

**M S RAMAIAH INSTITUTE OF TECHNOLOGY**  
(Autonomous Institute Affiliated to VTU)  
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A Report on

# **ART GALLERY DATABASE**

*Submitted in partial fulfillment of the Mini Project for the subject*

## **Database Management Systems- IS534**

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# **DESCRIPTION**

An Art Gallery Management System is a database system which is used to maintain the information of the gallery, artists, artwork and customers who purchase from the gallery. This application stores details relating to the artists who showcase their art in various galleries and how much their artwork gets sold for. Other users can also view the art and know the details of the art like name of the artist, art type, time to which art belonged.

The art gallery management system that we have implemented has the following relational entities:-

## **ARTIST**

This table consists of the details related to the artists like their name, age and the style of art they prefer doing their art in and a primary key identifier to identify them uniquely. These details in the table ARTIST describe the details of the artist.

Various of this relation are:

1. art\_id – It is a variable with data type as varchar and size as 10bytes. It functions as a Primary key to identify each artist uniquely.
2. artist\_name – It is a variable with data type as varchar and size as 20bytes which denotes the name of the artist.
3. Age- It is a variable with data type integer .It denotes the age of the artist.
4. art\_style- It is a variable with data type as varchar and size as 20bytes. Describes the Style of artwork the artist prefers doing.

## **ARTWORK**

This table consists of the details related to the artwork done by the artists like the style of work, artist referenced id stating which artist has done that particular artwork, gallery referenced id which states in which gallery that particular artwork will be displayed, along with these details it has a primary key which is used to address or access a particular artwork uniquely. The table also consists of the title or the name given to an artwork by the artist.

Various of this relation are:

1. artwork\_id- It is a variable with data type as varchar and size as 10bytes. It is used in the table to uniquely identify a particular art work done by an artist.
2. gal\_id- It is a variable with data type varchar and size 10 bytes. It is referenced from the gallery table (relation) to describe which gallery a particular artwork is displayed in.
3. art\_id- It is a variable with data type varchar and size 10 bytes. It is referenced from the artist table(relation) to describe which artist has made that particular artwork.

4. title- It is a variable with data type varchar and size 20 bytes. It is the special name of a particular artwork.
5. year\_made- It is a variable with data type int. It describes the year in which the artwork is made.
6. Price- It is a variable with data type int. Displays the price allotted of each artwork.

## **GALLERY**

This table is used to store information regarding various galleries present in different locations along with the artwork being displayed in that particular gallery and the capacity of the gallery.

Various of this relation are:

1. gal\_id- It is a variable with data type varchar and size 10 bytes. It is used to uniquely identify a particular gallery.
2. gal\_name- It is a variable with data type varchar and size 20 bytes. It is the name of a particular gallery.
3. location- It is a variable with data type varchar and size 20 bytes. It gives the details about where the art gallery is located.
4. Capacity- It is a variable with data type int. It describes the details about how many people can be accommodated at a particular time inside the gallery.
5. ticket\_price- It is a variable with data type int. It describes the entry ticket price to enter and view the gallery.

## **CUSTOMER**

This table is used to store information regarding various customers that visit various galleries, along with the customer id and name of each customer and the amount of money spent by each customer in various art galleries.

Various of this relation are:

1. cust\_id- It is a variable with data type varchar and size 10 bytes. It is the primary key used to address each customer uniquely.
2. cust\_name- It is a variable with data type varchar and size 20 bytes. It is the name of a particular customer.
3. gal\_id- It is a variable with data type varchar and size 10 bytes. It is referenced from the gallery table(relation) .
4. money\_spent- It is a variable with data type int. Describes how much money each customer has spent in the gallery.

