# Video Game Sales
# Exploratory Analysis

Aldy Budhi Iskandar

# ALDY BUDHI ISKANDAR
## Data Scientist & Machine Learning

## Projects

Build Ideal Model for **Predicting** Loan Status Customers •
E-Commerce General Customers **Clustering** •
Video Game Sales **Exploratory Data Analysis** •
Shipping Data **Exploratory Data Analysis** •
Python **Data Cleansing** •

## Educational

### Data Science
May – Sept 2022 at **Dibimbing.id**

### Mechanical Engineering
2012 - 2016 at **Polman Bandung**

I'm a Data Scientist who interest in Math Logic and Statistics with a background as an Engineer in several manufacturing companies.

For programming skills, I prefer to use Python programming language, SQL query, & Tableau for visualization, because that's related to the software I always use for my projects.

# Data Collecting

**Features**

Consists of **11** columns that represent the name, genre, platform, publisher, year, and total video game sales by region.

**Duration**

The data in this dataset consists of video games released from **1980 - 2016**

**Quantity**

This dataset consists of **16,598** rows, meaning that there are more than 16 thousand video game names sold

**Content**

All data used is obtained from the Video Game Chart (**https://www.vgchartz.com/**)

# Regional Sales



**North America**

Total of number video game sales in **North American** region.

**Europe**

Total of number video game sales in **Europe** region.

**Japan**

Total of number video game sales in **Japan** region.

**Global**

Total of number video game sales in **the rest of the World**.

1

2

3

4

# Exploratory Data Analysis

**A** Distribution of quantitative variables.

**B** Distribution of qualitative variables.

**C** Analysis of the world's best-selling games.

**D** Global sales number per game release year.

# Distribution of Quantitative Variables
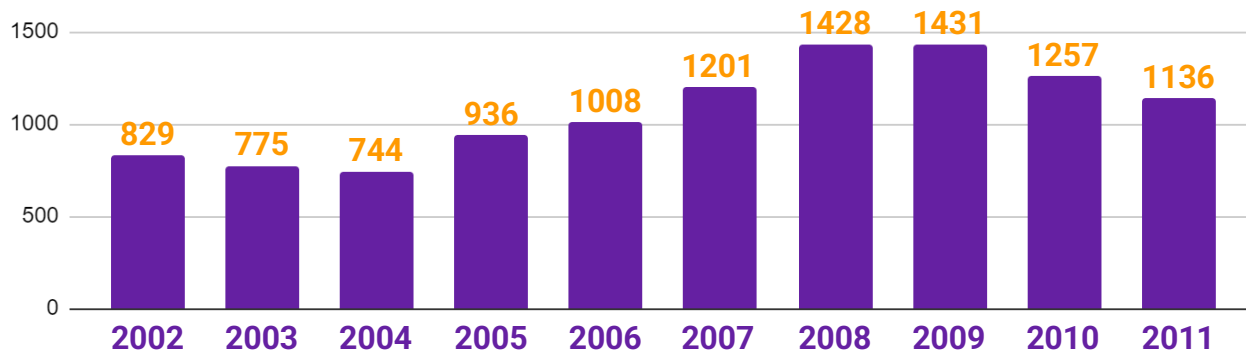
The 10 **most frequent years** in the dataset?

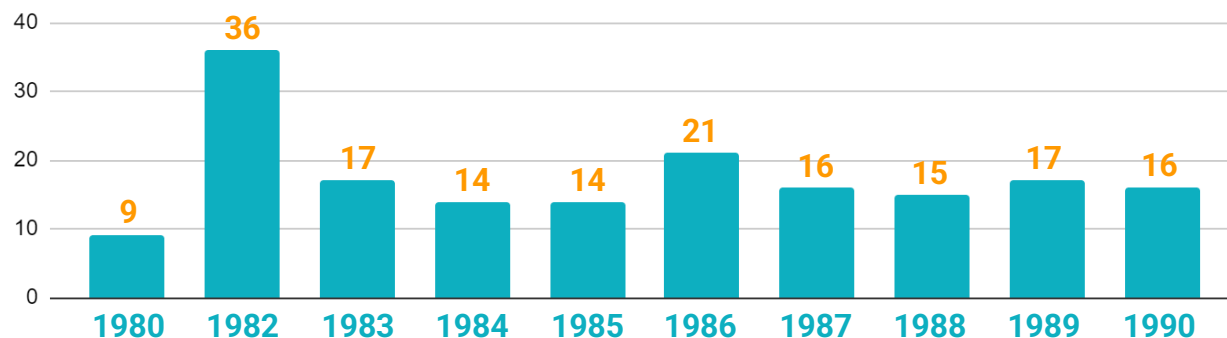The 10 **least frequent years** in the dataset?

**Sales distribution** in each region?

# The 10 Most Frequent Years in Dataset



The most frequent year release of the game in the dataset was in **2009**, which was **1431** games.
And the average game release in **2002-2011** is **1074.5** games per year.

# The 10 Least Frequent Years in Dataset



The least frequent year release of the game in the dataset was in **1980**, which was only just **9** games.
And the average game release in **1980-1990** is **17.5** games per year.

# Sales Distribution in Each Region

From the sales data per region, it's concluded that sales in each region average between **100K-500K**units per video game.

The type of each video game sold in each region is different, In **North America,** there are **11.8K** types of video games that have sold more than **1M** units/game. In **Europe,** there are **10.4K** types of video games that have sold more than **1M** units/game. And in **Japan**, there are **5.7K** types of video games that have sold more than **1M** units/game.
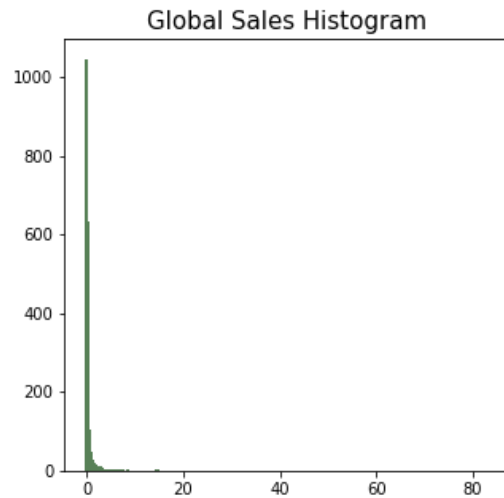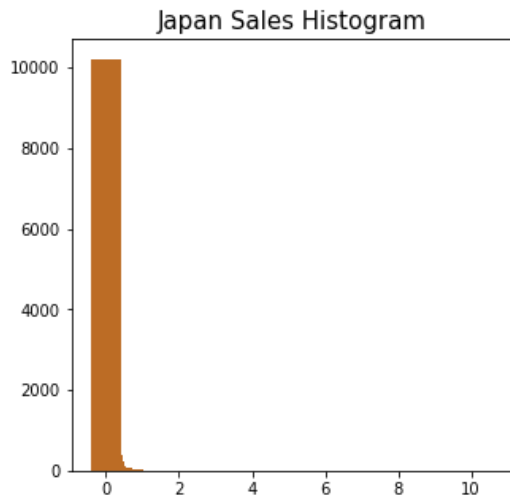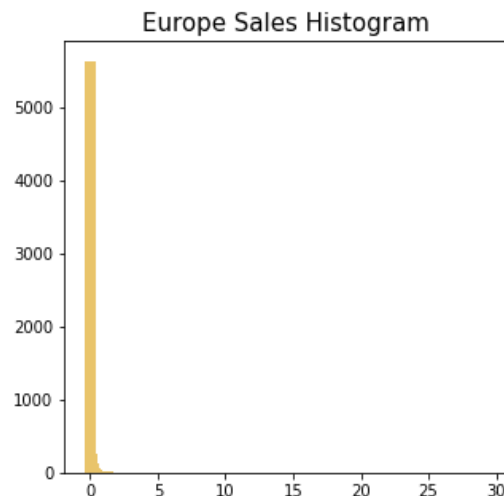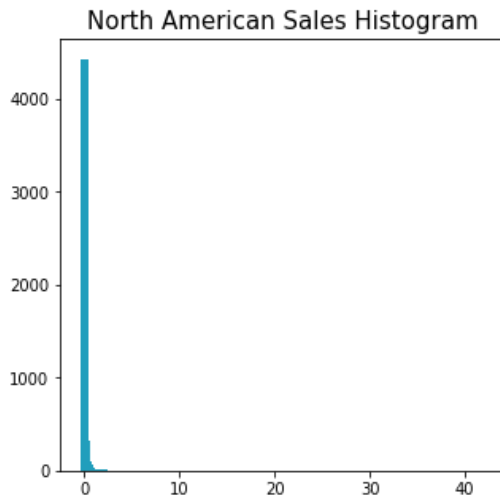
# Distribution of Qualitative Variables



The 5 most frequent **games** in the dataset?

