

# **Video Games Industry Analysis**

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## **Problem Description**

The Video game industry is not as popular as before, as the computer and mobile game industry has grown rapidly in recent years. Global sales of video games decreased after 2008, and it has shown a decline until recently. In this aspect, we wonder which factors a relatively big influence on sales volume increase have, therefore, our project mainly focuses on analyzing the features that can affect sales volume by finding correlations between features. Using this information, we will provide insights into the video game industry and video game sales companies to help them achieve better development and promote their games, enabling them to grow their sales volume.

## **Conceptual Data Model**

Our raw dataset is sourced from Kaggle (<https://www.kaggle.com/rush4ratio/video-game-sales-with-ratings>) and covers features related to video games with 16 columns including release year, global sales, and publisher, and with 16720 rows between 1985 and 2016 from the website VGChartz and corresponding ratings from Metacritic. VGChartz is a video game sales tracking website that provides weekly sales figures of console software and hardware by region. Metacritic is a website that aggregates reviews of video games. To make the results of the data more accurate, we deleted rows including any empty cells. Besides, we removed 3 columns that we will not use, which were Critic\_Count, User\_Count, and Developer. Instead, we added a unique ID and ESRB rating description column.

The newly created dataset gathered data on 6,827 video games with 18 columns, consisting of new 5 columns (game, publisher, platform, rating ID and rating description) and the 13 original columns except for the three columns that were deleted. The below table describes each attribute:

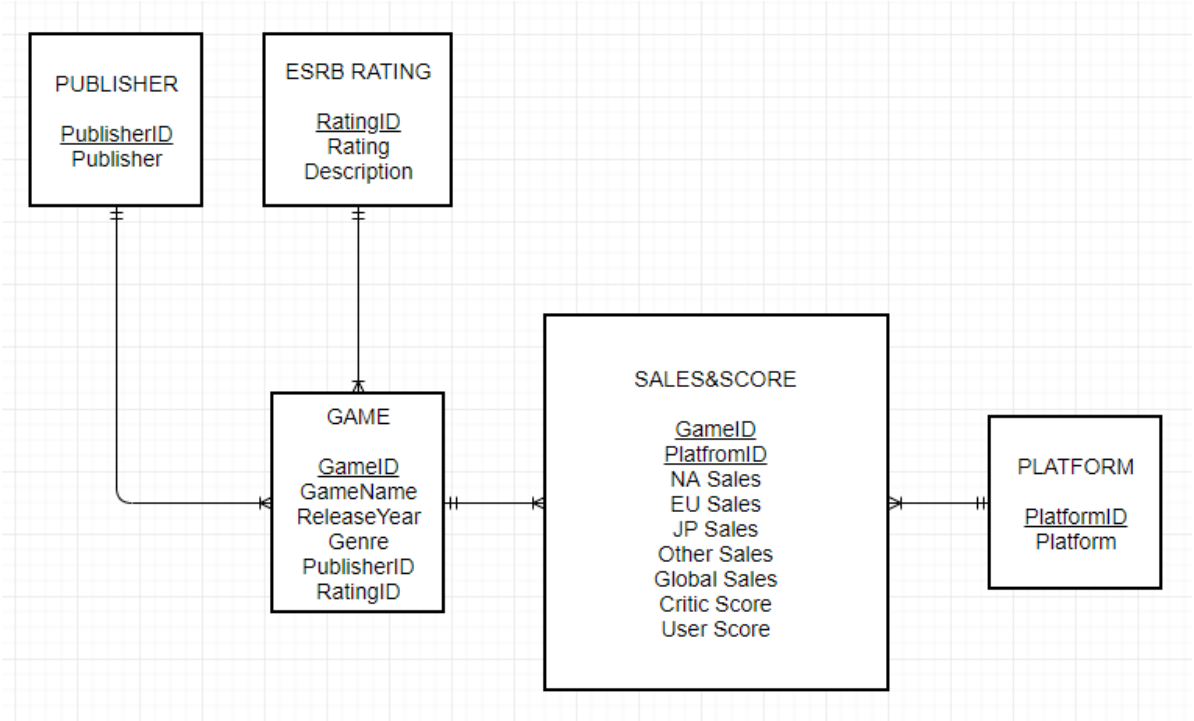
<b>Attribute</b>	<b>Type</b>	<b>Description</b>
Game ID	Numeric	Unique ID for each game
Game Name	Text	Name of the game
Release Year	Numeric	Year of the game released
Genre	Text	Game's category
Publisher ID	Numeric	Unique ID for each publisher
Rating ID	Numeric	Unique ID for each rating grade
Platform	Text	Console on which the game is running
Platform ID	Numeric	Unique ID for each platform
Publisher	Text	The company name that publishes the game
Rating	Text	The ESRB ratings (E.g. Everyone, Teen...etc)
Description	Text	The definition of each rating grade
NA sales	Numeric	Game sales in North America
EU sales	Numeric	Game sales in the European Union
JP sales	Numeric	Game sales in Japan
Other sales	Numeric	Game sales in the rest of the world
Global sales	Numeric	Total sales in the world
Critic score	Numeric	Aggregate score compiled by Metacritic staff
User score	Numeric	Score by Metacritic's subscribers

For our proposed database, there are five entities: Game, Sales & Score, ESRB rating, Publisher, and Platform. Each game, publisher, platform, and ESRB rating is identified by each unique ID. Video games and platforms have a many-to-many relationship. In other words, each game may be published on more than one type of platform, and each platform can have many video games.

In our proposed database, there are five entities: GAME, SALES & SCORE, ESRB RATING, PUBLISHER, and PLATFORM. Each game, publisher, platform, and rating ID is an

identifier attribute that uniquely references the instances. For SALES & SCORE entity, a combination of the game ID and platform ID is an identifier attribute. All attributes except for each entity’s identifier attribute in the game entity are considered as a simple attribute.

