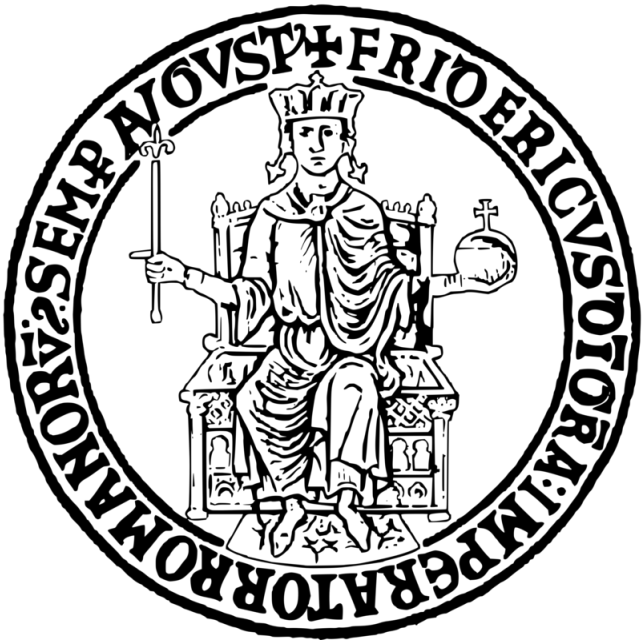
DB Design

February 20, 2020



Master's Degree Data Science
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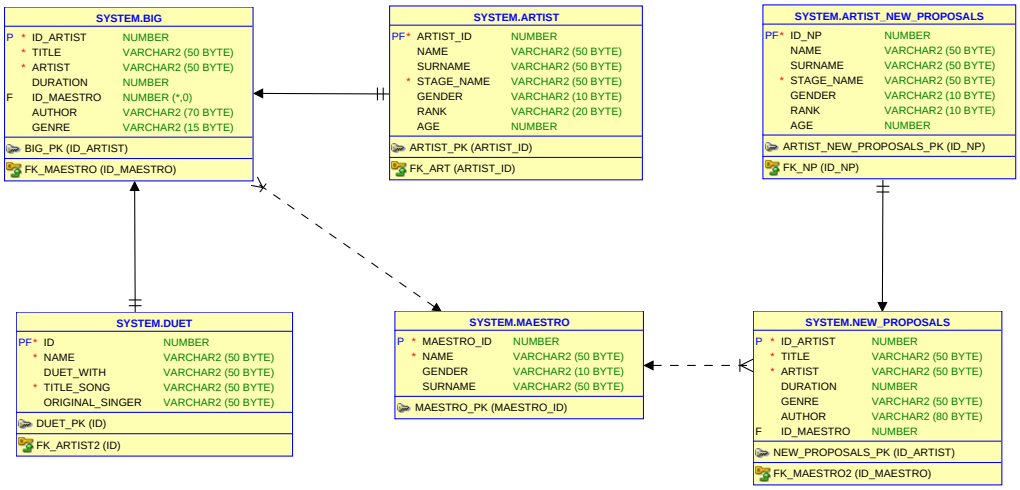
Contents

1 Analysis Description

The 'Festival della canzone italiana di Sanremo' (in English: Italian song festival of Sanremo) is the most popular Italian song contest and awards, held annually in the town of Sanremo, Liguria, and consisting of a competition amongst previously unreleased songs.[1] Our idea was to create a database of the artistic direction for the edition of the year 2020.
So we decided to build a database using a relational model. In computer science, it is an approach to managing data using a structure and language consistent with first-order predicate logic, first described in 1969 by English computer scientist Edgar F. Codd where all data is represented in terms of tuples, grouped into relations.[2]. In this way, we were able to provide a declarative method for specifying data and queries, and everyone in every moment, with our database can find out, for instance, the winner of the festival o who was a new proposal.
Classes of our relational models are:

- the 33 competing songs divided into two categories: Big and New Proposals;
- the artists who partecipated in the competition;
- the orchestra conductors, fundamental in this king of event;
- the authors of the song, id est who wrote the songs that very often is a different person from the singer;
- the musical genre;
- the duets, id est the guests of the tirth night;
- the presenters, i.e. ones who presented the seventieth festival.

Below the E-R Diagram produced with Oracle SQL Developer [3]



First of all, what is the Entity-Relationship model? The E-R model it's a model used for conceptual and graphical representation of data. Its purpose is to show relationships among sets in order to create the logical structure of a database.

In our model we have seven entity sets, each with its own attributes and each (but Presenters) has its own relationship with another set.

As we can see we have two blocks of sets: the first is Artist and the second artistNewProposals. Each of these sets has same attributes of the other but different data. While Artist represents the Champion section of the Sanremo Music Festival 2020, artistNewProposals represents the homonym section. Both sections had two separated ranking and they never competed against each other. They are both connected to a set, again with the same attributes, via one relationship: what song they competed with.