The 5 most frequent **gaming platforms** in the dataset?

**Genre** distribution?

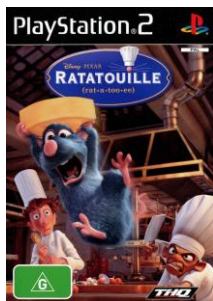The 10 most frequent **Publishers** in the dataset?

# The 5 Most Frequent Games in The Dataset



The most frequent game in the dataset is
**Need For Speed: Most Wanted,**
where this game was produced
for **10** different platforms and
has been remade **2** times in
different years.

# The 5 Most Frequent Gaming Platforms in The Dataset

The most frequent gaming platform in the dataset is **Nintendo DS**, which means there are **2130** types of video games that use the platform.
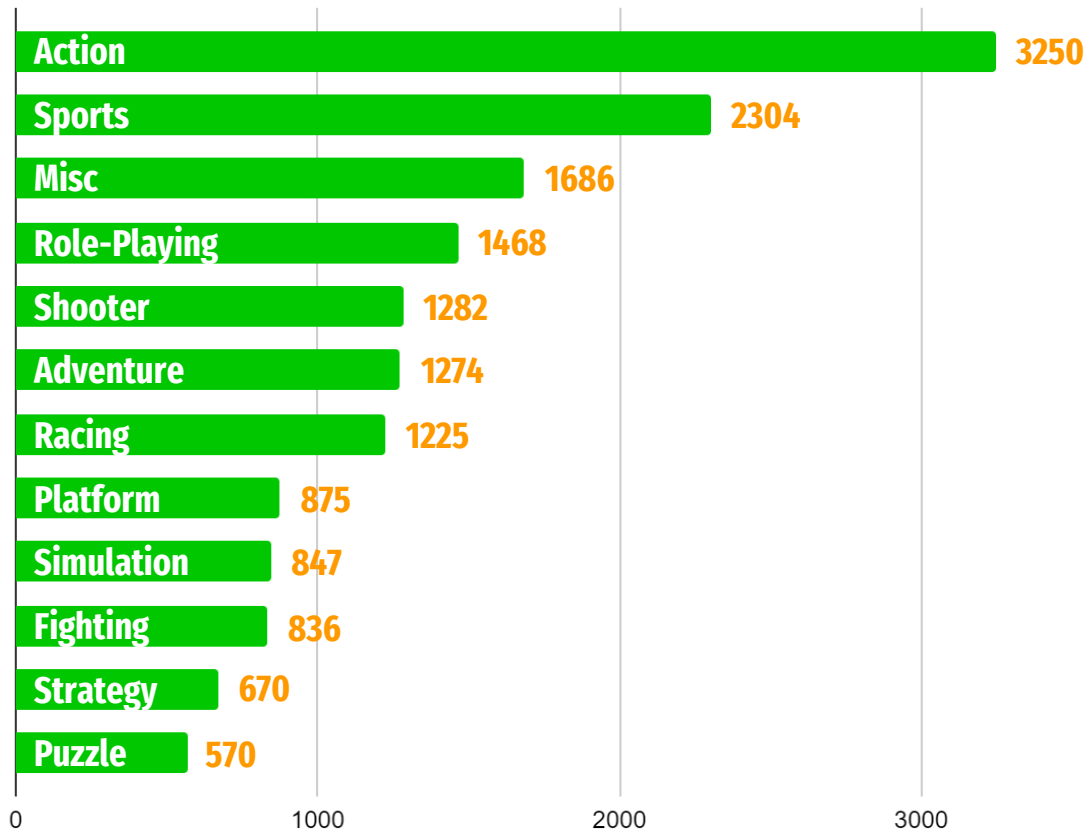
| DS | PS2 | PS3 | Wii | X360 |
|----|-----|-----|-----|------|
| 2130 | 2127 | 1304 | 1290 | 1234 |

# Genre Distribution in Dataset

| Genre | Count |
|-------|-------|
| Action | 3250 |
| Sports | 2304 |
| Misc | 1686 |
| Role-Playing | 1468 |
| Shooter | 1282 |
| Adventure | 1274 |
| Racing | 1225 |
| Platform | 875 |
| Simulation | 847 |
| Fighting | 836 |
| Strategy | 670 |
| Puzzle | 570 |

**Action**

There are a total of **3250** games with the **Action** genre in this dataset
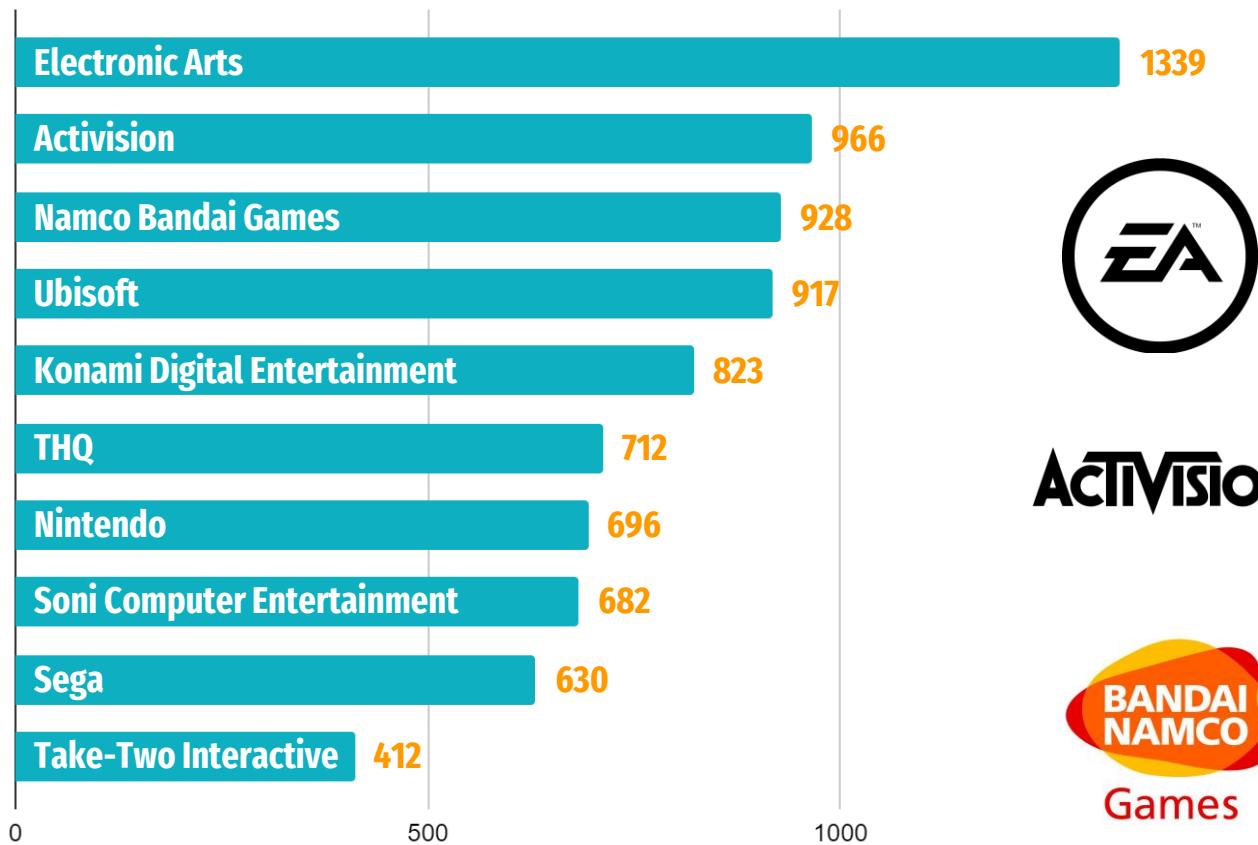
**Sports**

There are a total of **2304** games with the **Sports** genre in this dataset

**Misc**

There are a total of **1686** games with the **Misc** genre in this dataset

# The 10 Most Frequent Publishers in The Dataset

| Publisher | Count |
|-----------|-------|
| Electronic Arts | 1339 |
| Activision | 966 |
| Namco Bandai Games | 928 |
| Ubisoft | 917 |
| Konami Digital Entertainment | 823 |
| THQ | 712 |
| Nintendo | 696 |
| Soni Computer Entertainment | 682 |
| Sega | 630 |
| Take-Two Interactive | 412 |

There are a total of **1339** video games published by **Electronic Arts** publisher.