Each game is published by only one publisher, and a game must have a publisher (modality= mandatory, cardinality=one). Each publisher can have many games and must have at least one (modality=mandatory, cardinality=many). This logic applies equally to games and ESRB rating relationship. In the case of the relationship between GAME and SALES & SCORE, each game can have more than one sale and score record because there are some duplicated games that are run by different platforms. For example, there are two duplicated game names is called “call of Duty: Black Ops II” is run by PS3 and X360 platforms in our dataset. A game must have at least one sale & score record (modality= mandatory, cardinality=many). Each sale & score record exists by only one game, and the record must have a game (modality=mandatory, cardinality=one). For a relationship between SALE & SCORE and PLATFORM, each platform can have more than one sale and score record, and a platform must have at least one sale & score record (modality=mandatory, cardinality=many). Each sale & score record exists by the only platform, and the record must have a platform (modality=mandatory, cardinality=one).



# Relational Schema

The original dataset was in 0 NF because there were some duplicated rows such as the same game name with different platforms and had no primary keys. To perform normalization to make sure that each relationship is in 3NF, we separated the table into 5 different tables by assigning each primary key. For GAME, game ID is the primary key, and publisher and rating ID are the foreign keys that connect PUBLISHER and ESRB rating, respectively. For PUBLISHER, PLATFORM, and RATING, publisher, platform, and rating ID are the primary key, respectively. In addition, to solve the duplicate problem, we assigned the composite key for SALES & SCORE. Thus, game ID and platform ID are the composite keys. As a result, every table has the primary key (PK) that uniquely identifies each row, and relations does not have any repeating groups, partial and transitive dependencies. This is a result for transforming the ERD into a relational schema by using short text statements:

GAME (GameID, GameName, ReleaseYear, Genre, PublisherID, RatingID)

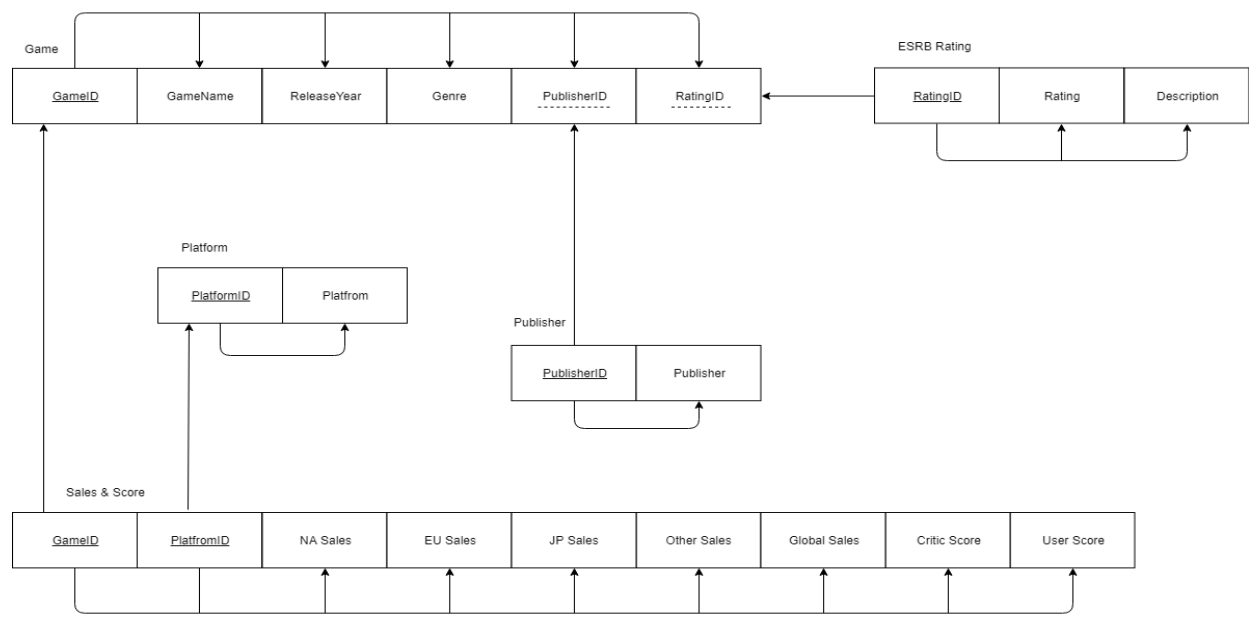
PUBLISHER (PublisherID, Publisher)

ESRB RATING (RatingID, Rating, Description)

PLATFORM (PlatformID, Platform)

SALES & SCORE (GameID, PlatformID, NA Sales, EU Sales, JP Sales, Other Sales, Global Sales, Critic Score, User Score)

This is a result of graphical representation:



# Database Implementation

These are the SQL commands to create the tables including INSERT command:

## **GAME table:**

```
CREATE TABLE GAME (  
GAMEID NUMBER(5,0) NOT NULL,  
GAMENAME VARCHAR2(255),  
RELEASEYEAR NUMBER(5,0) NOT NULL,  
GENRE VARCHAR2(30),  
CONSTRAINT EMP_GAME_PK primary key (GAMEID),  
CONSTRAINT EMP_GAME_FK foreign key (PUBLISHERID) references PUBLISHER (PUBLISHERID)  
CONSTRAINT EMP_GAME_FK foreign key (RATINGID) references RATING (RATINGID)  
);  
  
INSERT INTO GAME (GAMEID, GAMENAME, RELEASEYEAR, GENRE, PUBLISHERID, RATINGID)  
VALUES (1279, 'MySims Agents', 2009, Adventure, 8, 1);
```

