date.
next_mainta	DATE	n/a	Next date maintainance is scheduled for this part.

column name	type	typeof key	description
serial	VARCHAR(30)	n/a	Machine serial number or other identifier to find parts for this machine.

2.2.3. Rules

A gym has equipment which allows it to provide services. The gym has two splits of equipment, weightlifting and machine equipment. Weightlifting equipment can be discarded if it breaks due to their simplistic design, low price, and construction. However machine components are much more valuable and have more working parts which may need to be maintained and fixed, thus a much more complex entity.