There are a total of **966** video games published by **Activision** publisher.

There are a total of **928** video games published by **Namco Bandai Games** publisher.

# Analysis of The World's Best-Selling Games

**1** The 5 best-selling games in each region?

**2** The 5 best-selling games in the world were released from 1990 to 2000?
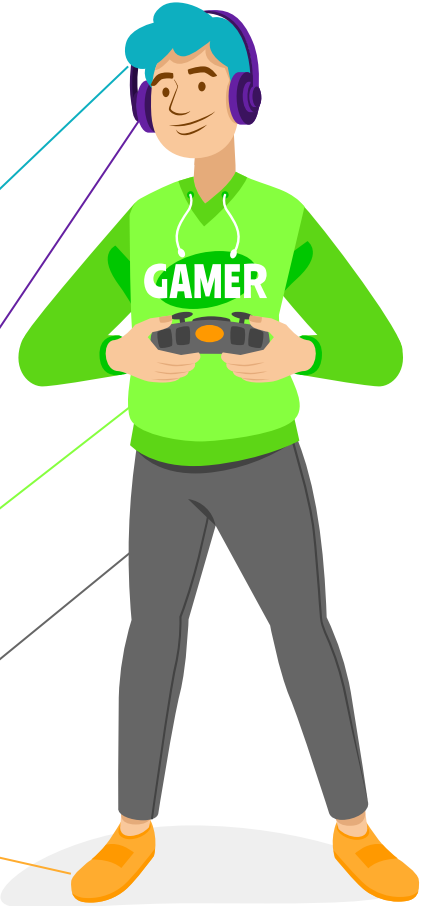
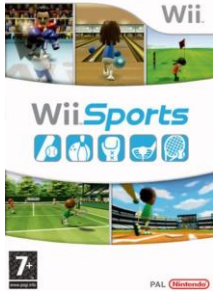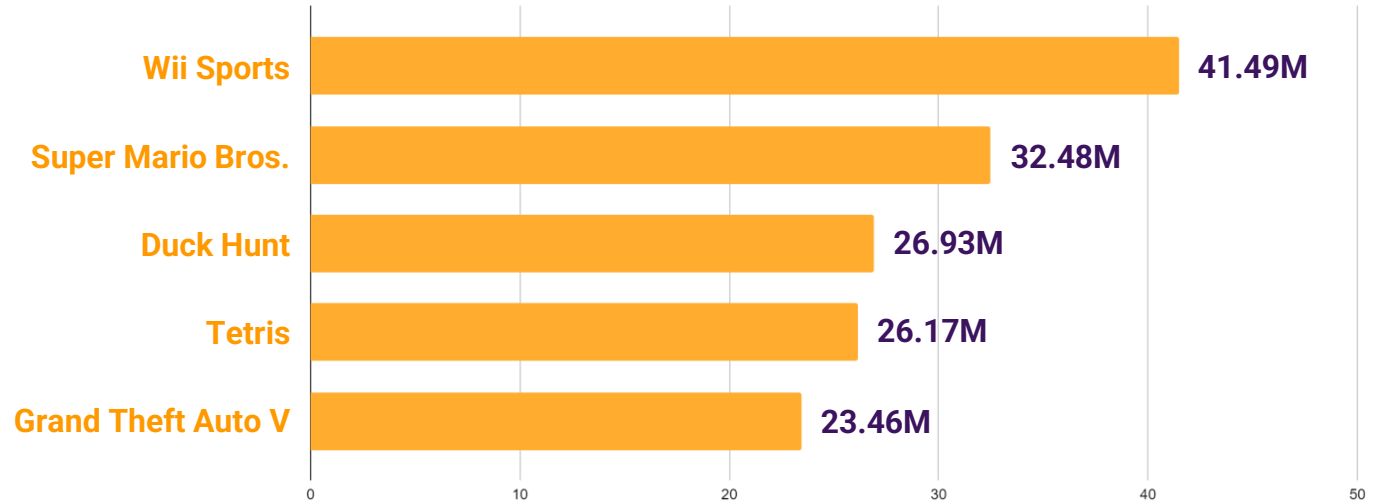**3** The 5 platforms with the highest number of game sales in the world?

**4** Best selling genres in the world?

**5** The 5 publishers with the most sales?

# The 5 Best-Selling Games in North America

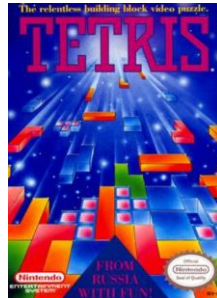| Game | Sales |
|------|-------|
| Wii Sports | 41.49M |
| Super Mario Bros. | 32.48M |
| Duck Hunt | 26.93M |
| Tetris | 26.17M |
| Grand Theft Auto V | 23.46M |
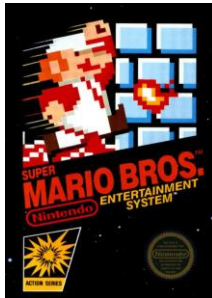
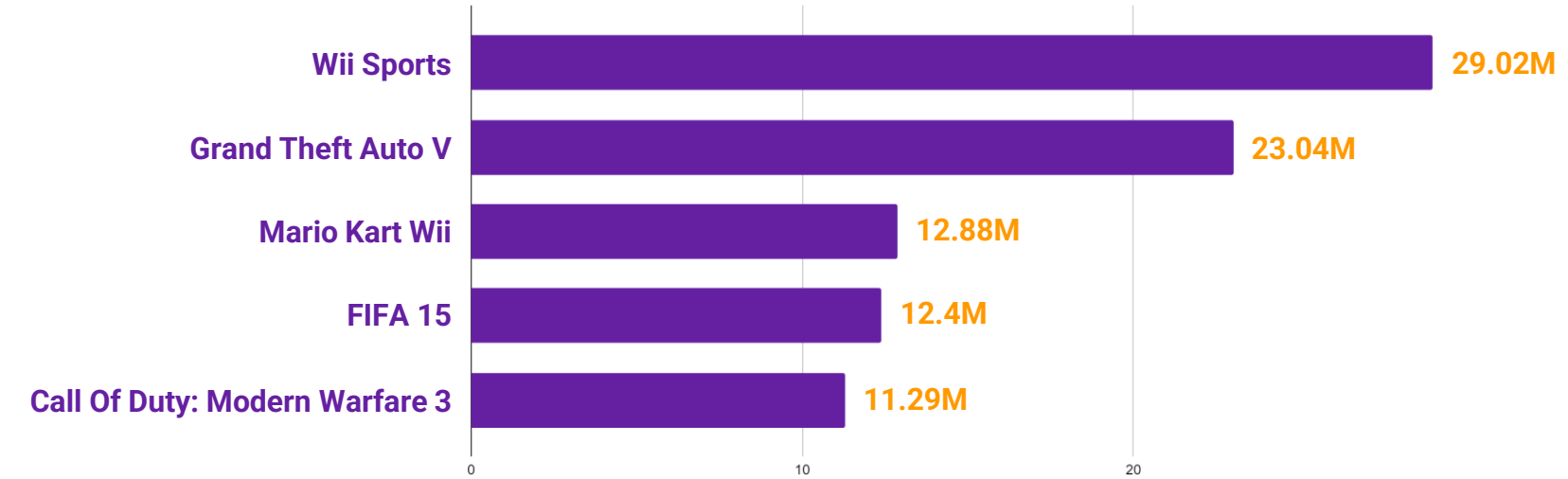Wii Sports

Super Mario Bros.