GAMEID	GAMENAME	RELEASEYEAR	GENRE	PUBLISHERID	RATINGID
1279	MySims Agents	2009	Adventure	8	1
2061	MySims Racing	2009	Racing	8	1
2303	NCAA March Madness 06	2005	Sports	8	1
1735	Need for Speed: Shift	2009	Racing	8	1
6067	Disney's Party	2002	Misc	8	1
2382	SimAnimals	2009	Simulation	8	1
2247	Mega Man Zero	2002	Platform	17	1
3867	Carnival Island	2011	Misc	4	1
852	Tiger Woods PGA Tour 2005	2004	Sports	8	1

## **PLATFORM table:**

```
CREATE TABLE PLATFORM (  
PLATFORMID NUMBER(5,0) NOT NULL,  
PLATFORM VARCHAR2(30)  
);  
  
INSERT INTO PLATFORM (PLATFORMID, PLATFORM)
```

VALUES (1, 'Wii');

PLATFORMID	PLATFORM
1	Wii
2	DS
3	X360
4	PS3
5	PS2
6	3DS
7	PS4
8	PS
9	XB
10	PC
11	PSP
12	WiiU
13	GC
14	GBA
15	XOne

**PUBLISHER table:**

```
CREATE TABLE PUBLISHER (  
PUBLISHERID NUMBER(5,0) NOT NULL,  
PUBLISHER VARCHAR2(255)  
);  
INSERT INTO PUBLISHER (PUBLISHERID, PUBLISHER)  
VALUES (1, Nintendo);
```

PUBLISHERID	PUBLISHER
1	Nintendo
2	Microsoft Game Studios
3	Take-Two Interactive
4	Sony Computer Entertainment
5	Activision
6	Ubisoft
7	Bethesda Softworks
8	Electronic Arts
9	SquareSoft
10	GT Interactive
11	Konami Digital Entertainment
13	Sony Computer Entertainment Europe
14	Virgin Interactive
15	LucasArts
16	505 Games

For the RATING table, we created a description column to explain about each ESRB rating.

**RATING table:**

```
CREATE TABLE RATING (
RATINGID NUMBER(5,0) NOT NULL,
RATING VARCHAR2(30),
DESCRIPTION VARCHAR2(30)
);
INSERT INTO RATING (RATINGID, RATING, DESCRIPTION)
VALUES (1, 'E', 'Everyone');
```



RATINGID	RATING	DESCRIPTION
1	E	Everyone
2	M	Mature17+
3	T	Teen
4	E10+	Everyone10+
5	AO	Adultonly
6	K-A	Kidstoadults
7	RP	Rating pending

For the SALES table, because one game can be published on more than one platform, and each platform can have many games, we created the composite key (Game ID + Platform ID) to uniquely identify each sale and score for each game on each platform. Previously, the entity name “SALES & SCORE” was changed to “SALES” in the table.

**SALES table:**

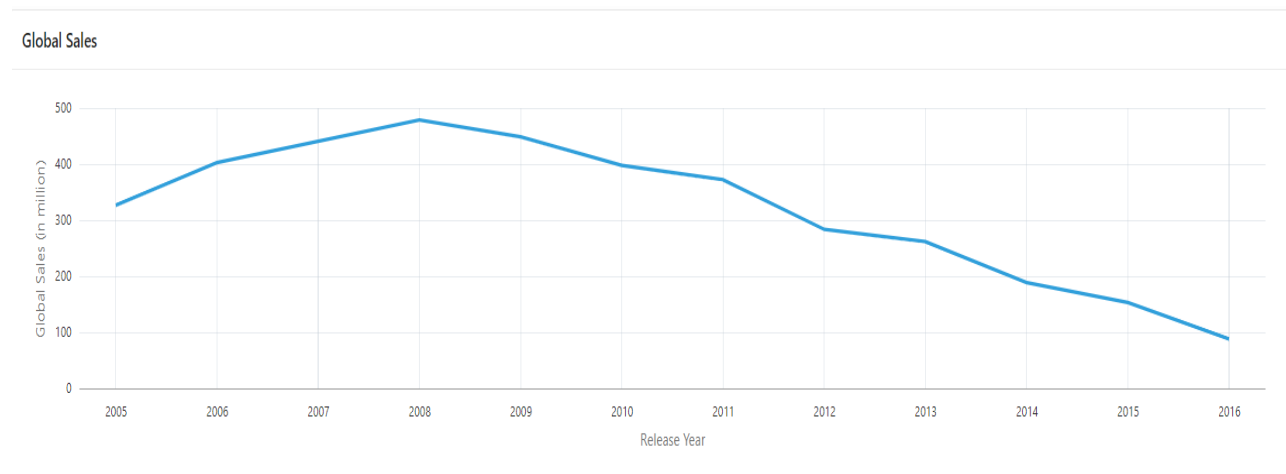
```
CREATE TABLE SALES (
GAMEID NUMBER(5,0) NOT NULL,
PLATFORMID NUMBER(5,0) NOT NULL,
NA_SALES NUMBER(4,2),
EU_SALES NUMBER(4,2),
JP_SALES NUMBER(4,2),
OTHER_SALES NUMBER(4,2),
GLOBAL_SALES NUMBER(4,2),
CRITIC_SCORE NUMBER(4,2),
USER_SCORE NUMBER(4,2)
CONSTRAINT EMP_SALES_PK primary key (GAMEID, PLATFORMID),
);
INSERT INTO SALES (GAMEID, PLATFORMID, NA_SALES, EU_SALES, JP_SALES, OTHER_SALES, GLOBAL_SALES,
CRITIC_SCORE, USER_SCORE)
VALUES (6361, 13, .03, .01, 0, 0, .03, 79, 7.3);
```

