Video Game Sales Analysis Project

Data Exploration in Excel

Objective

The purpose of this phase is to perform an initial exploration of the video game sales dataset using Excel. This step provides an understanding of the dataset's structure, quality, and potential issues, while also uncovering early trends and insights. Findings from this phase will guide the deeper analyses conducted in Python, SQL, and Power BI.

Dataset Review

Column Overview

The dataset includes the following fields:

- Name - The game's name
- Platform - Platform of the games release
- Year_of_Release - Year of the game's release
- Genre - Genre of the game
- Publisher - Publisher of the game
- NA_Sales - Sales in North America (in millions)
- EU_Sales - Sales in Europe (in millions)
- JP_Sales - Sales in Japan (in millions)
- Other_Sales - Sales in the rest of the world (in millions)
- Global_Sales - Total worldwide sales (in millions)
- Critic_score - Aggregate score compiled by Metacritic staff
- Critic_count - The number of critics used in coming up with the critic score
- User_score - Score by Metacritic's subscribers
- User_count - Number of users who gave the user score
- Rating - The ESRB ratings

Missing Values & Observations

- Some fields such as Critic_score, User_score, and Rating contain missing values
- A few games have missing Year_of_Release (marked as N/A)
- Several platforms appear only once or very few times.

Data Dictionary - Platforms

During exploration, I identified several abbreviations or uncommon platforms that required clarification.

Abbreviation	Full Platform Name	Notes
2600	Atari 2600	One of the earliest home consoles, released in 1977

G	Game Boy	Nintendo handheld (1989)
GEN	Sega Genesis	16-bit Sega console, known as Mega Drive outside of North America
GG	Sega Game Gear	Handheld console, very limited dataset representation (1 game)
NG	Neo Geo	Video game platform by SNK Corporation released in 1990.
PC-FX	NEC PC-FX	32-bit Japanese home console, rare in dataset (1 game)
SAT	Sega Saturn	Sega 32-bit console, competitor to PlayStation
SCD	Sega CD	CD-ROM add-on for Sega Genesis
TG16	TurboGrafx-16	NEC's 16-bit console, PC Engine in Japan
WS	WonderSwan	Bandai handheld console, Japan-exclusive

Note: Many of these older or region-specific platforms have very few entries. Their limited representation may not significantly influence global trends but is worth noting.

Explanatory Analysis Using Pivot Tables

Sales by Platform

Platform	Global Sales (millions)
PS2	1256.1
X360	975.5
PS3	943.3
Wii	910.2
DS	808.9
PS	730.7
PS4	340.8
GBA	318.7
PSP	295.7
3DS	270.9
PC	264.9
X	258.3
G	255.5
NES	251.1
N64	218.9
SNES	200.1
GC	199.4
XOne	173.8
2600	97.1
WiiU	84.9

PSV	57.0
SAT	33.6
GEN	28.4
DC	16.0
SCD	1.9
NG	1.4
WS	1.4
TG16	0.2
3DO	0.1
GG	0.0
PCFX	0.0
Grand Total	**8994.8**

- **Findings:**
  - The PlayStation 2 is the single best-selling platform, with over 1.25 billion units
  - However, Nintendo collectively dominates the market, with major contributions from Wii, DS, NES, SNES, Game Boy, and 3DS.
  - Out of the top 15 platforms by sales, 7 are Nintendo consoles/handhelds, showing the breadth of Nintendo's long-term market presence.
  - Microsoft holds 3 major entries (Xbox, Xbox 360, Xbox One), while Sony dominates the top individual spots with the PlayStation line.

Sales by Genre

Genre	Global Sales (millions)
Action	1762.0
Sports	1341.0
Shooter	1067.3
Role-Playing	949.3
Platform	831.7
Misc	808.8
Racing	731.7
Fighting	449.2
Simulation	392.8
Puzzle	243.8
Adventure	241.6
Strategy	175.7
Grand Total	**8994.8**

- **Finding:** Action games are the most popular genre globally, followed by Sports and Shooter titles. Strategy and Adventure genres contribute the least.