Duck Hunt

Tetris

Grand Theft Auto V

In **North America**, people rather play **Wii Sports**, where this game has sold **41.49 Million** items in that region.

# The 5 Best-Selling Games in Europe

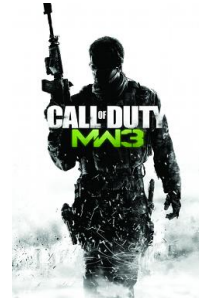| Game | Sales |
|------|-------|
| Wii Sports | 29.02M |
| Grand Theft Auto V | 23.04M |
| Mario Kart Wii | 12.88M |
| FIFA 15 | 12.4M |
| Call Of Duty: Modern Warfare 3 | 11.29M |

Wii Sports

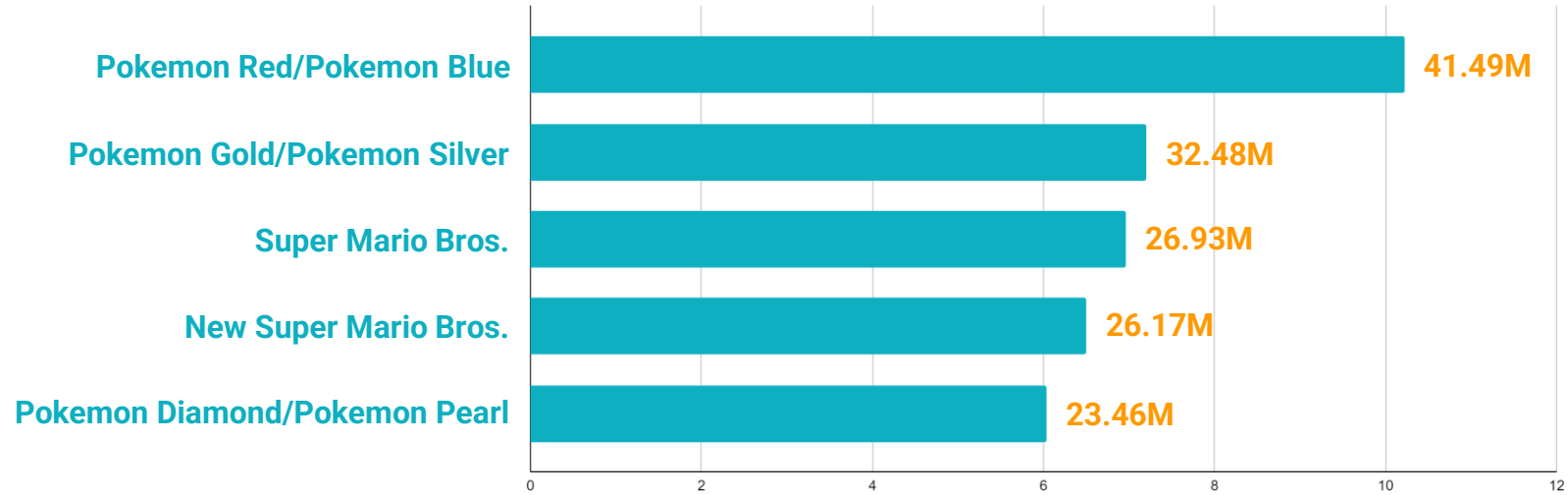Grand Theft Auto V

Mario Kart Wii

FIFA 15

Call Of Duty: Modern Warfare 3

In **Europe**, people rather play **Wii Sports**, where this game has sold **29.02 Million** items in this region.
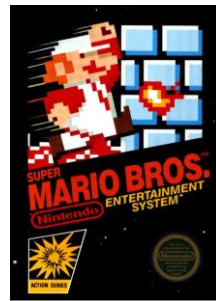
# The 5 Best-Selling Games in Japan



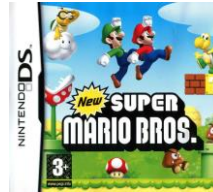| Game | Sales |
|------|-------|
| Pokemon Red/Pokemon Blue | 41.49M |
| Pokemon Gold/Pokemon Silver | 32.48M |
| Super Mario Bros. | 26.93M |
| New Super Mario Bros. | 26.17M |
| Pokemon Diamond/Pokemon Pearl | 23.46M |

Pokemon Red / Pokemon Blue

Pokemon Gold / Pokemon Silver
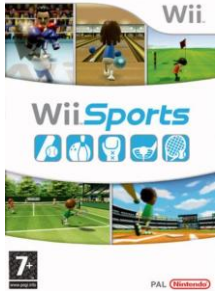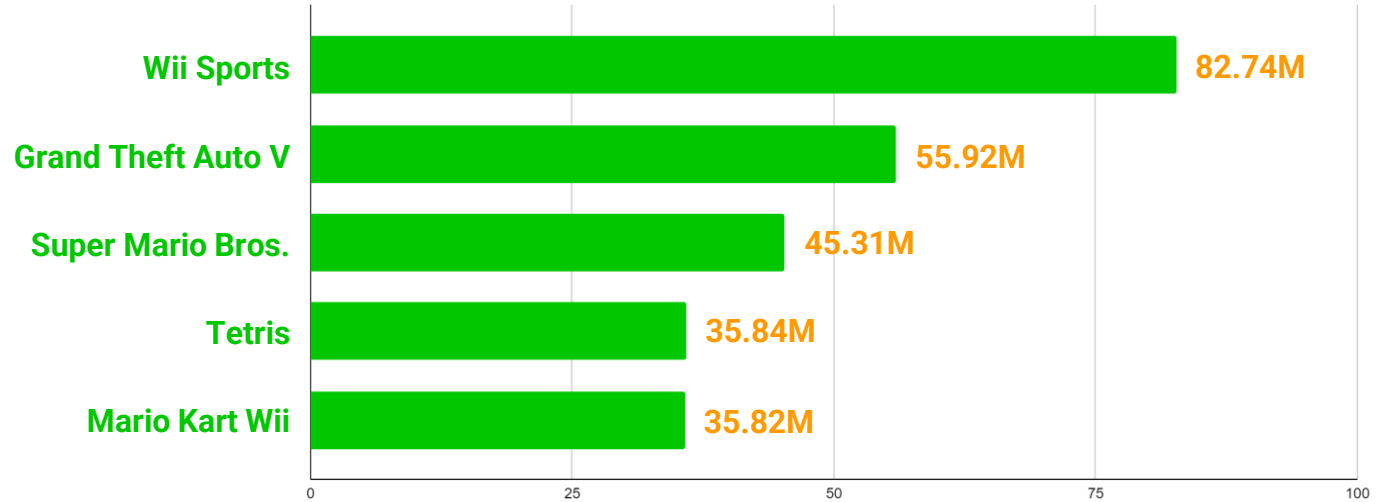
Super Mario Bros.

New Super Mario Bros.

Pokemon Diamond / Pokemon Pearl

In **Japan**, people rather play **Pokemon Red/Pokemon Blue**, where this game has sold **41.49 Million** items in this region.

# The 5 Best-Selling Games in The Rest of The World

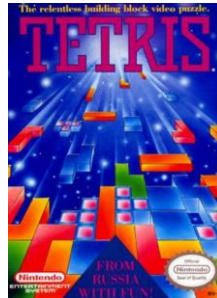| Game | Sales |
|------|-------|
| Wii Sports | 82.74M |
| Grand Theft Auto V | 55.92M |
| Super Mario Bros. | 45.31M |
| Tetris | 35.84M |
| Mario Kart Wii | 35.82M |

