# Museum Paintings

```python
import pandas as pd
from sqlalchemy import create_engine


conn_string = 'mysql://root:1122@localhost/paintings'
db = create_engine(conn_string)
conn = db.connect()


files = ['artist','canvas_size','image_link','museum','museum_hours','product_size','subject','work']
for file in files:
    df= pd.read_csv(f"C:/Users/zeus/Desktop/Git Repositories/Museum_Painting/{file}.csv")
    df.to_sql(file, con=conn, if_exists='replace', index = False)
```

# Here we will be solving 22 Question of SQL ranges from beginner level to Expert level:

1. Fetch all the paintings which are not displayed on any museums?



Here we are getting 1000 rows which means that there are 1000 paintings that are not displayed any museum.

2. Are there museums without any paintings?



The Output window throws an empty space which means that there is not a single museum without paintings. It means that all the Museum have atleast of one painting.

3. How many paintings have an asking price of more than their regular price?

| work_id | size_id | sale_price | regular_price |
|---------|---------|------------|---------------|

Here we are again having a blank output which means that here is not a single painting that have asking price more than their regular price.

4. Identify the paintings whose asking price is less than 50% of its regular price

| Paintings | work_id |
|-----------|---------|
| Portrait of Madame Labille-Guyard and Her Pupils | 31780 |
| Disrobing of Christ (Espolio) | 198417 |
| Taking the Census | 31974 |
| The Chalon Family in London | 17351 |
| Ducks Resting in Sunshine | 30947 |
| Portrait of Mr. and Mrs. Thomas Mifflin (Sarah M... | 23710 |
| Passion Flowers and Hummingbirds | 20084 |
| A Street in Paris in May 1871 | 133971 |
| Eucharist | 28259 |
| Extreme Unction | 28261 |
| Marriage | 28273 |
| Saint John Baptizing in the River Jordan | 28279 |
| The Adoration of the Shepherds | 28287 |
| The Companions of Rinaldo | 28295 |
| The Finding of Moses | 28297 |
| The Nurture of Bacchus | 169367 |
| Rest on the Flight Into Egypt | 190824 |

There are 34 of such paintings that have the asking price less than the 50% of its regular price.

5. Which canva size costs the most?

| SalePrice | Canvas |
|-----------|--------|
| 1115 | 48" x 96"(122 cm x 244 cm) |

so the canvas with the size 48" x 96"(122cm x 244cm) is the most expensive one.

6. Delete duplicate records from work, product_size, subject and image_link tables

7. Identify the museums with invalid city information in the given dataset

| museum_id | name | address | city | state | postal | country | phone | url |
|-----------|------|---------|------|-------|--------|---------|-------|-----|
| 74 | Kröller-Müller Museum | Houtkampweg 6 | 6731 AW Otterlo | NULL | NULL | Netherlands | +31 318 591 241 | https://krollermuller.nl/en |
| 34 | The State Hermitage Museum | Palace Square | 2 | Sankt-Peterburg | 190000 | Russia | 7 812 710-90-79 | https://www.hermitagemuseum.org/wps/portal... |
| 40 | Musée du Louvre | Rue de Rivoli | 75001 | Paris | NULL | France | 33 1 40 20 50 50 | https://www.louvre.fr/en |
| 38 | Musée des Beaux-Arts de Quimper | 40 Pl. Saint-Corentin | 29000 | Quimper | NULL | France | 33 2 98 95 45 20 | https://www.mbaq.fr/en/home-3.html |
| 37 | Museum of Grenoble | 5 Pl. de Lavalette | 38000 | Grenoble | NULL | France | 33 4 76 63 44 44 | https://www.museedegrenoble.fr/1986-the-mu... |
| 36 | Museum Folkwang | Museumsplatz 1 | 45128 | Essen | NULL | Germany | 49 201 8845000 | https://www.museum-folkwang.de/en |

8. Museum_Hours table has 1 invalid entry. Identify it and remove it.

| time_difference | museum_id | day |
|-----------------|-----------|-----|
| -00:45 | 40 | Friday |
| -05:00 | 44 | Tuesday |
| -05:00 | 48 | Monday |
| -00:15 | 49 | Thursday |
| -07:00 | 73 | Thusday |

These are the museums which are having invalid opening and closing time.