Sales by Year

Year	Global Sales (millions)
1976	0.4
1977	2.0
1978	3.3
1979	0.3

| Year	Value
1980	14.9
1981	35.8
1982	29.3
1983	17.1
1984	50.4
1985	53.9
1986	37.1
1987	21.7
1988	47.2
1989	73.5
1990	49.4
1991	32.2
1992	76.4
1993	46.0
1994	79.2
1995	88.1
1996	199.2
1997	202.2
1998	258.0
1999	252.5
2000	202.0
2001	335.5
2002	406.0
2003	367.9
2004	422.1
2005	464.4
2006	525.6
2007	612.9
2008	688.3
2009	662.7
2010	600.6
2011	520.5
2012	358.1
2013	365.3
2014	338.4
2015	278.3
2016	175.9
2017	0.1
N/A	0.2
Grand Total	**8994.8**

Total
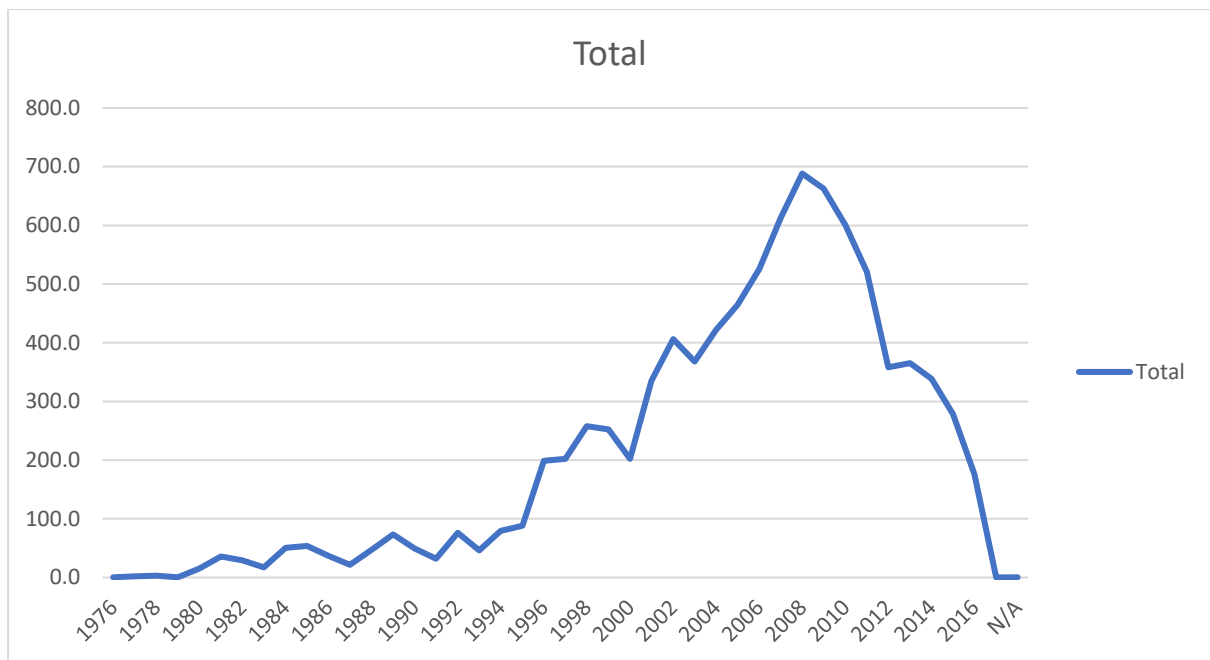
- **Trends:**
  - Global sales steadily increased from mid-1990s, peaking between 2007-2009 (over 600 million units annually).
  - After 2010, sales showed a steady decline, with sharp drop after 2012.
  - Sales in 2016 were 175.9 million, a significant decline from the 2008 peak of 688.3 million.