## **PREFERENCES**

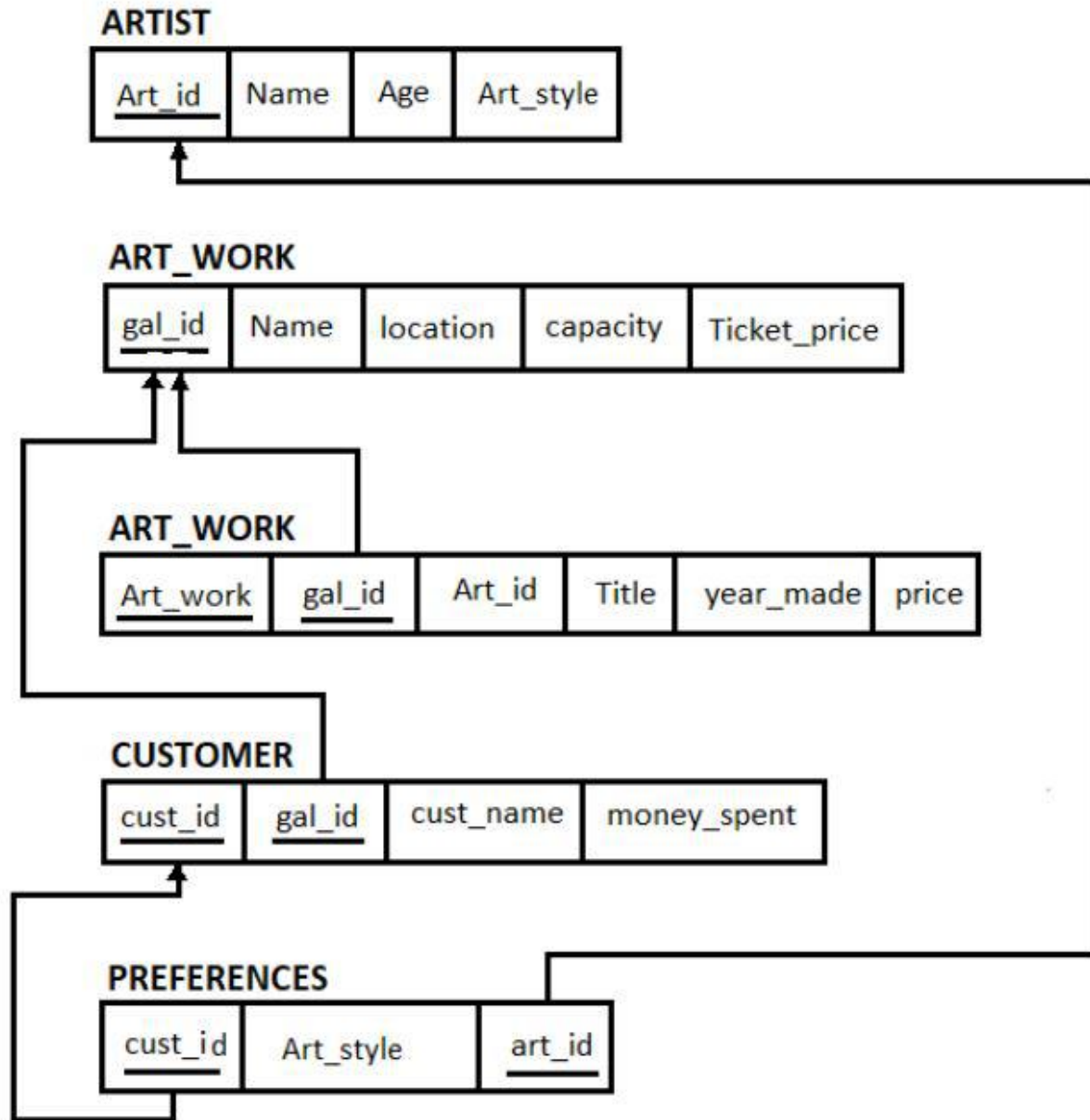
This is a table which gives details about the customers various preferences of the artists,ie.in order in which he prefers buying the artwork from that artist.Its consists of the customer id being the primary key and the id of the artist whom they prefer the most amongst the others and the style of artwork they would like to buy.

Various of this relation are:

