INFO0009-2 Bases de données 2022-2023

Project Part 1

WeND(Y)'s Party Management System

I am the owner of a small party and event planning business. My target market consists of (geriatric) millennials with a taste for questionable music and obscure CDs. My company is called "WeND(Y)," which stands for "We're not dead (yet)."

My main business is to assign DJs and event planners to a party or event. I have a lot of repeat customers, and my client base is growing. I now need a party management system to keep track of events, DJs, event planners, etc., and our various customers and their events. Indeed, scheduling everything on paper led to some unfortunate events, such as a DJ being booked for two parties happening on the same day! I have hired you, a team of three computer scientists, to develop such a system.[1]

The system needs to store information about my employees. These include their employee ID and first- and last name. Some of my employees are better known by their pseudonyms. Brian Firkus is better known as Trixie Mattel, for instance. Paris Hilton does not go by a pseudonym.

Every employee in the company has a specific role at WeND(Y).

Managers deal with clients. Managers are responsible for managing the client base and the organization of events. We keep track of clients by assigning them a client number, a first- and last name, a phone number (mandatory), and a unique email address that is not mandatory. At WeND(Y), we do not make the distinction between a party and an event. Managers discuss the type of party (Birthday, Marriage, Divorce, …) and the theme (Tropical, Vampires, Mean Girls, Lord of the Rings, …), and they note the name, description, and date of the event. The description is not mandatory.

Once the manager has the information, the manager enters the information into the system and assigns an event planner and a DJ. A manager can only assign employees that they supervise. The system should keep track of the manager creating the event.

The event planner reaches out to the client to discuss logistics. One of the important aspects is the location. Events are held either in a public venue or a private residency. The event planner visits various locations and decides, together with the client, where the event will take place. All locations have a unique ID, address (which is composed of street, city, postal code, and country), and a comment. Comments are not mandatory. We keep track of the rental fee of public venues, which depends partly on the event. To facilitate the work of the event planner, we keep track of the relationship between public venues and themes, as some venues are more suitable for specific themes than others. Next to the location, event planners take care of requests. The event and a name identify each request. For each request, we keep track of their description and price. For instance: for Daria Morgendorffer's birthday, a client requested "green balloons," and the event planner obtained a quote from Party Balloon for 500 EUR.

The DJ reaches out to discuss the music. We have curated a large collection of playlists ready to be reused for an event. Each playlist contains multiple songs, and the same song can appear on several playlists. For each playlist, we store a unique name. Examples of unique names include "Yet Another Basic Birthday Party" and "On Wednesdays We Wear Pink." The playlists we have curated are linked to one or more themes. This relationship allows a DJ to propose some existing playlists to the customer quickly.

Playlists contain songs, and we classify each song by genre (pop, techno, grunge, etc.). We also keep track of genre hierarchies. For instance, "bubblegum" is a subgenre of "pop." A genre can be a specialization of two genres, e.g., "punk pop" combines elements from "punk" and "pop." Not all genres must have a parent.

We propose existing playlists, but customers can request their playlists. The request for a custom playlist costs extra. If the new playlist is interesting, we can indicate those playlists as "reusable" by linking them to one or more themes.

Event planners are an expert in at most two themes, and DJs are specialized in at least one and at most three genres. If a DJ is an expert in a genre with specializations, then these are included as well. In an ideal world, we guarantee the right people for the right job. However, a manager uses that information as a guide and may assign an event manager without expertise in a particular theme or assign a DJ to play songs outside their specialty.

For each song, we keep track of its title, duration, and artists. For artists, we do not make a distinction between bands and people. A song also appears on a CD as a track with a track number. Songs are identified by their CD and track number. As for the CD, we keep track of the CD number, title, year, and producers. We pride ourselves in

[1] You will be paid in grades, depending on the quality of your work. ;-)

playing music from CDs and have a massive CD library. We keep track of the number of copies we have. It is the responsibility of the DJs to take and return the CDs to the library.

We hope that the system could inform us of various problems in the future: double booking DJs and event planners, running out of a particular CD, etc.

Assignment

You are asked to create an entity-relationship diagram (ERD) describing the universe of discourse for which we want to design and develop a database. Do not forget to indicate the entity sets' keys and cardinalities constraints and the model's relations. If necessary, specify additional integrity constraints, as well as weak relations and entities. If aspects are unclear or ambiguous, ask the question on eCampus or on class, and or write down assumptions in your deliverable.

Convert the ERD into the relational model. Make sure the relationships in this model are in BCNF. You will need to justify that.

Submission

The first part of the project is carried out in groups of three students. The work must be returned via eCampus before **24-03-2023 at 11:59 pm** in one PDF file. The PDF file contains

- A title page (title, names, course, …)
- The ERD (please use a **vector-based image** and make sure that your diagram and its cardinalities are readable on the screen) and, if necessary, the list of justifications, assumptions, explanations, etc.;
- The domains of each attribute;
- The keys of entities and relations;
- The conversion to the relational model;
- Additional integrity constraints to the diagram (if any);
- Analysis of normal forms.

If you have any questions, please ask them in the Discussions section of eCampus, or email me at c.debruyne@uliege.be if your question contains a part of your solution. A simple yet powerful diagramming tool is Dia, available on Windows, Mac, and Linux. Another option is draw.io, a Web-based which can store your work on Google Drive and Dropbox.

Evaluation Grid

Aspect 6/5 is very rarely given. Half points are rarely given and will be motivated by the feedback.	Weight	Score (out of 5): ***0) Non-existent*** *1) Insufficient* *2) Less than adequate* *3) Adequate* *4) Good* *5) Excellent* ***6) Exceeds expectations***	Comments
ERD	8		
Domains	1		
Other integrity constraints	2		
Keys (entities and relations)	1		
Conversion to the relational model	6		
Analysis of normal forms	2		
	Note:	Weighted average times 4 / 20	