GAMEID	PLATFORMID	NA_SALES	EU_SALES	JP_SALES	OTHER_SALES	GLOBAL_SALES	CRITIC_SCORE	USER_SCORE
6361	13	.03	.01	0	0	.03	79	7.3
6360	10	0	.03	0	0	.03	81	8.6
6359	10	.01	.02	0	0	.03	91	9.2
6358	10	0	.03	0	.01	.03	72	7.5
6357	10	.02	.01	0	0	.03	72	7
6356	7	.03	0	0	.01	.03	77	6.9
6355	10	0	.03	0	.01	.03	82	8.8
6354	10	0	.03	0	.01	.03	71	7.2
6353	10	0	.03	0	0	.03	58	2.5
6352	10	0	.03	0	.01	.03	55	6
6351	14	.02	.01	0	0	.03	70	8
6350	9	.03	.01	0	0	.03	84	8
6349	11	.03	0	0	0	.03	63	6
6348	9	.03	.01	0	0	.03	67	9

## Web Design and Data Analysis

First of all, to understand the current state of the video game industry, we created a bar chart for sale volume changes from 2005 to 2016. The SQL query command we used is below:

```
SELECT GAME.RELEASEYEAR, SUM(SALES.GLOBAL_SALES) AS "Global Sales"
FROM GAME JOIN SALES ON GAME.GAMEID=SALES.GAMEID
Where game.releaseyear between 2005 and 2016
GROUP BY GAME.RELEASEYEAR
ORDER BY GAME.RELEASEYEAR;
```



Although sale volumes increased from 2006 to 2008 and peaked in 2008, the sales volumes have been in decline. The reason for this decline may be the growth of the computer games industry.

Next, to understand overall video game industry trends, we looked at which genre was the most popular globally and in each region (NA, EU, and JP). We found TOP 5.

### **-Top 5 genre sales in Global & NA**

```
SELECT GAME.genre, SUM(SALES.global_sales) AS Global
FROM GAME JOIN SALES ON GAME.gameID = SALES.gameID
GROUP BY GAME.genre
ORDER BY Global DESC
FETCH FIRST 5 ROWS ONLY;
```

```
SELECT GAME.GENRE, SUM(SALES.NA_SALES) AS "NORTH AMERICAN"
FROM GAME JOIN SALES ON GAME.GAMEID=SALES.GAMEID
GROUP BY GAME.GENRE
ORDER BY "NORTH AMERICAN" DESC
FETCH FIRST 5 ROWS ONLY;
```

#### **Most Popular 5 Genre**

Genre	Global
Action	1187.02
Sports	833.85
Shooter	810.44
Racing	476.11
Role-Playing	425.33

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#### **NA**

Genre	North American
Action	585.72
Sports	457.52
Shooter	446.05
Racing	225.59
Misc	221.7

1 - 5

### **-Top 5 genre sales in EU & JP**

```
SELECT GAME.GENRE, SUM(SALES.EU_SALES) AS EUROPE
FROM GAME JOIN SALES ON GAME.GAMEID=SALES.GAMEID
GROUP BY GAME.GENRE
```

ORDER BY EUROPE DESC

FETCH FIRST 5 ROWS ONLY;

SELECT GAME.GENRE, SUM(SALES.JP\_SALES) AS JAPAN

FROM GAME JOIN SALES ON GAME.GAMEID=SALES.GAMEID

GROUP BY GAME.GENRE

ORDER BY JAPAN DESC

FETCH FIRST 5 ROWS ONLY;

## EUROPE

Genre	Europe
Action	380.37
Shooter	259.19
Sports	247.43
Racing	164.56
Misc	120.31

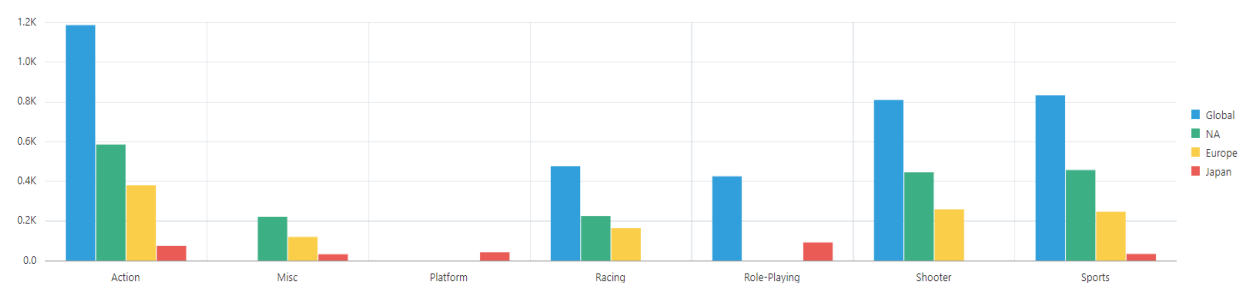
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## JAPAN

Genre	Japan
Role-Playing	92.61
Action	75.08
Platform	43.09
Sports	34.54
Misc	32.89

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Genre Sales



As a result, Action, Sports, and Shooter genres were popular globally except for Japan. Exceptionally, Japan showed that the Role-playing genre was the most popular. If game producers only consider game genre regardless of other factors, they must target the action genre. However, if they try to address a new niche market in Japan, they must focus on the Role-playing genre.

Furthermore, we concentrated on the data analysis based on the publisher. We tried to find the top 5 publishers globally and in each region (NA, EU, and JP), and searched the most popular game with the corresponding publisher.