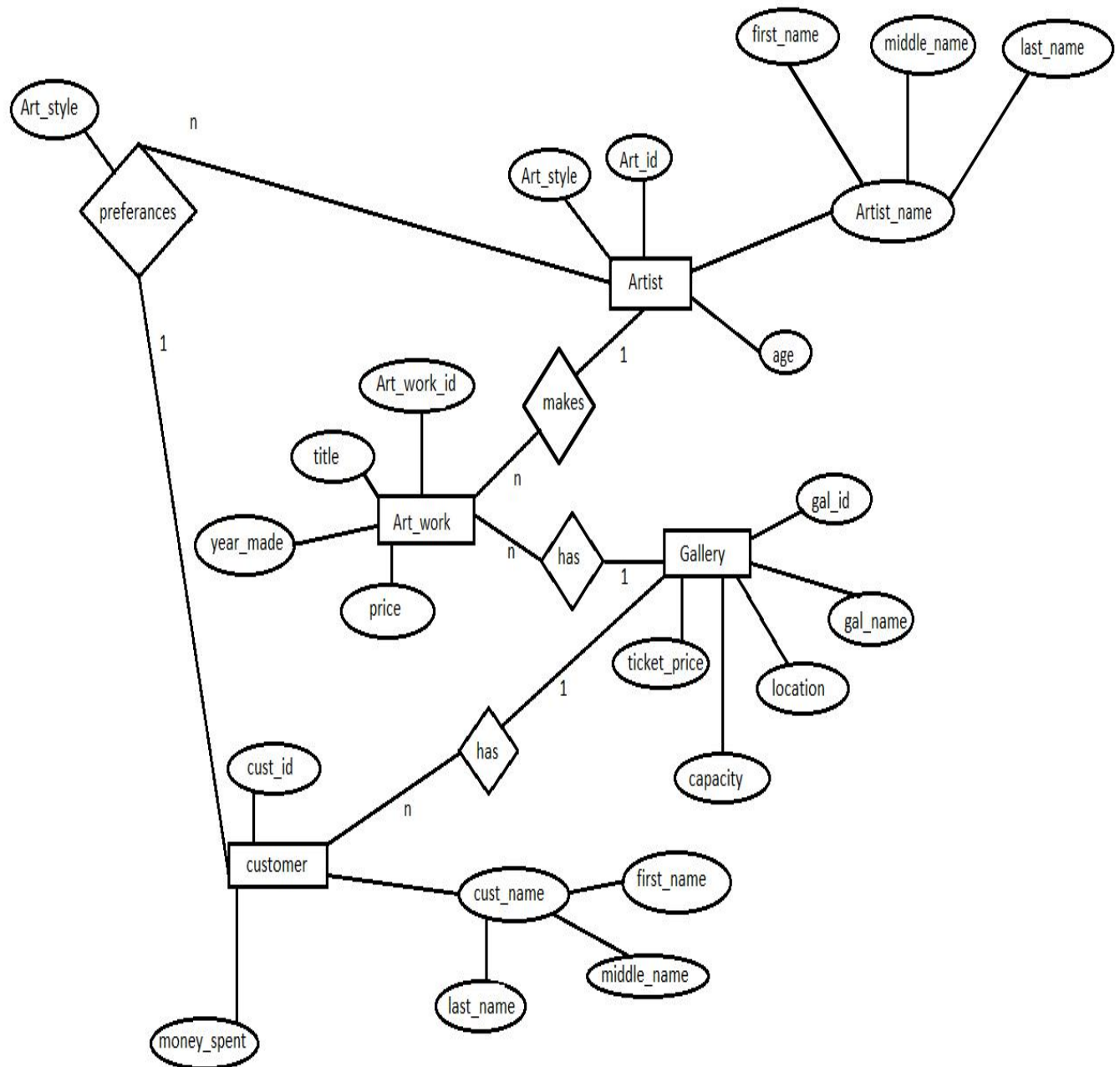
1. cust\_id- It is a variable with data type varchar and size 10. It references the primary key of the customer table.
2. art\_id- It is a variable with data type varchar and size 10. It references the primary key of the artist table. It shows the id of the artist that the customer prefers buying the artwork from.
3. art\_style- It is a variable with data type varchar and size 20 and it used to show the field of interest in styles for the customer.

All these tables are interlinked with various primary keys for referencing the data from all the other tables forming the overall structure of the art gallery management system.