Wii Sports
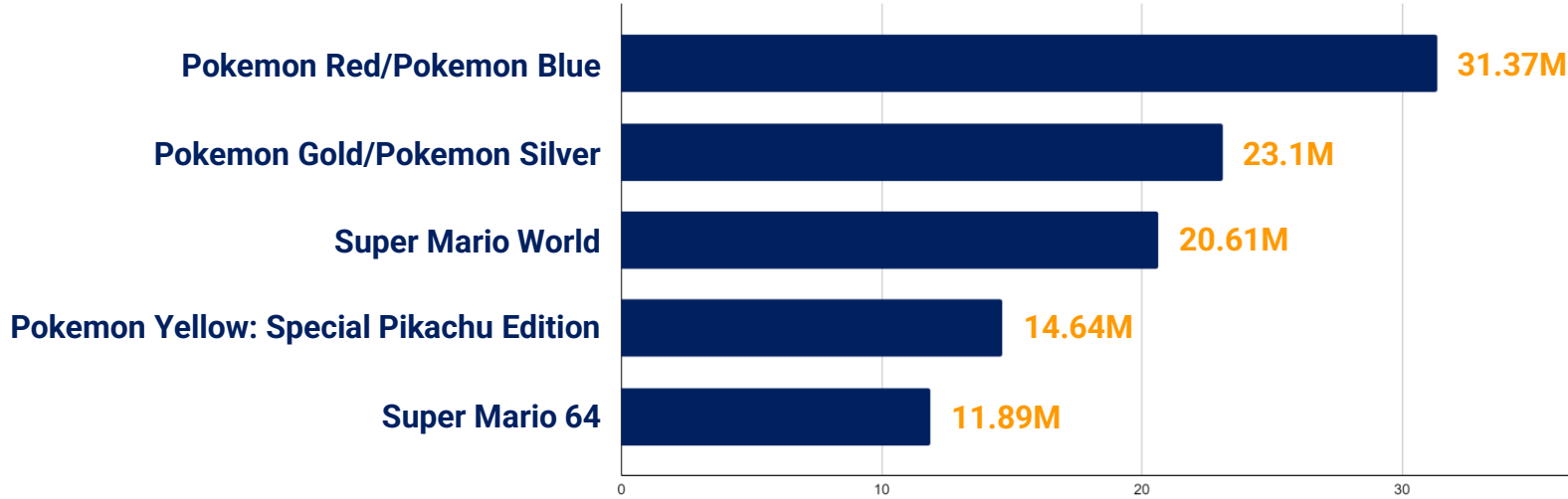
Grand Theft Auto V
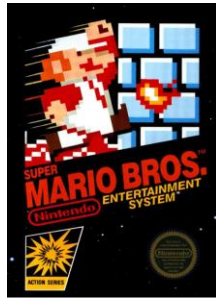
Super Mario Bros.

Tetris

Mario Kart Wii

The best-selling game in **The Rest of The World** is **Wii Sports**, where this game has sold **82.74 Million** items.

# The 5 Best-Selling Games in The World were Released from 1990 to 2000

| Game | Sales |
|------|-------|
| Pokemon Red/Pokemon Blue | 31.37M |
| Pokemon Gold/Pokemon Silver | 23.1M |
| Super Mario World | 20.61M |
| Pokemon Yellow: Special Pikachu Edition | 14.64M |
| Super Mario 64 | 11.89M |

0    10    20    30

**Pokemon Red / Pokemon Blue**

**Pokemon Gold / Pokemon Silver**
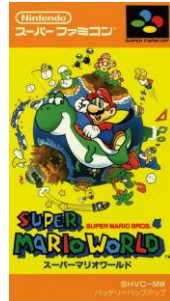
**Super Mario World**

**Pokemon Yellow**

**Super Mario 64**

The best-selling game **Released from 1990 to 2000** in **The Rest of The World** is **Pokemon Red / Pokemon Blue**, where this game has sold **31.37 Million** items.

# The 5 Platforms with The Highest Number of Game Sales in The World

The gaming platform with the highest number of global game sales is **Playstation 2**, which is **1.23 Billion** items sold.

## PS2
### 1,233.46M

## X360
### 969.6M

## PS3
### 949.35M

## Wii
### 909.81M

## DS
### 818.62M

# Best-Selling Genre in North America
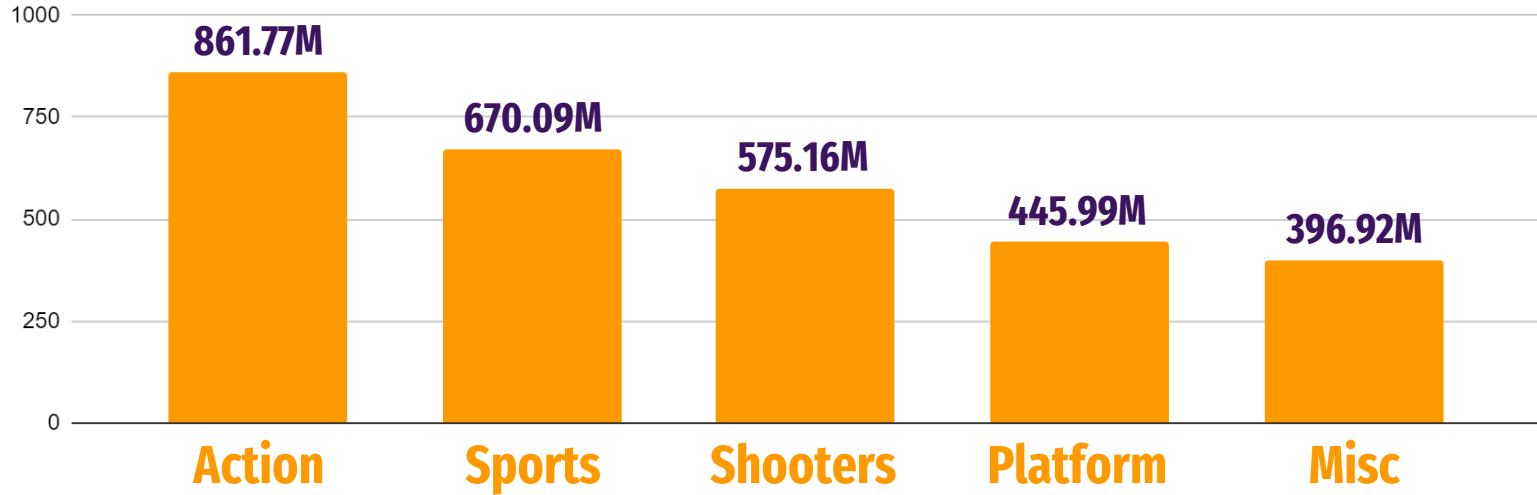


People in **North America** like action genre games, and the sales of this kind of game are very high in this region, having sold **861.77 Million** action game items.

# Best-Selling Genre in Japan
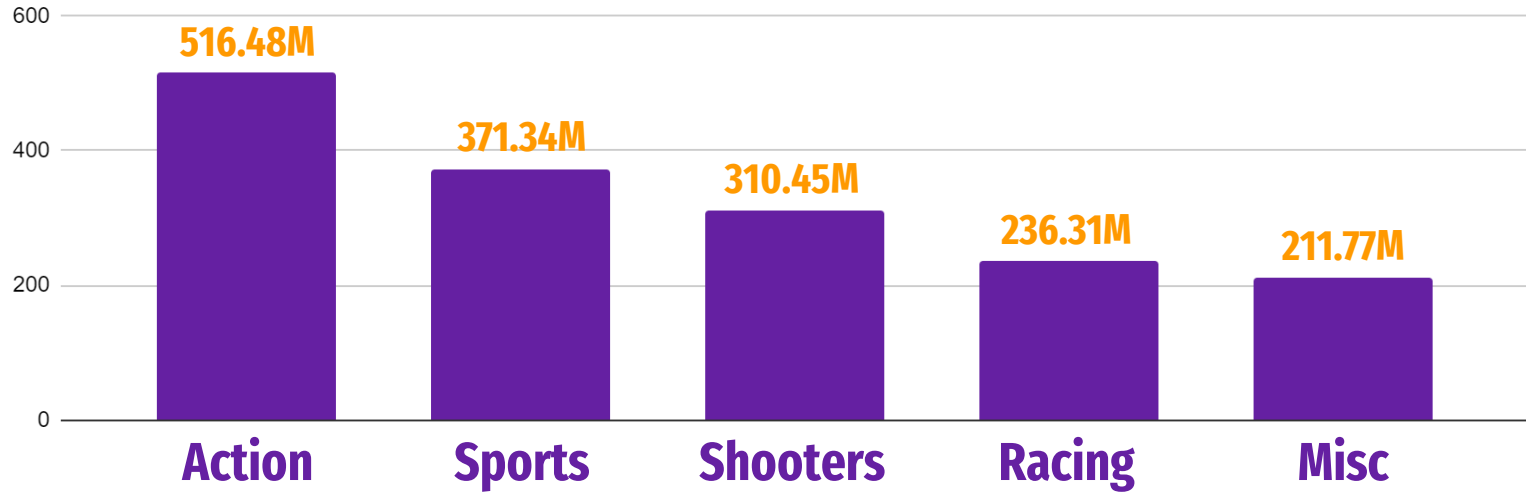


People in **Europe** are almost the same as people in **North America**, who like action genre games, and the sales of this game are very high in this region, having sold **516.48 Million** action game items.