### -Top 5 publisher in Global & NA

```
SELECT PUBLISHER.publisher, SUM(SALES.global_sales) AS GlobalSales
FROM PUBLISHER JOIN GAME ON PUBLISHER.publisherID = GAME.publisherID JOIN SALES ON
GAME.gameID = SALES.gameID
GROUP BY PUBLISHER.publisher
ORDER BY GlobalSales DESC
FETCH FIRST 5 ROWS ONLY;
```

```
SELECT PUBLISHER.publisher, SUM(SALES.na_sales) AS NA
FROM PUBLISHER JOIN GAME ON PUBLISHER.publisherID = GAME.publisherID JOIN SALES ON
GAME.gameID = SALES.gameID
GROUP BY PUBLISHER.publisher
ORDER BY NA DESC
FETCH FIRST 5 ROWS ONLY;
```

Global	
Publisher	Globalsales
Electronic Arts	868.55
Nintendo	849.49
Activision	535.74
Sony Computer Entertainment	388.1
Take-Two Interactive	350.17

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North American	
Publisher	Na
Electronic Arts	465.45
Nintendo	371.36
Activision	306.82
Take-Two Interactive	187.82
Sony Computer Entertainment	176.87

1 - 5

### -Top 5 publisher in EU & JP.

```
SELECT PUBLISHER.publisher, SUM(SALES.EU_sales) AS EU
FROM PUBLISHER JOIN GAME ON PUBLISHER.publisherID = GAME.publisherID JOIN SALES ON
GAME.gameID = SALES.gameID
GROUP BY PUBLISHER.publisher
```

ORDER BY EU DESC

FETCH FIRST 5 ROWS ONLY;

```
SELECT PUBLISHER.publisher, SUM(SALES.JP_sales) AS JP
```

```
FROM PUBLISHER JOIN GAME ON PUBLISHER.publisherID = GAME.publisherID JOIN SALES ON  
GAME.gameID = SALES.gameID
```

```
GROUP BY PUBLISHER.publisher
```

```
ORDER BY JP DESC
```

FETCH FIRST 5 ROWS ONLY;

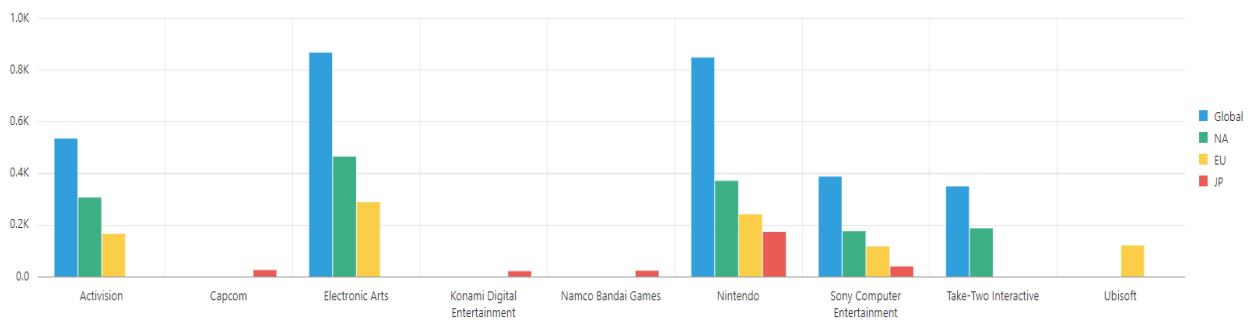
Europe	
Publisher	Eu
Electronic Arts	289.24
Nintendo	242.11
Activision	166.54
Ubisoft	121.28
Sony Computer Entertainment	117.53

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JAPAN	
Publisher	Jp
Nintendo	173.8
Sony Computer Entertainment	39.92
Capcom	25.94
Namco Bandai Games	23.49
Konami Digital Entertainment	21.76

1 - 5

Publisher Comparison



### -Top 10 popular games with publishers

```
SELECT GAME.gamename, PUBLISHER.publisher, SUM(SALES.global_sales) AS GlobalSales
```

```
FROM PUBLISHER JOIN GAME ON PUBLISHER.publisherID = GAME.publisherID JOIN SALES ON  
GAME.gameID = SALES.gameID
```

```
GROUP BY GAME.gamename, PUBLISHER.publisher
```

```
ORDER BY GlobalSales DESC
```

FETCH FIRST 10 ROWS ONLY;

### Most popular game with publisher

Gamename	Publisher	Globalsales
Wii Sports	Nintendo	82.53
Grand Theft Auto V	Take-Two Interactive	56.57
Mario Kart Wii	Nintendo	35.52
Wii Sports Resort	Nintendo	32.77
Call of Duty: Modern Warfare 3	Activision	30.59
New Super Mario Bros.	Nintendo	29.8
Call of Duty: Black Ops II	Activision	29.4
Call of Duty: Black Ops	Activision	29.19
Wii Play	Nintendo	28.92
New Super Mario Bros. Wii	Nintendo	28.32

Interesting results happened. Certain companies had a high market share such as Electronic Arts, Nintendo, Activision, and Sony Computer Entertainment. However, according to the result of the top 10 game sellers, Electronic Arts, Activision, and Sony Computer Entertainment were not included. After we researched Electronic Arts to find the reason for this situation, Electronic Arts were one of the representative companies that succeeded in producing the sports game series. We created one query to find game series including “FIFA” as shown below.

