

# Information Systems Management: focus on SQL.

## Duration 1.5h

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This evaluation is both individual and in group. During the next 1.5h, each student will work individually and send his/her answer at the end of the session. A first numerical evaluation will be done from this. Next, students by group of 3 maximum will work on the same subject, will provide new proposals in order to answer questions. The deadline for this task is today at 20h00. Another numerical evaluation will be provided. All material is available at the following zip file. This archive contains:

- `exhibition.sql`: the SQL code to generate the exhibition database
- `answerM1BDEEM.odt`: an form where you will store your proposal.

All the proposal will be sent by mail at `couchot@femto-st.fr`.

## 1 Introduction to exhibition database

The goal of this database is to manage information related to artworks, artists, artistic categories, exhibitions, and the relationships between these entities. It tracks details about artists, characteristics of artworks, associated categories, as well as the exhibitions where these artworks are showcased.

What follows is a description of each table:

- Artists: stores information about different artists:
  - `artistId`: Unique identifier for each artist.
  - `artistName`: Name of the artist.
  - `birthDate`: Date of birth of the artist.
  - `nationality`: Nationality of the artist.
- Artworks: contains details about various artworks:
  - `artworkId`: Unique identifier for each artwork.
  - `artworkTitle`: Title of the artwork.
  - `artistId`: A foreign key referencing Artists.`artistId`.
  - `creationDate`: Date when the artwork was created.
  - `medium`: Medium or material used for the artwork.
  - `price`: Price of the artwork.
- ArtCategories: stores different categories of art:
  - `categoryId`: Unique identifier for each art category.
  - `categoryName`: Name of the art category.
- ArtworkCategories: represents the associations between artworks and their corresponding art categories; an artwork may belong to many categories:

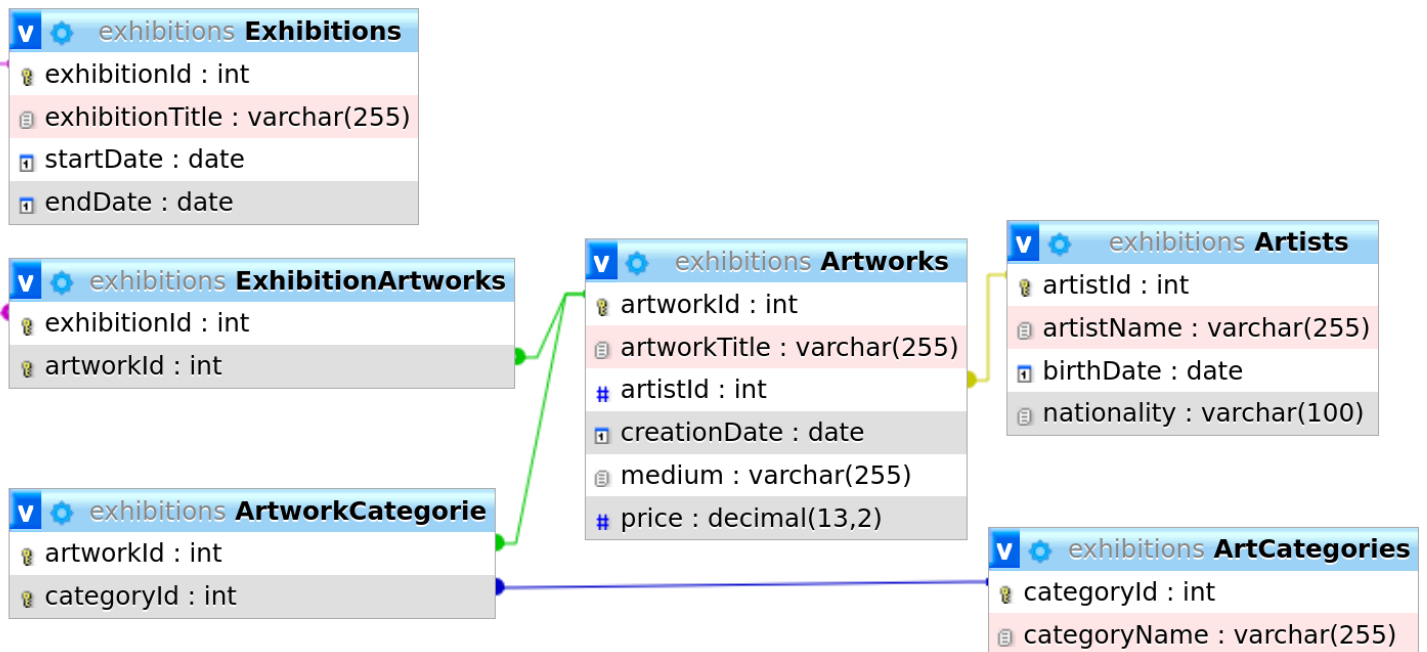


Figure 1: Relational Scheme

- artworkId: Foreign key referencing the Artworks.artworkId.
- categoryId: Foreign key referencing the ArtCategories.categoryId.
- Exhibitions: stores information about different art exhibitions:
  - exhibitionId: Unique identifier for each exhibition.
  - exhibitionTitle: Title of the exhibition.
  - startDate: Start date of the exhibition.
  - endDate: End date of the exhibition.
- ExhibitionArtworks: establishes associations between exhibitions and the artworks displayed in those exhibitions; An artwork may be shown on many exhibitions:
  - exhibitionId: Foreign key referencing the Exhibitions.exhibitionId.
  - artworkId: Foreign key referencing the Artworks.artworkId.

Figure 1 gives links between these tables.

**Exercise 1.1 (Starting with the exhibition database).** *The objective is to build the database from a given query and next to work with such a database with an online `SQLITE` interpreter.*

1. Get the sql query named `exhibition.sql` to create and fill the exhibition database.
2. On the <https://sqliteonline.com/>, import the aforementioned script.

## 2 Exercises on this database

**Exercise 2.1 (Simple queries).** *Provide SQL queries which display:*

1. All information (name, date of birth) of french artist.

Nom:

Prénom:

1

2. *List of artists (name) who have created at least one work whose price is greater than whose total is strictly greater than \$ 20,000,000 sorted in descending order on the price. The title of this artwork will also be displayed.*

1

2

3

3. *All the art categories of the artist whose name is Vincent van Gogh.*

1

2

3

4

5

4. *List of exhibitions that have dates which overlap.*

1

2

3

4

**Exercise 2.2 (Queries with groups).** *Provide SQL queries which display:*

5. *All information of exhibitions (title, start date, end date) that have gathered at least 3 artworks.*

1

2

3

4

6. *The average amount of artworks exhibited at each exhibition.*

1

2

3

4

5

**Exercise 2.3 (Nested queries).** *Provide SQL queries which display:*

Nom:

Prénom:

7. *List of artists who have created an artwork with a price exceeding more than 20% the average price of artworks referenced in this database.*

1  
2  
3  
4  
5

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8. *For each exhibition that showcases at least 3 artworks, specify which artists (Name and Id) are present through their artworks.*

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11

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9. *List of artists who have never created a sculpture.*

1  
2  
3  
4  
5  
6  
7  
8  
9

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### 3 Build your own queries

**Exercise 3.1 (Interesting queries).** *Propose your own questions (at least 4) and query answers to extract relevant information from this database.*

*Points will be awarded for interesting questions and their resolution.*