# Best-Selling Genre in Europe



People in **Japan** like **Role-Playing** genre games, and the sales of this kind of game are very high in this region, having sold **350.25 Million** Role-Playing game items.

# Best-Selling Genre in The Rest of The World



Chart showing best-selling genres:

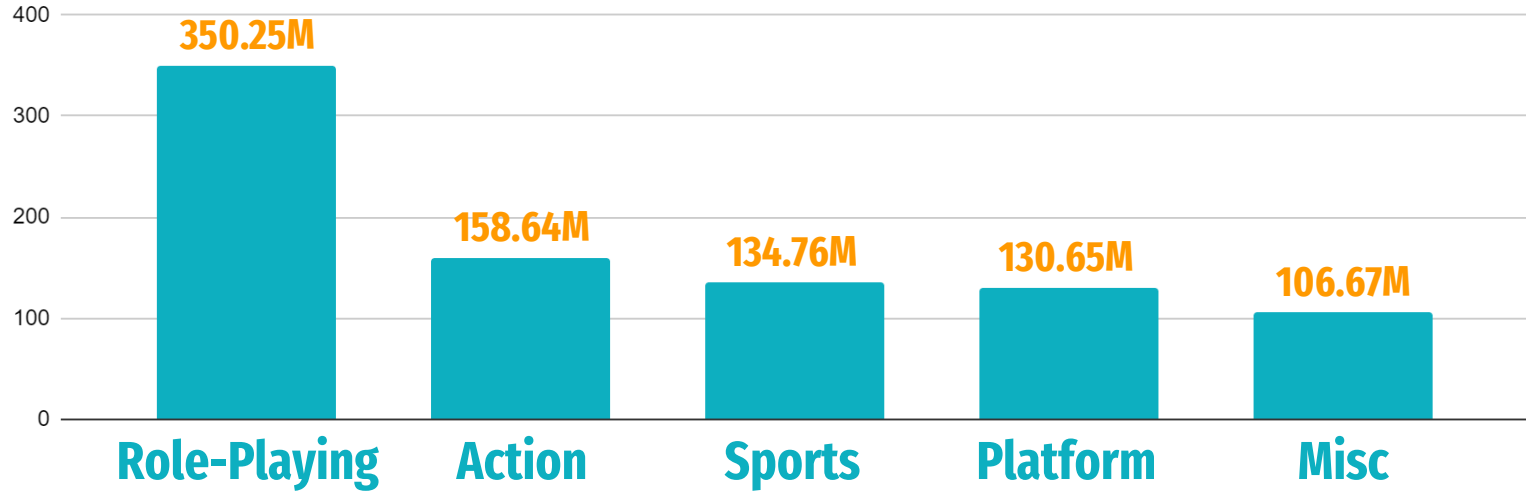| Genre | Sales |
|---|---|
| Action | 1722.83M |
| Sports | 1309.24M |
| Shooters | 1026.2M |
| Role-Playing | 923.79M |
| Platform | 829.13M |

**Action** **Sports** **Shooters**
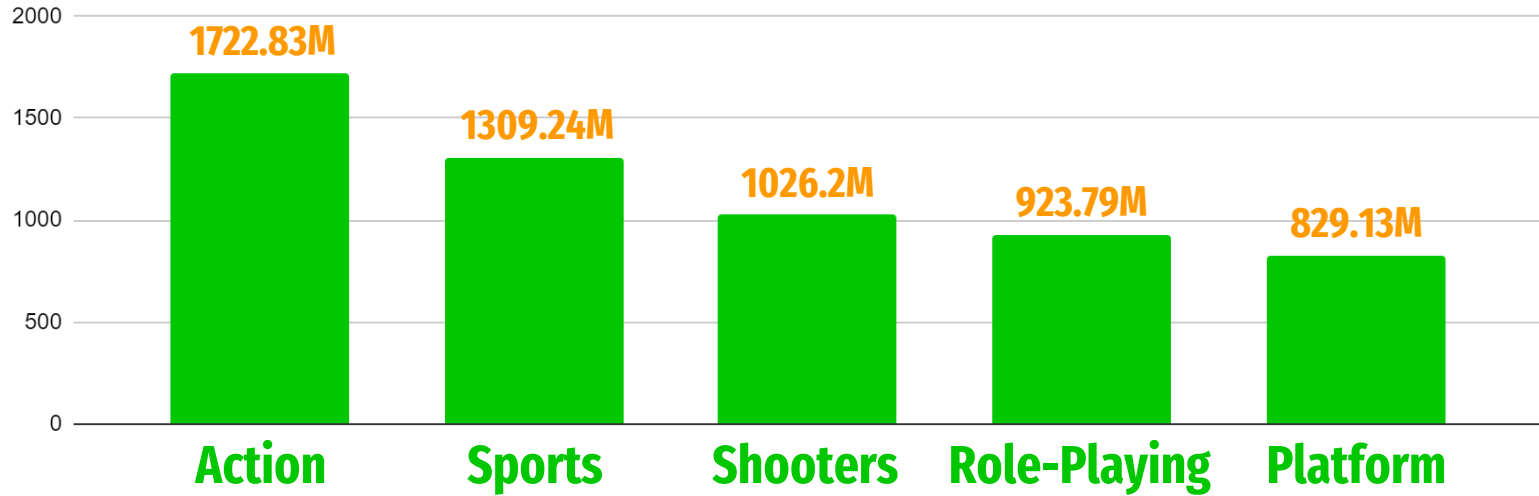
People in **The World** like action genre games, and the sales of this kind of game are very high in the world, having sold **1.72 Billion** action game items.

# Best-Selling Publishers in North America

| Publisher | Sales |
|-----------|-------|
| Nintendo | 815.75M |
| Electronic Arts | 584.22M |
| Activision | 426.01M |
| Soni C. E. | 265.22M |
| Ubisoft | 252.54M |
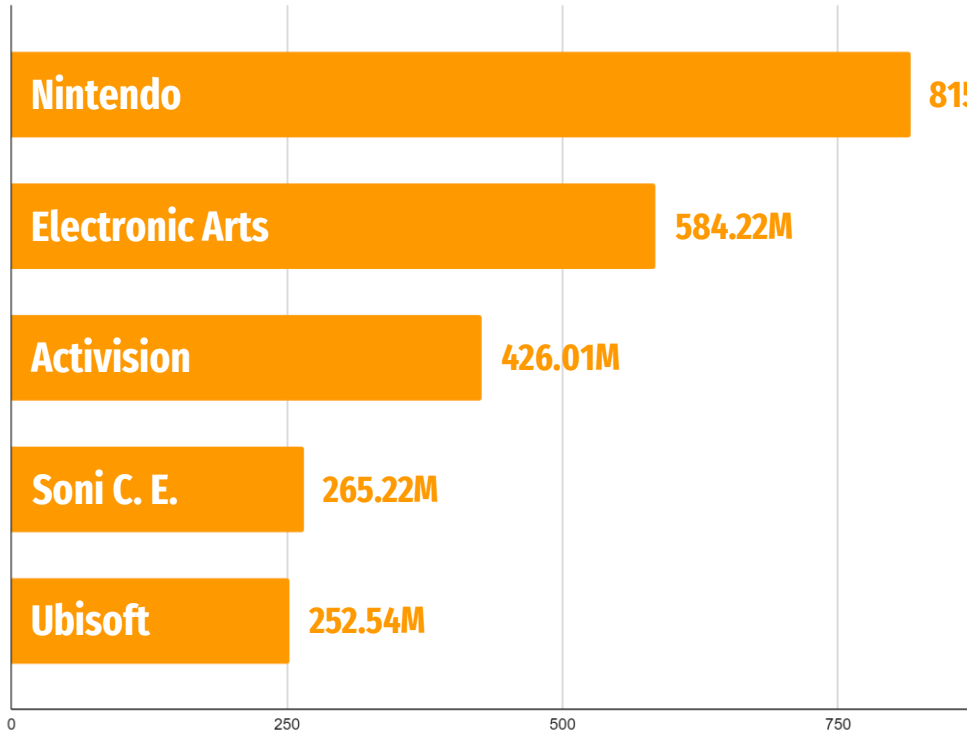
People in **North America** buy more video game products published by **Nintendo**, and the total number of Nintendo products that have been sold in these region has reached **815.75 Million** items. Followed by **EA Games** and **Activision**.