#### **-Finding a popular series**

```
Select GAME.GAMENAME,SUM(SALES.GLOBAL_SALES) AS "GLOBAL"  
FROM PUBLISHER JOIN GAME ON PUBLISHER.PUBLISHERID=GAME.PUBLISHERID JOIN SALES ON  
GAME.GAMEID=SALES.GAMEID  
WHERE PUBLISHER.PUBLISHER='Electronic Arts' AND GAME.GAMENAME LIKE '%FIFA%'  
GROUP BY PUBLISHER.PUBLISHER, GAME.GAMENAME  
ORDER BY "GLOBAL" DESC;
```

## EA

Gamename	Global
FIFA 14	15.26
FIFA Soccer 13	14.92
FIFA 16	12.02
FIFA Soccer 11	11.04
FIFA 17	10.36
FIFA Soccer 09	8.66
FIFA Soccer 08	8.63
FIFA 15	8.54
FIFA Soccer 10	8.42
FIFA Soccer 06	5
FIFA Soccer 2005	4.89
FIFA Soccer 2003	4.11
2010 FIFA World Cup South Africa	2.96
FIFA Street	2.53
FIFA World Cup Germany 2006	1.57

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Now, we found there were many sports game series produced by Electronic Arts (EA). In terms of the game publisher, if investors are looking for game publishers with high returns and are interested in a sports game, they have to invest Electronic Arts. However, if they consider the Japanese market as well, investing Nintendo will be the best choice because they have an overwhelming high market share in Japan.

To identify the appropriate targets, we identified which age rating contributed greatly to sales globally and in each region (NA, EU, and JP).

### **-Who spend most? In Global & NA.**

```
SELECT RATING.RATING, RATING.DESCRPTION,SUM(SALES.global_sales) AS Global
FROM RATING JOIN GAME ON RATING.RATINGID=GAME.RATINGID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID
GROUP BY RATING.RATING, RATING.DESCRPTION
ORDER BY Global DESC
FETCH FIRST 4 ROWS ONLY;
```



```

SELECT RATING.RATING, RATING.DESCRPTION,SUM(SALES.na_sales) AS NA
FROM RATING JOIN GAME ON RATING.RATINGID=GAME.RATINGID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID

GROUP BY RATING.RATING, RATING.DESCRPTION

ORDER BY NA DESC

FETCH FIRST 4 ROWS ONLY;

```

### Global

Rating	Description	Global
E	Everyone	1954.79
M	Mature17+	1402.87
T	Teen	1327.46
E10+	Everyone10+	510.84

1 - 4

### North American

Rating	Description	Na
E	Everyone	983.96
M	Mature17+	716.7
T	Teen	677.16
E10+	Everyone10+	274.3

1 - 4

### -Who spend most? in EU & JP.

```

SELECT RATING.RATING, RATING.DESCRPTION,SUM(SALES.EU_sales) AS Europe
FROM RATING JOIN GAME ON RATING.RATINGID=GAME.RATINGID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID

GROUP BY RATING.RATING, RATING.DESCRPTION

ORDER BY Europe DESC

FETCH FIRST 4 ROWS ONLY;

```

```

SELECT RATING.RATING, RATING.DESCRPTION,SUM(SALES.JP_sales) AS Japan
FROM RATING JOIN GAME ON RATING.RATINGID=GAME.RATINGID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID

GROUP BY RATING.RATING, RATING.DESCRPTION

ORDER BY Japan DESC

FETCH FIRST 4 ROWS ONLY;

```

## Europe

Rating	Description	Europe
E	Everyone	590.25
M	Mature17+	456.76
T	Teen	387.27
E10+	Everyone10+	152.61

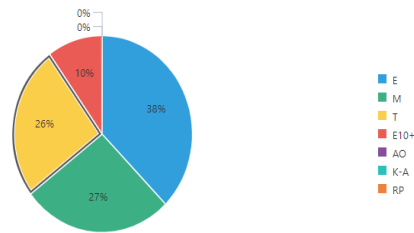
1 - 4

## Japan

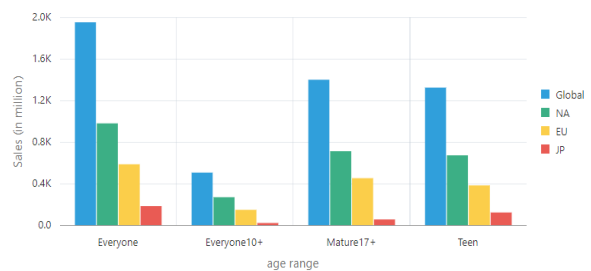
Rating	Description	Japan
E	Everyone	188.68
T	Teen	127.03
M	Mature17+	60.51
E10+	Everyone10+	25.77

1 - 4

Customer Cluster Percent



Age Range Sales



As expected, E rating, which is for everyone, had the highest sales in the world, followed by M and T rating.

To do a deeper analysis, we identified which age rating contributed to the high sales for the three most popular genres (Action, Sports, and Shooter) we got from the previous query.

### - Top 7 Combination Rating with genres

```

SELECT RATING.rating, GAME.genre, SUM(SALES.global_sales) AS GlobalSales
FROM GAME JOIN SALES ON GAME.gameID = SALES.gameID JOIN RATING ON GAME.ratingID =
RATING.ratingID
WHERE(SELECT DISTINCT(GENRE) FROM GAME WHERE GENRE='Action') = GAME.genre
GROUP BY RATING.rating, GAME.genre
UNION
SELECT RATING.rating, GAME.genre, SUM(SALES.global_sales) AS GlobalSales
FROM GAME JOIN SALES ON GAME.gameID = SALES.gameID JOIN RATING ON GAME.ratingID =
RATING.ratingID
WHERE(SELECT DISTINCT(GENRE) FROM GAME WHERE GENRE='Sports') = GAME.genre
    
```

```

GROUP BY RATING.rating, GAME.genre
UNION
SELECT RATING.rating, GAME.genre, SUM(SALES.global_sales) AS GlobalSales
FROM GAME JOIN SALES ON GAME.gameID = SALES.gameID JOIN RATING ON GAME.ratingID =
RATING.ratingID
WHERE(SELECT DISTINCT(GENRE) FROM GAME WHERE GENRE='Shooter') = GAME.genre
GROUP BY RATING.rating, GAME.genre
ORDER BY GlobalSales DESC
FETCH FIRST 7 ROWS ONLY;

