Video games are big business: the global gaming market is projected to be worth more than $300 billion by 2027 according to Mordor Intelligence. With so much money at stake, the major game publishers are hugely incentivized to create the next big hit. But are games getting better, or has the golden age of video games already passed?

In this project, you'll analyze video game critic and user scores as well as sales data for the top 400 video games released since 1977. You'll search for a golden age of video games by identifying release years that users and critics liked best, and you'll explore the business side of gaming by looking at game sales data.

Your search will involve joining datasets and comparing results with set theory. You'll also filter, group, and order data. Make sure you brush up on these skills before trying this project! The database contains two tables. Each table has been limited to 400 rows for this project, but you can find the complete dataset with over 13,000 games on Kaggle.

`game_sales` **table**

Column	Definition	Data Type
name	Name of the video game	`varchar`
platform	Gaming platform	`varchar`
publisher	Game publisher	`varchar`
developer	Game developer	`varchar`
games_sold	Number of copies sold (millions)	`float`
year	Release year	`int`

`reviews` **table**

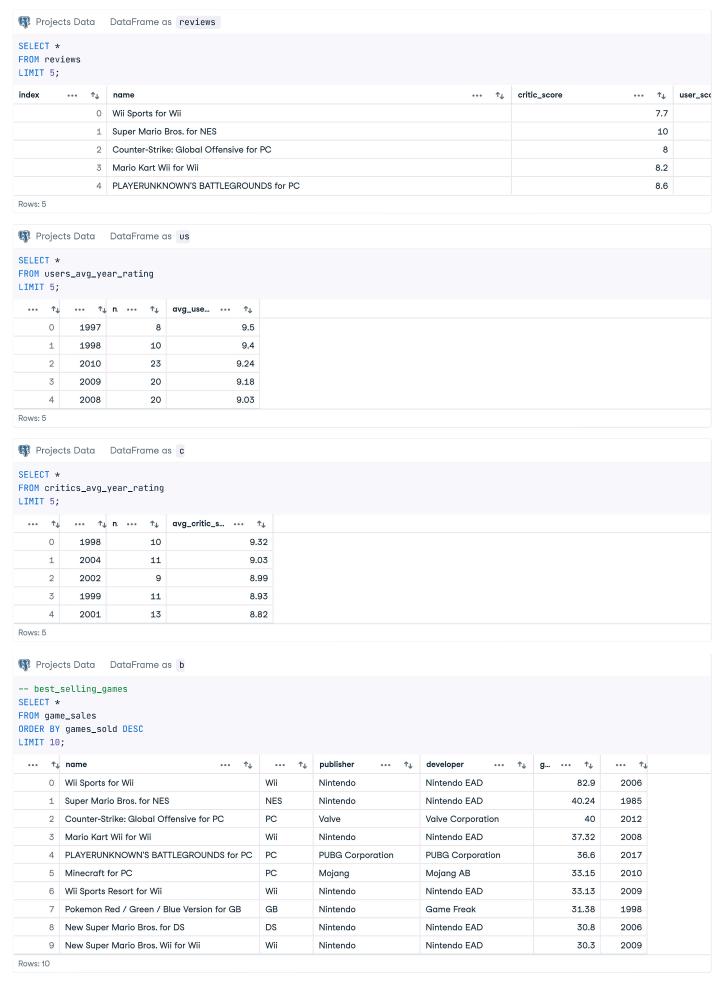| Column	Definition	Data Type
name	Name of the video game	`varchar`
critic_score	Critic score according to Metacritic	`float`
user_score	User score according to Metacritic	`float`

`users_avg_year_rating` **table**

Column	Definition	Data Type
year	Release year of the games reviewed	`int`
num_games	Number of games released that year	`int`
avg_user_score	Average score of all the games ratings for the year	`float`

`critics_avg_year_rating` **table**

Column	Definition	Data Type
year	Release year of the games reviewed	`int`
num_games	Number of games released that year	`int`
avg_critic_score	Average score of all the games ratings for the year	`float`

🐘 Projects Data   DataFrame as `game_sal`

```sql
SELECT *
FROM game_sales
LIMIT 5;
```

	name	p.	publisher	developer	ga...
0	7 Days to Die for PC	PC	The Fun Pimps	The Fun Pimps	
1	ARK: Survival Evolved for PC	PC	Studio Wildcard	Studio Wildcard	
2	Age of Empires II: HD Edition for PC	PC	Microsoft Studios	Hidden Path Entertainment	
3	Animal Crossing: City Folk for Wii	Wii	Nintendo	Nintendo EAD	
4	Animal Crossing: New Horizons for NS	NS	Nintendo	Nintendo	