# SCHEMA DIAGRAM



# ENTITY RELATIONSHIP DIAGRAM



# CODE

```
create table artist(art_id varchar(10),artist_name varchar(20),age int,art_style varchar(20),primary key(art_id));
```

```
create table gallery(gal_id varchar(10), gal_name varchar(20),location varchar(20),capacity int, ticket_price int,primary key(gal_id));
```

```
create table artwork(artwork_id varchar(10), gal_id varchar(10),art_id varchar(10),title varchar(20),year_made int,price int,primary key(artwork_id),foreign key(gal_id) references gallery(gal_id));
```

```
create table customer(cust_id varchar(10), gal_id varchar(10),cust_name varchar(10),money_spent int,primary key(cust_id),foreign key(gal_id) references gallery(gal_id));
```

```
create table preferences(cust_id varchar(10),art_id varchar(10),art_style varchar(20),primary key(cust_id,art_id), foreign key(art_id) references artist(art_id),foreign key(cust_id) references customer(cust_id));
```

```
insert into artist values('a1','Da Vinci',67,'Renaissance');
```

```
insert into artist values('a2','Picasso',92,'Cubism');
```

```
insert into artist values('a3','Kahlo',47,'Symbolism');
```

```
insert into artist values('a4','Warhol',59,'Pop Art');
```

```
insert into artist values('a5','Pollock',44,'Abstract');
```

```
insert into artist values('a6','Mark',44,'Action Painting');
```

```
select * from artist;
```

```
insert into gallery values('g1','The Hole', 'New York',50000,95000);
```

```
insert into gallery values('g2','Team Gallery', 'New York',8000,55000);
```

```
insert into gallery values('g3','Bondaroff','Los Angeles',10000,1000000);
```

```
insert into gallery values('g4','Boone','New York',4500,30000);
```

```
insert into gallery values('g5','Sadie Coles','London',3000,25000);
```

```
insert into gallery values('g6','Levy Gorvy','London',1000,20000);
insert into gallery values('g7','Galerie Ropac','Paris',5000,87500);
insert into gallery values('g8','Yvon','Paris',2000,86450);
insert into gallery values('g9','Lisson Gallery','Milan',3200,47200);
select * from gallery;
```

```
insert into artwork values('aw1','g2','a1','Mona Lisa',1503,900000);
insert into artwork values('aw2','g3','a8','The Last Supper',1498,800000);
insert into artwork values('aw3','g1','a2','Guernica',1937,750000);
insert into artwork values('aw4','g6','a6','Jacqueline',1961,60000);
insert into artwork values('aw5','g5','a3','My Birth',1932,35000);
insert into artwork values('aw6','g2','a7','Roots',1943,100000);
insert into artwork values('aw7','g4','a4','Oxidation',1978,450000);
insert into artwork values('aw8','g8','a5','Blue Poles',1952,50000);
insert into artwork values('aw9','g7','a9','Lucifer',1947,500000);
insert into artwork values('aw10','g7','a9','Loki',1947,500000);
insert into artwork values('aw11','g7','a9','Luc',1947,500000);
insert into artwork values('aw12','g7','a10','Lc',1947,500000);
select * from artwork;
```

```
insert into customer values('c1','g1','Edward',50000);
insert into customer values('c2','g5','Diana',25000);
insert into customer values('c3','g3','Penny',60000);
insert into customer values('c4','g1','Rachel',750000);
insert into customer values('c5','g2','Joey',65000);
insert into customer values('c6','g1','Paolo',67000);
insert into customer values('c7','g2','Josh',100000);
```



```
insert into customer values('c8','g4','Albert',205000);  
insert into customer values('c9','g6','Stuart',300000);  
select * from customer;
```

```
insert into preferences values('c1','a1','Action Painting');  
insert into preferences values('c1','a2','Symbolism');  
insert into preferences values('c2','a1','Renaissance');  
insert into preferences values('c2','a5','Pop Art');  
insert into preferences values('c3','a5','Cubism');  
insert into preferences values('c3','a6','Cubism');  
insert into preferences values('c6','a1','Abstract');  
insert into preferences values('c4','a6','Renaissance');  
insert into preferences values('c5','a5','Action Painting');  
insert into preferences values('c1','a4','Abstract');  
insert into preferences values('c2','a2','Pop Art');  
insert into preferences values('c5','a4','Symbolism');  
insert into preferences values('c6','a3','Action Painting');  
select * from preferences;
```

## SNAPSHOTS OF TABLE DESCRIPTIONS AND INSERTED TUPLES

### ARTIST REALTION

```
SQL> desc artist;
```

Name	Null?	Type
ART_ID	NOT NULL	VARCHAR2(10)
ARTIST_NAME		VARCHAR2(20)
AGE		NUMBER(38)
ART_STYLE		VARCHAR2(20)

```
SQL> select * from artist;
```