# Best-Selling Publishers in Europe

| Publisher | Sales |
|---|---|
| Nintendo | 418.3M |
| Electronic Arts | 367.38M |
| Activision | 213.72M |
| Soni C. E. | 187.55M |
| Ubisoft | 163.03M |

0    100    200    300    400
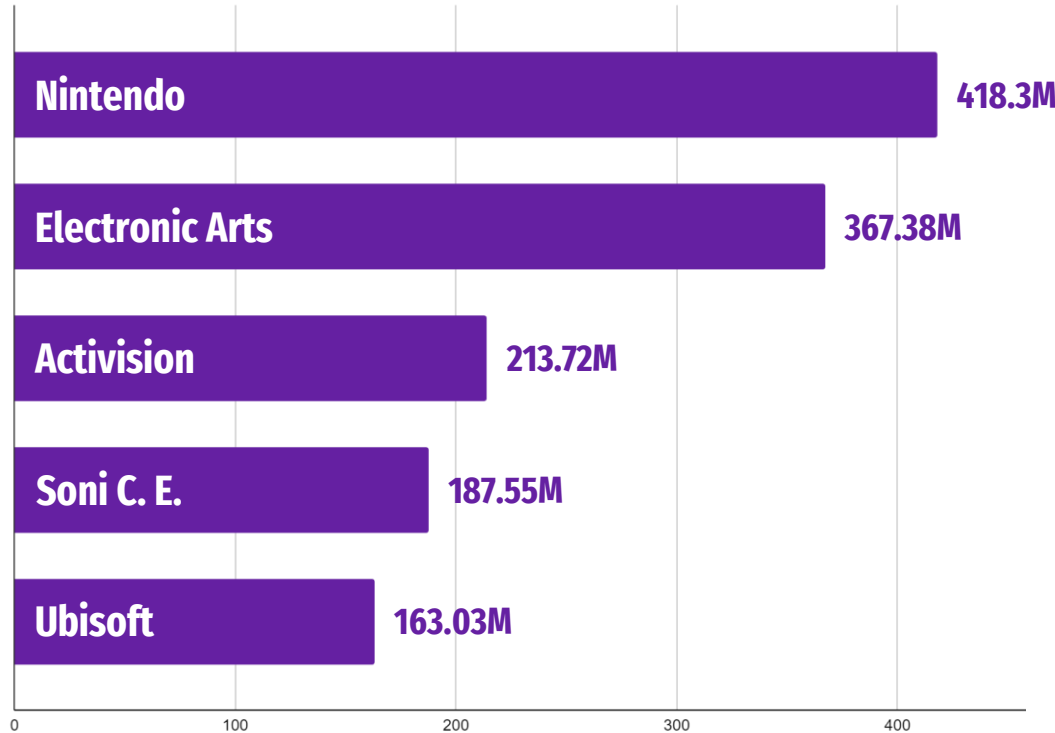
People in **Europe** as same like **North American** people, buy more video game products published by **Nintendo**, and the total number of Nintendo products that have been sold in Europe has reached **418.3 Million** items. Followed by **EA Games** and **Activision**.

# Best-Selling Publishers in North America

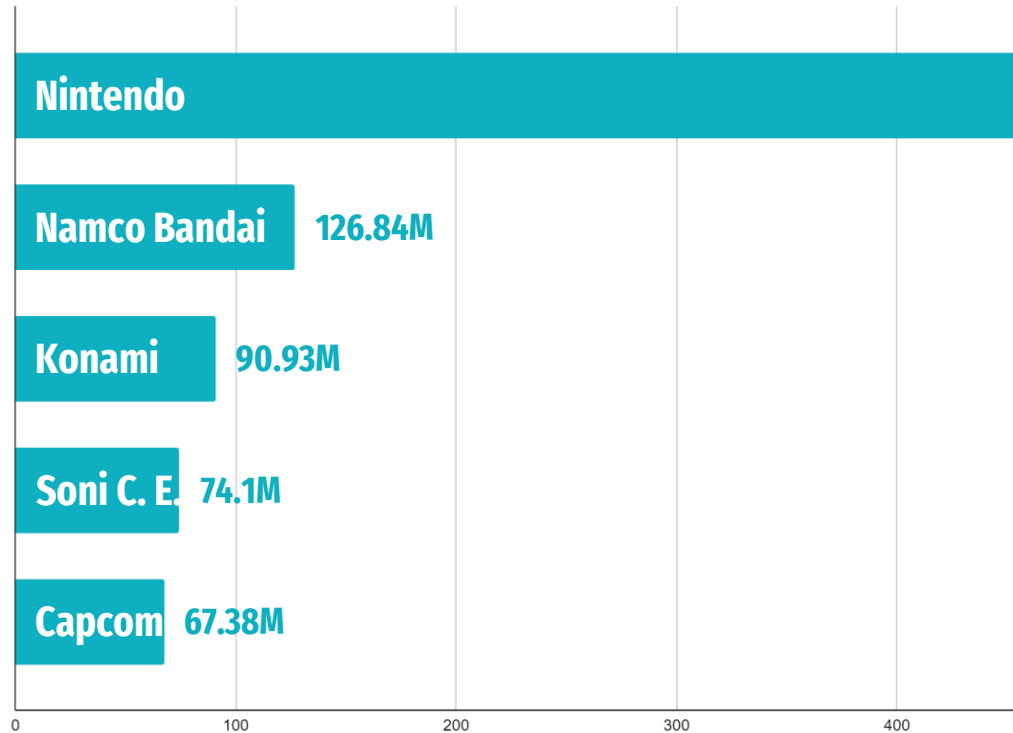| Publisher | Sales |
|-----------|-------|
| Nintendo | 454.99M |
| Namco Bandai | 126.84M |
| Konami | 90.93M |
| Soni C. E. | 74.1M |
| Capcom | 67.38M |

People in **Japan** buy more video game products published by **Nintendo**, and the total number of Nintendo products that have been sold in these region has reached **454.99 Million** items. Followed by **Namco Bandai** and **Konami**.
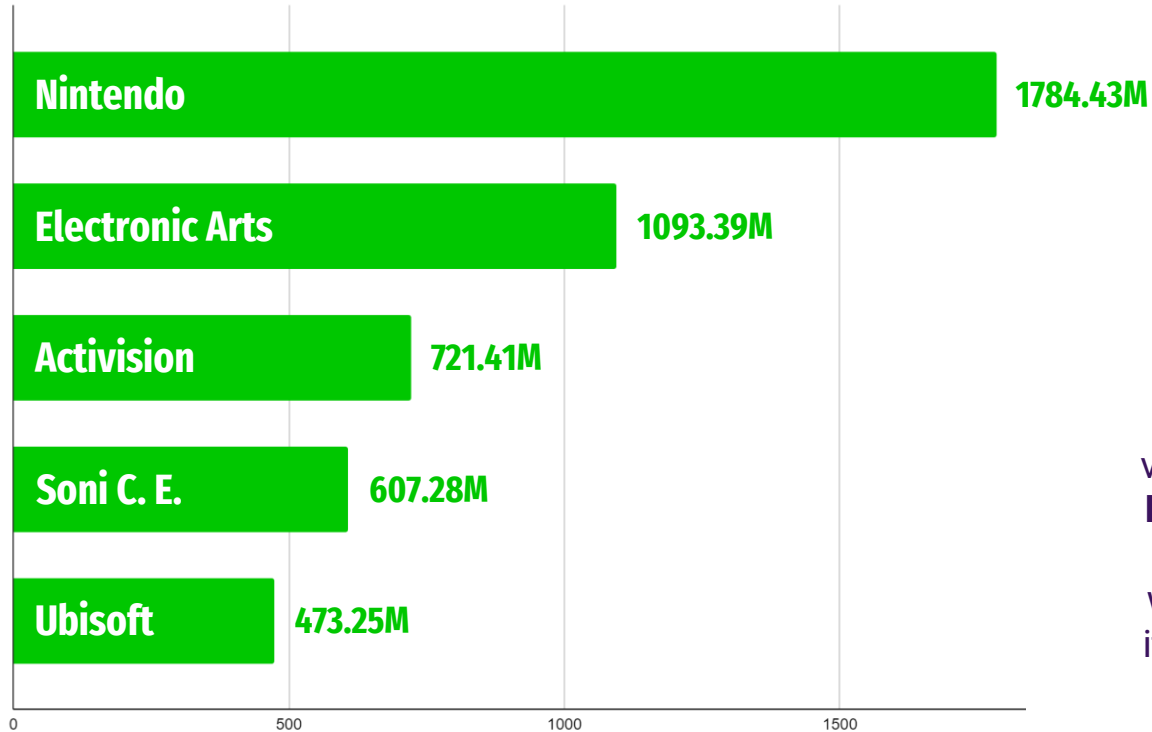
# Best-Selling Publishers in North America