```

### TOP 7 Combination

Rating	Genre	Globalsales
E	Sports	710.28
M	Shooter	603.65
M	Action	568.75
T	Action	314.31
T	Shooter	186.58
E10+	Action	161.92
E	Action	140.09

1 - 7

Even though the sports genre with E rating showed the highest global sales at 710.28 million, the important thing we need to pay attention to is there is only one sports genre of top 7. Rather, the sum of the action genre is larger than the sports genre at 1185.07 million (568.75 + 314.31+...+ 140.09). Even, the sum of the Shooter genre is larger than the Sports genre. In terms of rating, the sum of M rating shows a higher sales volume than that of E rating (1172.4 vs. 850.37). In brief, all things considered together, the game industry stakeholders are most likely to succeed when they invest in games with M rating and Action genre.

Finally, we tried to make several combinations to explore a wider range of options we can suggest. The first one was about genres based on each top 3 publishers, and the second one was about genres based on each top 3 ratings. These are SQL commands:

### -Sales by Publisher & Genre

```
SELECT PUBLISHER.publisher, GAME.GENRE, SUM(SALES.global_sales) AS Global
FROM PUBLISHER JOIN GAME ON PUBLISHER.PUBLISHERID=GAME.PUBLISHERID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID
WHERE PUBLISHER.publisher = 'Electronic Arts'
GROUP BY PUBLISHER.publisher, GAME.GENRE
ORDER BY Global DESC
FETCH FIRST 3 ROWS ONLY
;
```

```
SELECT PUBLISHER.publisher, GAME.GENRE, SUM(SALES.global_sales) AS Global
FROM PUBLISHER JOIN GAME ON PUBLISHER.PUBLISHERID=GAME.PUBLISHERID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID
WHERE PUBLISHER.publisher = 'Nintendo'
GROUP BY PUBLISHER.publisher, GAME.GENRE
ORDER BY Global DESC
FETCH FIRST 3 ROWS ONLY
;
```

```
SELECT PUBLISHER.publisher, GAME.GENRE, SUM(SALES.global_sales) AS Global
FROM PUBLISHER JOIN GAME ON PUBLISHER.PUBLISHERID=GAME.PUBLISHERID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID
WHERE PUBLISHER.publisher = 'Activision'
GROUP BY PUBLISHER.publisher, GAME.GENRE
ORDER BY Global DESC
FETCH FIRST 3 ROWS ONLY
;
```

Electronic Arts

Publisher	Genre	Global
Electronic Arts	Sports	359.85
Electronic Arts	Shooter	146.8
Electronic Arts	Racing	108.83

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Nintendo

Publisher	Genre	Global
Nintendo	Sports	178.68
Nintendo	Platform	169.52
Nintendo	Misc	132.78

1 - 3

Activision

Publisher	Genre	Global
Activision	Shooter	247.03
Activision	Action	95.68
Activision	Misc	60.99

1 - 3

### -Targeting Customer

```
SELECT RATING.RATING, SUM(SALES.global_sales) AS Global, GAME.GENRE
```

```
FROM RATING JOIN GAME ON RATING.RATINGID=GAME.RATINGID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID
```

```
WHERE RATING.RATING = 'E'
```

```
GROUP BY RATING.RATING, GAME.GENRE
```

```
ORDER BY Global DESC
```

```
FETCH FIRST 3 ROWS ONLY
```

```
;
```

```
SELECT RATING.RATING, SUM(SALES.global_sales) AS Global, GAME.GENRE
```

```
FROM RATING JOIN GAME ON RATING.RATINGID=GAME.RATINGID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID
```

```
WHERE RATING.RATING = 'M'
```

```
GROUP BY RATING.RATING, GAME.GENRE
```

```
ORDER BY Global DESC
```

```
FETCH FIRST 3 ROWS ONLY
```

```
;
```

```
SELECT RATING.RATING, SUM(SALES.global_sales) AS Global, GAME.GENRE
```

```
FROM RATING JOIN GAME ON RATING.RATINGID=GAME.RATINGID JOIN SALES ON
GAME.GAMEID=SALES.GAMEID
```

```
WHERE RATING.RATING = 'T'
```

```
GROUP BY RATING.RATING, GAME.GENRE
```

```
ORDER BY Global DESC
```

```
FETCH FIRST 3 ROWS ONLY
```

```
;
```