ART_ID	ARTIST_NAME	AGE	ART_STYLE
a1	Da Vinci	67	Renaissance
a2	Picasso	92	Cubism
a3	Kahlo	47	Symbolism
a4	Warhol	59	Pop Art
a5	Pollock	44	Abstract
a6	Mark	44	Action Painting

```
6 rows selected.
```

## ARTWORK RELATION

```
SQL> desc artwork;
```

Name	Null?	Type
ARTWORK_ID	NOT NULL	VARCHAR2(10)
GAL_ID		VARCHAR2(10)
ART_ID		VARCHAR2(10)
TITLE		VARCHAR2(20)
YEAR_MADE		NUMBER(38)
PRICE		NUMBER(38)

```
SQL> select * from artwork;
```

ARTWORK_ID	GAL_ID	ART_ID	TITLE	YEAR_MADE	PRICE
aw1	g2	a1	Mona Lisa	1503	900000
aw2	g3	a8	The Last Supper	1498	800000
aw3	g1	a2	Guernica	1937	750000
aw4	g6	a6	Jacqueline	1961	60000
aw5	g5	a3	My Birth	1932	35000
aw6	g2	a7	Roots	1943	100000
aw7	g4	a4	Oxidation	1978	450000
aw8	g8	a5	Blue Poles	1952	50000
aw9	g7	a9	Lucifer	1947	500000
aw10	g7	a9	Luci	1947	500000
aw11	g7	a9	Luc	1947	500000
aw12	g7	a10	Lc	1947	500000

```
12 rows selected.
```

## GALLERY RELATION

```
SQL> desc gallery;
```

Name	Null?	Type
-----		
GAL_ID	NOT NULL	VARCHAR2(10)
GAL_NAME		VARCHAR2(20)
LOCATION		VARCHAR2(20)
CAPACITY		NUMBER(38)
TICKET_PRICE		NUMBER(38)

```
SQL>
```

```
select * from gallery;
```

GAL_ID	GAL_NAME	LOCATION	CAPACITY	TICKET_PRICE
-----				
g1	The Hole	New York	50000	95000
g2	Team Gallery	New York	8000	55000
g3	Bondaroff	Los Angeles	10000	1000000
g4	Boone	New York	4500	30000
g5	Sadie Coles	London	3000	25000
g6	Levy Gorvy	London	1000	20000
g7	Galerie Ropac	Paris	5000	87500
g8	Yvon	Paris	2000	86450
g9	Lisson Gallery	Milan	3200	47200

```
9 rows selected.
```

## CUSTOMER RELATION

```
SQL> desc customerr;
```

Name	Null?	Type
CUST_ID	NOT NULL	VARCHAR2(10)
GAL_ID		VARCHAR2(10)
CUST_NAME		VARCHAR2(10)
MONEY_SPENT		NUMBER(38)

```
SQL> SQL> select * from customerr;
```

CUST_ID	GAL_ID	CUST_NAME	MONEY_SPENT
c1	g1	Edward	50000
c2	g5	Diana	25000
c3	g3	Penny	60000
c4	g1	Rachel	750000
c5	g2	Joey	65000
c6	g1	Paolo	67000
c7	g2	Josh	100000
c8	g4	Albert	205000
c9	g6	Stuart	300000

```
9 rows selected.
```

## PREFERENCES RELATION

```
SQL> desc preferences;
```

Name	Null?	Type
-----	-----	-----
CUST_ID	NOT NULL	VARCHAR2(10)
ART_ID	NOT NULL	VARCHAR2(10)
ART_STYLE		VARCHAR2(20)

```
SQL> SQL> select * from preferences;
```

CUST_ID	ART_ID	ART_STYLE
-----	-----	-----
c1	a1	Action Painting
c1	a2	Symbolism
c2	a1	Renaissance
c2	a5	Pop Art
c3	a5	Cubism
c3	a6	Cubism
c6	a1	Abstract
c4	a6	Renaissance
c5	a5	Action Painting
c1	a4	Abstract
c2	a2	Pop Art
CUST_ID	ART_ID	ART_STYLE
-----	-----	-----
c5	a4	Symbolism
c6	a3	Action Painting

```
13 rows selected.
```



# QUERIES

**Query 1**---Retrieve the artist name, name of the artwork and style of artwork from different tables linking them using objects of the relations involved.