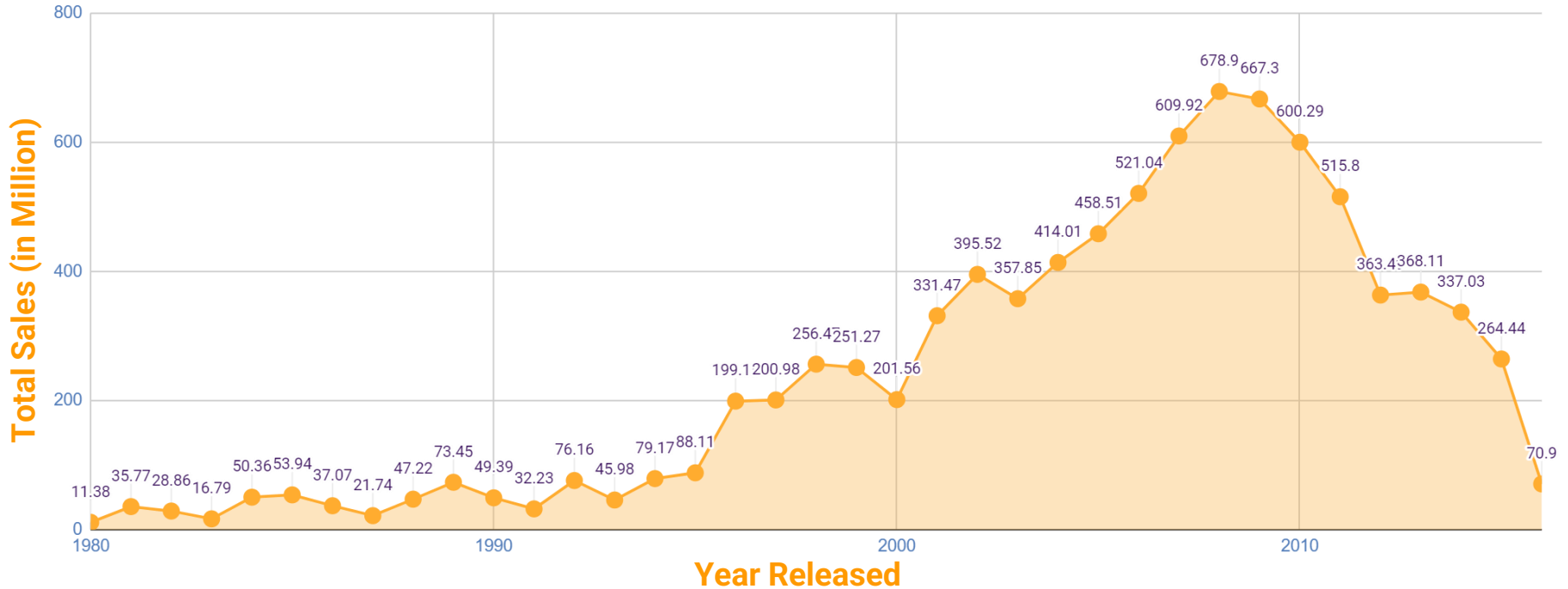| Publisher | Sales |
|---|---|
| Nintendo | 1784.43M |
| Electronic Arts | 1093.39M |
| Activision | 721.41M |
| Soni C. E. | 607.28M |
| Ubisoft | 473.25M |

People in **The World** buy more video game products published by **Nintendo**, and the total number of Nintendo products sold in the world has reached **815.75 Million** items. Followed by **EA Games** and **Activision**.

# Global Sales Number per Game Release Year



Total Sales (in Million)

Year Released

11.38 · 35.77 · 28.86 · 16.79 · 50.36 · 53.94 · 37.07 · 21.74 · 47.22 · 73.45 · 49.39 · 32.23 · 76.16 · 45.98 · 79.17 · 88.11 · 199.1 · 200.98 · 256.4 · 251.27 · 201.56 · 331.47 · 395.52 · 357.85 · 414.01 · 458.51 · 521.04 · 609.92 · 678.9 · 667.3 · 600.29 · 515.8 · 363.4 · 368.11 · 337.03 · 264.44 · 70.9

The highest total sales globally is **678.9 M** items of video games **released in 2008**.

The lowest total sales globally are only sold **11.38 M** items of video games **released in 1980**.

# Business Insight (Games Genre)

## North America

To get a high profit from selling games in this region, it's better to sell the **Action genre**.
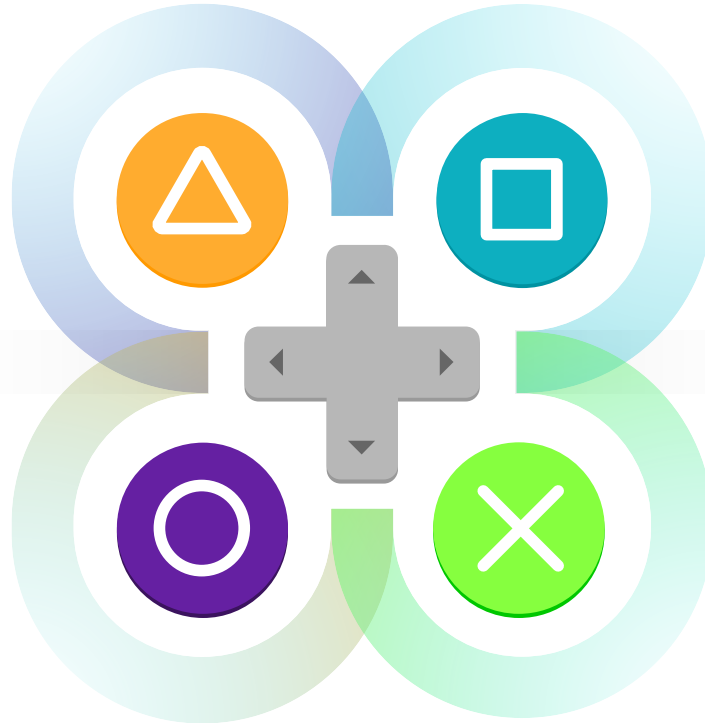
## Europe

To get a high profit from selling games in this region, it's better to sell the **Action genre**.

## Japan

To get a high profit from selling games in this region, it's better to sell the **Role-Playing genre**.

## Global

In fact, games with the **action genre** are more in demand by **gamers around the world**.

# Business Insight
# (Games Genre)



In other words, the **more selling games in the Action genre**, the **more chance that the game will sell well** worldwide because of Dominant gamers around the world like games in the **Action genre**, especially gamers in North America and Europe.

As a company engaged in the business of selling video games, it's better to stock up on **Action games** than other genres, the **chances of selling them are higher** than games with other genres.

# REFERENCES

- https://www.vgchartz.com/

- https://www.geeksforgeeks.org/bar-plot-in-matplotlib/

- https://slidesgo.com/theme/gaming-infographics#search-game&position-1&results-199&rs=search

# THANK YOU!

Have any questions?
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www.github.com/qodym

Let's Check out my python code Jupyter notebook!
Don't hesitate to contact me if you want to do
some corrections or discuss!

**#DataAnalyst #ExploratoryDataAnalysis**