#### Game for Everyone

Rating	Global	Genre
E	710.28	Sports
E	326.34	Racing
E	301.43	Platform

1 - 3

#### For Mature 17+

Rating	Global	Genre
M	603.65	Shooter
M	568.75	Action
M	145.31	Role-Playing

1 - 3

#### For Teen

Rating	Global	Genre
T	314.31	Action
T	214.2	Fighting
T	189.87	Role-Playing

1 - 3

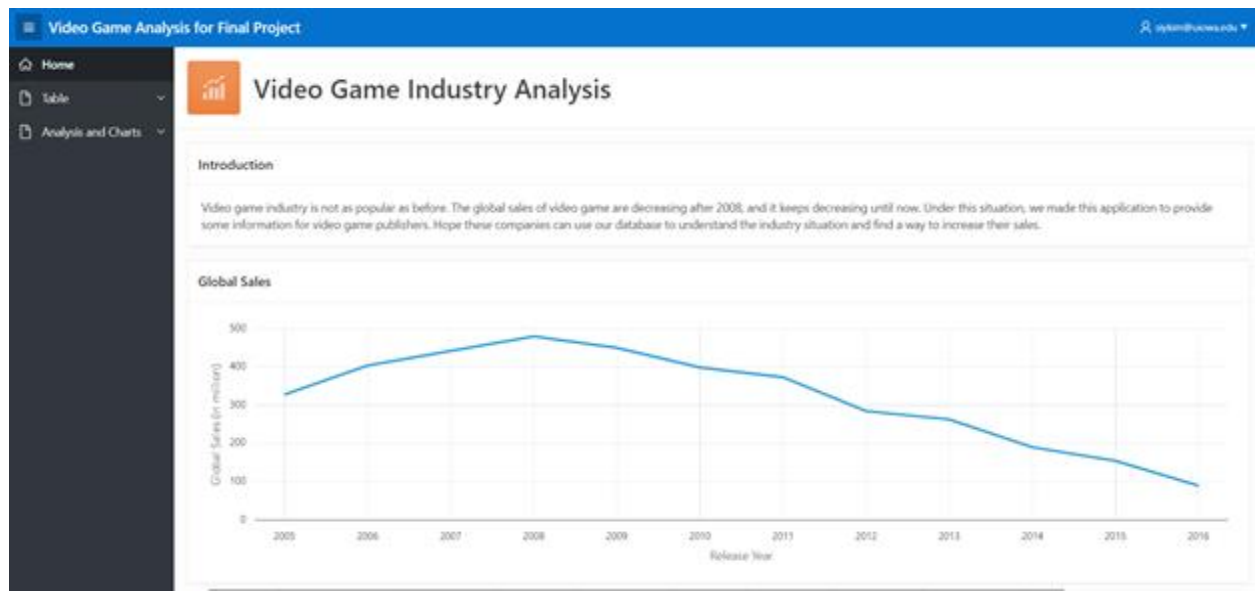
Based on the information we got from previous and the first combination, one interesting finding is that Activision has the highest market leadership in the shooting genre, and the company with the highest market leadership in the sports genre was Electronic Arts as we saw in the previous results. Through the second combination, we found the best game genre for the Top

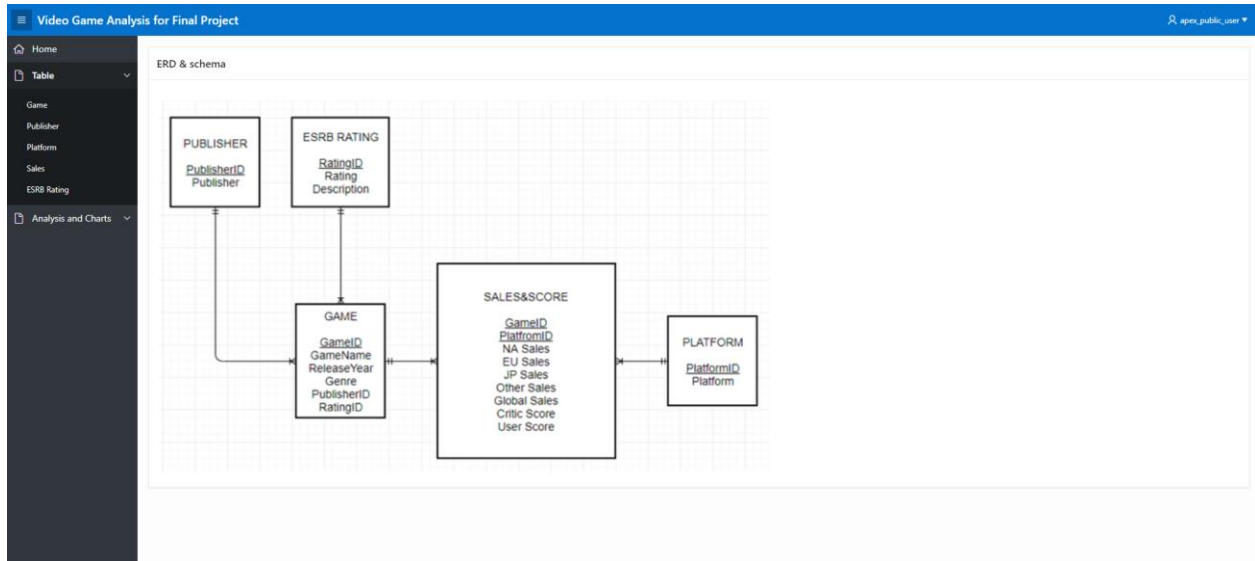
3 rating. As popular genres are different for each rating in general, video game industry stakeholders need to consider this information if they mainly focus on ESRB rating.

## Conclusion

Given all the information we have analyzed, the best combination to activate the video game industry is to develop games with the action genre and E rating. If the video game industry stakeholders want to invest in a new market that is not yet explored, then targeting the Japanese market will be one of the best choices, as there were low market share tendencies and many exceptional results such as the top 5 popular genres, popular publisher ranking.

## Application Information





Video Game Analysis for Final Project sykim@uiowa.edu

Home | Table | Game | Publisher | Platform | Sales | ESRB Rating | Analysis and Charts

ESRB Rating Create

Search: All Text Columns  Go Actions Reset

	Rating	Description
	E	Everyone
	M	Mature17+
	T	Teen
	E10+	Everyone10+
	AO	Adultonly
	K-A	Kidstoadults
	RP	Rating pending

1 rows selected Total 7

Home | Application 88277 | Edit Page 14 | Session | View Debug | Debug | Page Info | Quick Edit | Theme Roller

