

Video Game Sales Analysis Project

Final Report

1. Project Overview

The goal of this project was to analyse global video game sales data to uncover trends, patterns, and insights across platforms, genres, publishers, and time periods.

Using Excel, Python, SQL, and Power BI, the project answers key business questions and delivers an interactive dashboard for stakeholders to explore the data and identify opportunities.

2. Objectives

- Understand historical sales performance across platforms and genres.
- Identify regional preferences in gaming.
- Evaluate the relationship between critic/user ratings and sales success.
- Provide an interactive and accessible dashboard for exploration.

3. Key Questions

Sales Trends

- How have global video games sales changed over time?
- Are there noticeable peaks or declines in sales during specific years?

Platform Analysis

- Which platforms (e.g., PlayStation, Xbox, Nintendo) have dominated the market?
- How has platform popularity shifted over the years?

Genre Analysis

- Which video game genres generate the highest sales globally?
- Do different regions prefer different genres?

Regional Insights

- How do sales differ across North America, Europe, and Japan?
- Which region contributes the most to global video game sales?

Ratings & Sales

- Is there a relationship between critic/user ratings and sales performance?
- Do higher-rated games consistently sell better?

Publisher Insights

- Which publishers have been the most successful over time?
- Are there publishers that dominate specific platforms or regions?

4. Tools & Workflow

The analysis was conducted in five phases:

1. Excel – Initial Data Exploration
 - Quick data profiling
 - Early trend visualisations
 - Initial KPIs
2. Python – Explanatory Data Analysis (EDA)
 - Data cleaning and preprocessing
 - Statistical summaries and visualisation
 - Correlation and trend analysis.
3. SQL – Deeper Insight Extraction
 - Structured queries for platform lifespans, regional preferences, and high sales-to-score titles
4. Power BI – Interactive Dashboard
 - Integrated visuals and slicers for stakeholders
5. Final Report – Documentation & Presentation
 - Combined findings into a single narrative for portfolio presentation

5. Findings by Phase

Excel – Early Insights

- **Platform dominance:** PlayStation 2 is the highest-selling platform ever. Nintendo dominates in overall platform variety and cumulative market share.
- **Global trends:** Action and Sports titles generate the largest share of sales.
- **Sales peak:** 2007-2009 marked the golden age of video game sales.
- **Regional insights:** North America accounts for nearly half of global sales.
- **Franchise power:** Nintendo's stronghold is clear in the top 10 best-selling games.
- **Bundling effect:** Console-bundled titles greatly skew sales ranking.

Python – Explanatory Data Analysis

- Regional sales heavily influenced global performance, especially in North America and Europe.
- Review scores correlate with sales, but franchise reputation and console availability matter just as much.
- Nintendo leads in global sales despite fewer total titles – showcasing the power of strong franchises.

- Positive correlation between scores and sales, but with many best-sellers have mid-to-high scores rather than perfect ratings.
- Shooter genre's rise in the 2000s aligns with the Xbox 360/PS3 era.
- Industry peak: 2006-2011, driven by new consoles and blockbuster titles.
- Sales decline post-2011 reflects market saturation and the digital shift.
- Cultural influence: Japan's small market still shapes global trends, especially in RPGs.
- All-time leader: PS2 in global sales, followed by Xbox 360.
- Shooters dominates global sales despite not producing the most games.