Rows: 5

Projects Data   DataFrame as `reviews`

```sql
SELECT *
FROM reviews
LIMIT 5;
```

index	•••	name	•••	critic_score	•••	user_sco
0		Wii Sports for Wii		7.7		
1		Super Mario Bros. for NES		10		
2		Counter-Strike: Global Offensive for PC		8		
3		Mario Kart Wii for Wii		8.2		
4		PLAYERUNKNOWN'S BATTLEGROUNDS for PC		8.6		

Rows: 5

Projects Data   DataFrame as `us`

```sql
SELECT *
FROM users_avg_year_rating
LIMIT 5;
```

	•••	•••	n. •••	avg_use…	•••
0		1997	8	9.5	
1		1998	10	9.4	
2		2010	23	9.24	
3		2009	20	9.18	
4		2008	20	9.03	

Rows: 5

Projects Data   DataFrame as `c`

```sql
SELECT *
FROM critics_avg_year_rating
LIMIT 5;
```

	•••	•••	n. •••	avg_critic_s…	•••
0		1998	10	9.32	
1		2004	11	9.03	
2		2002	9	8.99	
3		1999	11	8.93	
4		2001	13	8.82	

Rows: 5

Projects Data   DataFrame as `b`

```sql
-- best_selling_games
SELECT *
FROM game_sales
ORDER BY games_sold DESC
LIMIT 10;
```

	•••	name	•••		•••	publisher	•••	developer	•••	g…	•••	•••
0		Wii Sports for Wii		Wii		Nintendo		Nintendo EAD		82.9	2006	
1		Super Mario Bros. for NES		NES		Nintendo		Nintendo EAD		40.24	1985	
2		Counter-Strike: Global Offensive for PC		PC		Valve		Valve Corporation		40	2012	
3		Mario Kart Wii for Wii		Wii		Nintendo		Nintendo EAD		37.32	2008	
4		PLAYERUNKNOWN'S BATTLEGROUNDS for PC		PC		PUBG Corporation		PUBG Corporation		36.6	2017	
5		Minecraft for PC		PC		Mojang		Mojang AB		33.15	2010	
6		Wii Sports Resort for Wii		Wii		Nintendo		Nintendo EAD		33.13	2009	
7		Pokemon Red / Green / Blue Version for GB		GB		Nintendo		Game Freak		31.38	1998	
8		New Super Mario Bros. for DS		DS		Nintendo		Nintendo EAD		30.8	2006	
9		New Super Mario Bros. Wii for Wii		Wii		Nintendo		Nintendo EAD		30.3	2009	

Rows: 10

Projects Data   DataFrame as

```sql
-- critics_top_ten_years
SELECT
    year,
    num_games,
    ROUND(MAX(avg_critic_score), 2)AS avg_critic_score
FROM critics_avg_year_rating
WHERE num_games >= 4
GROUP BY num_games, year
ORDER BY avg_critic_score DESC
LIMIT 10;
```

···	···	n. ···	avg_critic_s… ···
0	1998	10	9.32
1	2004	11	9.03
2	2002	9	8.99
3	1999	11	8.93
4	2001	13	8.82
5	2011	26	8.76
6	2016	13	8.67
7	2013	18	8.66
8	2008	20	8.63
9	2012	12	8.62

Rows: 10

Projects Data   DataFrame as

```sql
-- golden_years
SELECT
    c.year,
    c.num_games,
    c.avg_critic_score,
    u.avg_user_score,
    (c.avg_critic_score - u.avg_user_score) AS diff
FROM critics_avg_year_rating AS c
INNER JOIN users_avg_year_rating AS u
ON c.year = u.year
WHERE c.avg_critic_score > 9
    OR u.avg_user_score > 9
GROUP BY c.year,
    c.num_games,
    c.avg_critic_score,
    u.avg_user_score
ORDER BY c.year ASC;
```

···	···	n. ···	avg_critic_s… ···	avg_use… ···	···
0	1997	8	7.93	9.5	-1.57
1	1998	10	9.32	9.4	-0.08
2	2004	11	9.03	8.55	0.48
3	2008	20	8.63	9.03	-0.4
4	2009	20	8.55	9.18	-0.63
5	2010	23	8.41	9.24	-0.83

Rows: 6