9. Fetch the top 10 most famous painting subject

| subject | no_of_paintings | ranking |
|---|---|---|
| Portraits | 1070 | 1 |
| Abstract/Modern Art | 575 | 2 |
| Nude | 525 | 3 |
| Landscape Art | 495 | 4 |
| Rivers/Lakes | 480 | 5 |
| Flowers | 457 | 6 |
| Still-Life | 395 | 7 |
| Seascapes | 326 | 8 |
| Marine Art/Maritime | 268 | 9 |
| Horses | 265 | 10 |

10. Identify the museums which are open on both Sunday and Monday. Display museum name, city.

| Museum_name |
|---|
| The Museum of Modern Art |
| Pushkin State Museum of Fine Arts |
| National Gallery of Victoria |
| The Metropolitan Museum of Art |
| Museum of Grenoble |
| Nelson-Atkins Museum of Art |
| Musée du Louvre |
| National Maritime Museum |
| Museum of Fine Arts Boston |
| Rijksmuseum |
| Israel Museum |
| National Gallery of Art |
| National Gallery |
| The Prado Museum |
| The Barnes Foundation |
| Van Gogh Museum |
| Los Angeles County Museum of Art |

There are 27 of these museums that are open both sunday and monday.

11. How many museums are open every single day?

| museum_id | Open_days |
|---|---|
| 30 | 7 |
| 31 | 7 |
| 32 | 7 |
| 35 | 7 |
| 41 | 7 |
| 43 | 7 |
| 47 | 7 |
| 50 | 7 |
| 57 | 7 |
| 61 | 7 |
| 62 | 7 |
| 66 | 7 |
| 80 | 7 |
| 82 | 7 |
| 84 | 7 |
| 86 | 7 |

There are 16 museums which are open for all 7 days of the week

12. Which are the top 5 most popular museum? (Popularity is defined based on most no of paintings in a museum)

| Museum_name | City | Country | no_of_paintings |
|---|---|---|---|
| The Metropolitan Museum of Art | New York | USA | 939 |
| Rijksmuseum | Amsterdam | Netherlands | 452 |
| National Gallery of Art | Washington | USA | 375 |
| National Gallery | London | UK | 423 |
| The Barnes Foundation | Philadelphia | USA | 350 |

13. Who are the top 5 most popular artist? (Popularity is defined based on most no of paintings done by an artist)

| rnk | full_name | no_of_paintings |
|---|---|---|
| 1 | Pierre-Auguste Renoir | 469 |
| 2 | Claude Monet | 378 |
| 3 | Vincent Van Gogh | 308 |
| 4 | Maurice Utrillo | 253 |
| 5 | Albert Marquet | 233 |

14. Display the 3 least popular canva sizes

| label | ranking | Number of Paintings |
|---|---|---|
| 37" x 30"(94 cm x 76 cm) | 1 | 1 |
| 32" x 18"(81 cm x 46 cm) | 1 | 1 |
| 46" x 35"(117 cm x 89 cm) | 1 | 1 |
| 36" x 27"(91 46" x 35"(117 cm x 89 cm) | | |
| 44" x 34"(112 cm x 86 cm) | 1 | 1 |
| 24" x 29"(61 cm x 74 cm) | 1 | 1 |
| 45" x 32"(114 cm x 81 cm) | 1 | 1 |
| 32" x 46"(81 cm x 117 cm) | 1 | 1 |
| 32" x 32"(81 cm x 81 cm) | 2 | 2 |
| 71" x 71"(180 cm x 180 cm) | 2 | 2 |
| 56" Long Edge | 3 | 26 |

15. Which museum is open for the longest during a day. Dispay museum name, state and hours open and which day?

| Museum Name | Open_time | city |
|---|---|---|
| Israel Museum | 08:00 | Jerusalem |
| Indianapolis Museum of Art | 07:00 | Indianapolis |
| Kimbell Art Museum | 07:00 | Fort Worth |
| Norton Simon Museum | 07:00 | Pasadena |
| Chrysler Museum of Art | 07:00 | Norfolk |

16. Which museum has the most no of most popular painting style?

| museum_name | style | no_of_paintings |
|---|---|---|
| The Metropolitan Museum of Art | Impressionism | 244 |

17. Identify the artists whose paintings are displayed in multiple countries

| Artist_Name | Number of countries |
|---|---|
| Pierre-Auguste Renoir | 260 |
| Claude Monet | 190 |
| Vincent Van Gogh | 142 |
| Paul Cézanne | 124 |
| Camille Pissarro | 93 |
| Rembrandt Van Rijn | 93 |
| Francisco De Goya | 91 |
| Jean-Baptiste-Camille Corot | 82 |

18. Display the country and the city with most no of museums. Output 2 seperate columns to mention the city and country. If there are multiple value, seperate them with comma.