Both these tables (Big and newProposals) have another relationship in common, with the Maestro set, via a foreign key that, thanks to an ID system, shows the Maestro that conducted the Orchestra during the exhibition of a specific artist. As we can see the arrow is different, this is because some entries, of same or different sets, might share the same maestro (es. the Maestro Celso Valli conducted for several artists). Then we have the set

Duet, this set was created only for the Big set because it shows what they sang and who they duetted with during the third day of Festival, the Duet Night, during which only Champion section of the contestants had the opportunity to chose to duet with another singer from outside the competition. This is why there is no Duet for newProposals. The Duet table again has a connection via the ArtistID to show the contestant (along with its name).

Lastly we have a set with no relationships at all: this is Presenter. While the decision of putting the set below Maestro was to create a Festival Staff related region, the table the set represents is purely for information.

Below, in a table, there is a description of the meanings of the classes names:

Terms	Meaning
Genre	Conventional categories that identify and classify songs and compositions according to criteria of affinity
Song	Vocal composition written for one or more voices, mostly with musical accompaniment.
Artist	The artist is the person who, with his or her voice, produces a range of sounds sorted by rhythm and strength
Author	The author is the person who materially and artistically composes a song
Maestro	Figure who coordinates a group of musicians in the esecution of a composition
Duet	This class identifies the duet that competing singers did with another artist
Presenter	That class represents the class of the presenters

2 Design

2.1 Logical Design

After the phase of conceptual design, we designed the model logically:

`BIG` $(idartist, title, artist, duration, genre, id_maestro, author)$;

`NEW PROPOSAL` $(idartist, title, artist, duration, genre, id_maestro, author)$;

`ARTIST` $(artistid, name, surname, stagename, gender, rank, age)$;

`MAESTRO` $(maestroid, name, surname, gender)$;

`ARTIST NEW PROPOSAL` $(idnp, name, surname, stagename, gender, rank, rage)$;
`DUET` $(id, name, duetwith, titlesong, originalsinger)$;

`PRESENTER` $(name, surname, age, gender, appearance)$.

2.2 Physical Design

TABLE BIG

Feature	Data Type	Space
IDArtist	Number	3 byte
Title	Varchar2(50)	50 byte
Artist	Varchar2(50)	50 byte
Duration	Number	3 byte
Genre	Varchar2 (50)	50 byte
IDMaestro	Number (*, 0)	3 byte
Author	Varchar2(50)	50 byte

TABLE NEW PROPOSAL

Feature	Data Type	Space
IDArtist	Number	3 byte
Title	Varchar2(50)	50 byte
Artist	Varchar2(50)	50 byte
Duration	Number	3 byte
Genre	Varchar2 (50)	50 byte
IDMaestro	Number (*, 0)	3 byte
Author	Varchar2(50)	50 byte

TABLE BIG

Feature	Data Type	Space
ArtistID	Number	3 byte
Name	Varchar2(50)	50 byte
Surname	Varchar2(50)	50 byte
StageName	Varchar2(50)	50 byte
Gender	Varchar2(10)	10 byte
Rank	Varchar2(10)	10 byte
Age	Number	2 byte

TABLE AUTHOR

Feature	Data Type	Space
AuthorID	Number	3 byte
Name	Varchar2(80)	80 byte
SingerIsAuthor	Number(1)	1 byte

TABLE MAESTRO

Feature	Data Type	Space
MaestroID	Number	3 byte
Name	Varchar2(50)	50 byte
Gender	Varchar2(10)	10 byte
Age	Number	2 byte

TABLE ARTIST NEW PROPOSALS

Feature	Data Type	Space
IDNP	Number	3 byte
Name	Varchar2(50)	50 byte
Surname	Varchar2(50)	50 byte
StageName	Varchar2(50)	50 byte
Gender	Varchar2 (10)	10 byte
Rank	Varchar2 (10)	10 byte
Age	Number	2 byte

TABLE DUET

Feature	Data Type	Space
ID	Number	3 byte
Name	Varchar2(50)	50 byte
DuetWith	Varchar2(50)	50 byte
TitleSong	Varchar2(50)	50 byte
OriginalSinger	Varchar2(50)	50 byte

TABLE PRESENTER

Feature	Data Type	Space
Name	Varchar2(50)	50 byte
Surname	Varchar2(50)	50 byte
Age	Number	2 byte
Appearance	Varchar2(50)	50 byte

3 References

[1] $https://en.wikipedia.org/wiki/Sanremo_Music_Festival$

[2] $https://en.wikipedia.org/wiki/Relational_model$
[3] $https://www.oracle.com/it/database/technologies/appdev/sql-developer.html$
[4] $https://it.wikipedia.org/wiki/Modello_E-R$