select artist\_name, artwork.title ,art\_style from artist,artwork,gallery where artist.art\_id = artwork.art\_id and artwork.gal\_id = gallery.gal\_id;

```
SQL> select artist_name,artwork.title,art_style from artist,artwork,gallery where artist.art_id=artwork.art_id and artwork.gal_id=gallery.gal_id;
```

ARTIST_NAME	TITLE	ART_STYLE
Da Vinci	Mona Lisa	Renaissance
Picasso	Guernica	Cubism
Mark	Jacqueline	Action Painting
Kahlo	My Birth	Symbolism
Warhol	Oxidation	Pop Art
Pollock	Blue Poles	Abstract

6 rows selected.

**Query 2**---Select gallery name along with their overall earnings and display them in max to min order

select gallery.gal\_name,gallery.ticket\_price\*gallery.capacity as earnings from gallery order by earnings desc;

```
SQL> select gallery.gal_name,gallery.ticket_price*gallery.capacity as earnings from gallery order by earnings desc;
```

GAL_NAME	EARNINGS
Bondaroff	1.0000E+10
The Hole	4750000000
Team Gallery	440000000
Galerie Ropac	437500000
Yvon	172900000
Lisson Gallery	151040000
Boone	135000000
Sadie Coles	75000000
Levy Gorvy	20000000

9 rows selected.

**Query 3---** Select and display the art works by the artists who are older than artist Warhol.

```
select title from artwork where art_id in (select art_id from artist where age > (select age from artist where artist_name='Warhol'));
```

```
SQL> select title from artwork where art_id in (select art_id from artist where age > (select age from artist where artist_name='Warhol'));

TITLE
-----
Mona Lisa
Guernica
```

**Query 4---** Name of artist and gallery where more that 1 painting by the same artist is shown in a gallery

```
select count(artwork_id) as works,gal_id,art_id from artwork group by (art_id,gal_id) having count(artwork_id) >1 ;
```

```
SQL> select count(artwork_id) as works,gal_id,art_id from artwork group by (art_id,gal_id) having count(artwork_id) >1 ;

WORKS GAL_ID ART_ID
-----
3 g7 a9
```

**Query 5---** Select an display the amount spent by customers in a particular gallery and arrange them in order of the gal\_id.

```
select gal_id,cust_name,sum(money_spent) as amt from customerr group by(gal_id,cust_name) order by amt desc;
```

```
SQL> select gal_id,cust_name,sum(money_spent) as amt from customerr group by(gal_id,cust_name) order by amt desc;

GAL_ID CUST_NAME AMT
-----
g1 Rachel 750000
g6 Stuart 300000
g4 Albert 205000
g2 Josh 100000
g1 Paolo 67000
g2 Joey 65000
g3 Penny 60000
g1 Edward 50000
g5 Diana 25000

9 rows selected.
```



**Query 6---** Select and display the average price of an artwork by an artist

```
select artwork.art_id,artist_name,avg(price) from artist join artwork on artist.art_id=artwork.art_id
group by (artwork.art_id,artist_name) order by artwork.art_id;
```

```
SQL> select artwork.art_id,artist_name,avg(price) from artist join artwork on artist.art_id=artwork.art_id group by (artwork.art_id,artist_name) order b
y artwork.art_id;
```

ART_ID	ARTIST_NAME	AVG(PRICE)
a1	Da Vinci	900000
a2	Picasso	750000
a3	Kahlo	35000
a4	Warhol	450000
a5	Pollock	50000
a6	Mark	60000

6 rows selected.

**Query 7---** Count of the most preferred artist amongst all the entries in preferences relation along with the artist names with count of preferences

```
select count(cust_id) as preferences_arist,preferences.art_id,artist_name from preferences,artist
where artist.art_id=preferences.art_id group by(preferences.art_id,artist_name) order by
preferences_arist desc;
```

```
SQL> select count(cust_id) as preferences_arist,preferences.art_id,artist_name from preferences,artist where artist.art_
id=preferences.art_id group by(preferences.art_id,artist_name) order by preferences_arist desc;
```

PREFERENCES_ARIST	ART_ID	ARTIST_NAME
3	a1	Da Vinci
3	a5	Pollock
2	a6	Mark
2	a4	Warhol
2	a2	Picasso
1	a3	Kahlo

6 rows selected.