19. Identify the artist and the museum where the most expensive and least expensive painting is placed. Display the artist name, sale_price, painting name, museum name, museum city and canvas label

| Artist Name | Painting Name | Painting Price | Museum Name | Museum City | Canvas Dimension |
|---|---|---|---|---|---|
| Peter Paul Rubens | Fortuna | 1115 | The Prado Museum | Madrid | 48" x 96"(122 cm x 244 cm) |
| Adélaide Labille-Guiard | Portrait of Madame Labille-Guyard and Her Pupils | 10 | The Metropolitan Museum of Art | New York | 30" Long Edge |
| Adélaide Labille-Guiard | Portrait of Madame Labille-Guyard and Her Pupils | 10 | The Metropolitan Museum of Art | New York | 30" Long Edge |
| Adélaide Labille-Guiard | Portrait of Madame Labille-Guyard and Her Pupils | 10 | The Metropolitan Museum of Art | New York | 36" Long Edge |
| Adélaide Labille-Guiard | Portrait of Madame Labille-Guyard and Her Pupils | 10 | The Metropolitan Museum of Art | New York | 36" Long Edge |

20. Which country has the 5th highest no of paintings?

Result Grid | Filter Rows: | Export:

| Country | Number of Paintings | Rnk |
|---|---|---|
| Spain | 196 | 5 |

21. Which are the 3 most popular and 3 least popular painting styles?

| style | remarks |
|---|---|
| Impressionism | Most Popular |
| Post-Impressionism | Most Popular |
| Realism | Most Popular |
| Avant-Garde | Least Popular |
| Art Nouveau | Least Popular |
| Japanese Art | Least Popular |

22. Which artist has the most no of Portraits paintings outside USA?. Display artist name, no of paintings and the artist nationality

| Artist Name | Nationality | Number of Painitings |
|---|---|---|
| Jan Willem Pieneman | Dutch | 14 |
| Vincent Van Gogh | Dutch | 14 |
| Adriaan De Lelie | Dutch | 13 |
| Bartholomeus Van Der Helst | Dutch | 12 |
| Frans Hals | Dutch | 11 |
| Anton Raphael Mengs | German | 11 |
| Jan Adam Kruseman | Dutch | 10 |
| Rembrandt Van Rijn | Dutch | 9 |
| Francisco De Goya | Spanish | 9 |
| Lemuel Francis Abbott | English | 6 |
| Élisabeth Vigée-LeBrun | French | 6 |

Rough

select *from work;*

*select* from subject;

with Image_CTE as(

select work_id, url, thumbnail_small_url, thumbnail_large_url,

row_number() over(partition by work_id, url, thumbnail_small_url, thumbnail_large_url

order by work_id) as RowNumber

from image_link

```
)
delete from Image_CTE
where RowNumber > 1;

WITH Image_CTE AS (
SELECT
work_id,
url,
thumbnail_small_url,
thumbnail_large_url,
ROW_NUMBER() OVER (PARTITION BY work_id, url, thumbnail_small_url, thumbnail_large_url ORDER BY work_id) AS RowNumber
FROM
image_link
)

DELETE FROM image_link
WHERE (work_id, url, thumbnail_small_url, thumbnail_large_url, RowNumber) IN (
SELECT work_id, url, thumbnail_small_url, thumbnail_large_url, RowNumber
FROM Image_CTE
WHERE RowNumber > 1
);

select * from (
select work_id, url, thumbnail_small_url, thumbnail_large_url,
row_number() over(partition by work_id, url, thumbnail_small_url, thumbnail_large_url
order by work_id) as RowNumber
from image_link
) p
where RowNumber = 1;

SELECT *
FROM (
SELECT
work_id,
name,
artist_id,
style,
museum_id,
ROW_NUMBER() OVER (PARTITION BY work_id, name, artist_id, style, museum_id ORDER BY work_id) AS RowNumber
FROM
work
) AS Subquery
WHERE
RowNumber = 1;

business
```