Regional Sales Breakdown

Region	Global Sales (millions)
NA	4432.97
EU	2450.9
JP	1306.54
Other	799.54
Global	8994.83

Global Sales (millions)

■ NA ■ EU ■ JP ■ Other
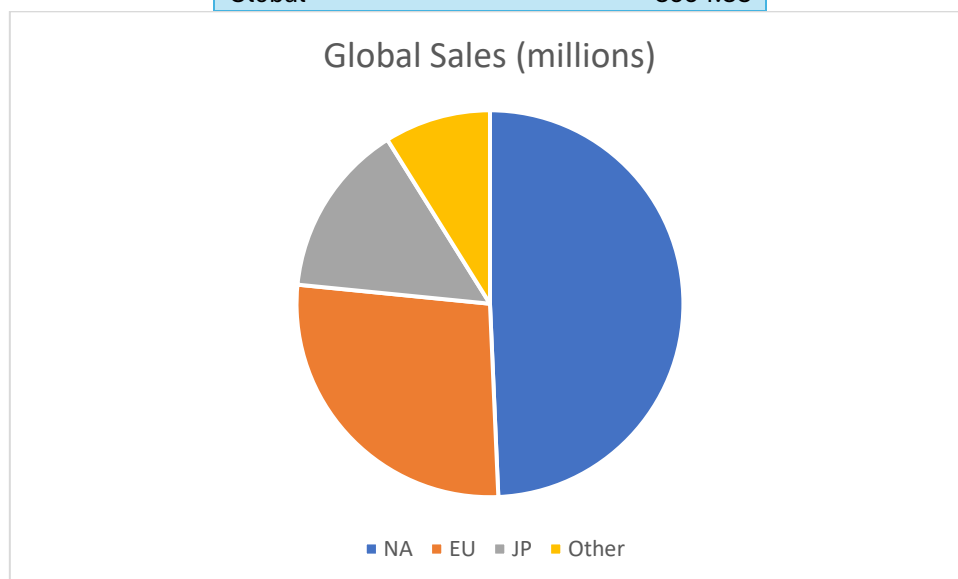
- **Findings:**

- North America accounts for ~49% of global sales.
- Europe contributes ~27%.
- Japan contributes ~15%.
- Other regions together make up ~9%.

Top 10 Games

- Method: Sorted dataset by Global_Sales descending
- Results:

Rank	Game Title	Platform	Global Sales (millions)	Notes
1	Wii Sports	Wii	82.54	Bundled with many Wii consoles
2	Super Mario Bros.	NES	40.24	Classic Nintendo franchise
3	Mario Kart Wii	Wii	35.57	Popular multiplayer racing game
4	Wii Sports Resort	Wii	32.78	Expansion of Wii Sports
5	Pokémon Red/Pokémon Blue	Game Boy	31.37	First-generation Pokémon
6	Tetris	Game Boy	30.26	One of the most iconic puzzle games
7	New Super Mario Bros.	DS	29.81	Revamp of the Mario Platforming series
8	Wii Play	Wii	28.92	Included minigames, often bundled
9	New Super Mario Bros. Wii	Wii	28.38	Multiplayer-focused platformer
10	Duck Hunt	NES	28.31	Light gun game bundled with NES

- Observation: Nintendo franchises (Mario, Pokémon, Wii Series) dominate the top 10 list, with Tetris being the only non-Nintendo property, although was licensed to Nintendo for the Game Boy.

Early Insights

- **Platform dominance:** PlayStation 2 is the highest-selling platform in history. However, Nintendo dominates in overall platform variety and cumulative market share.
- **Global trends:** Action and Sports titles drive the largest share of sales.
- **Sales peak:** 2007-2009 marked the golden age of video game sales.
- **Regional insights:** North America is the largest market, nearly half of global sales.
- **Franchise power:** Nintendo's stronghold is evident in the top 10 best-selling games.
- **Bundling effect:** Games packaged with consoles significantly skew sales ranking.

Deliverables

- Excel Files: vgames_excel_exploration.xlsx containing:
  - Pivot tables for platform, genre, year, and region
  - Supporting charts (bar, line, treemap, pie)
- Documentation: Word report with summarised findings and screenshots of key pivot charts