SQL – Structured Insights

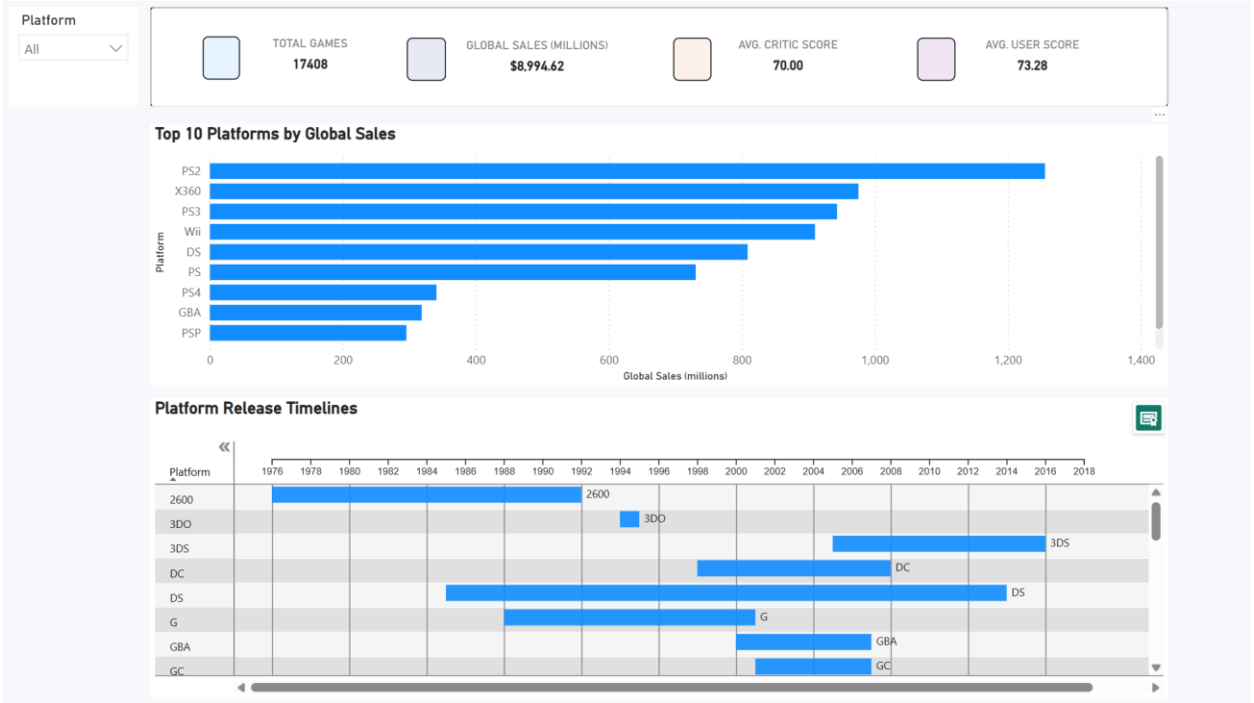
- Nintendo is the clear leader in sales and user ratings, despite producing fewer games.
- Shooters and RPGs outperform their share of total games in sales; RPGs dominate in Japan.
- Strong critic reception boosts sales, but brand power can outweigh reviews.
- Longer console lifespans (DS, PS2, PC) sustained high sales over time.
- Global sales peaked in the late 2000s, driven by new console releases and major franchises.

Power BI – Interactive Dashboards

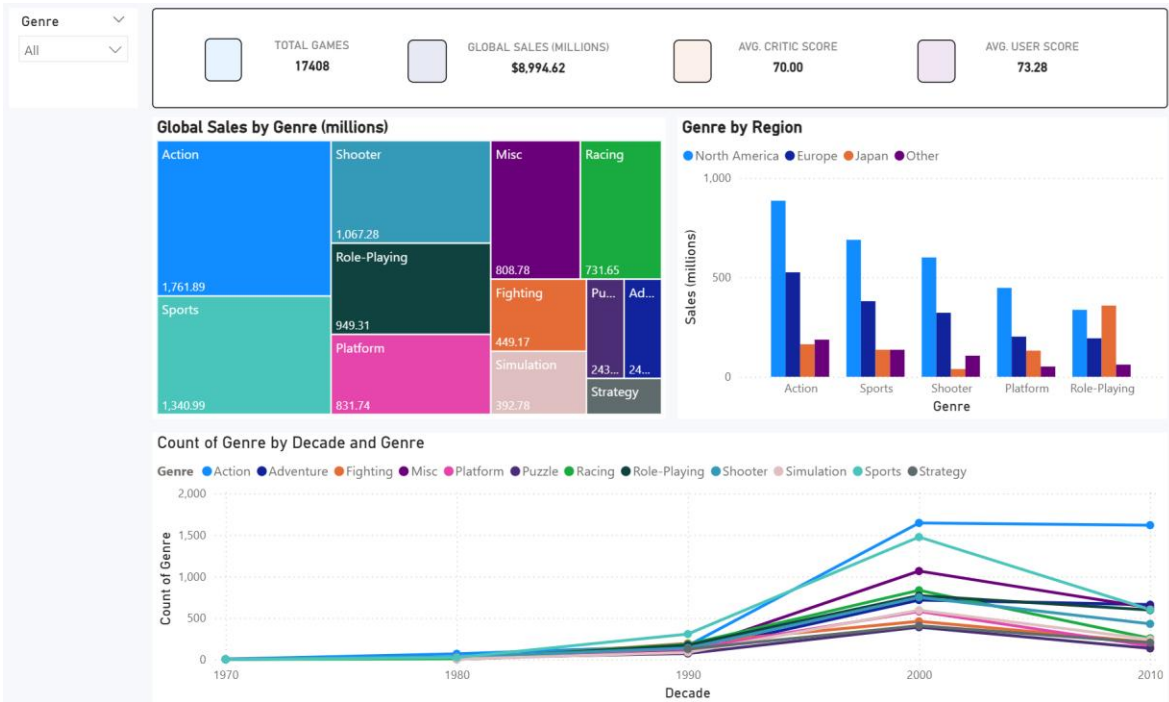
1. Summary Dashboard



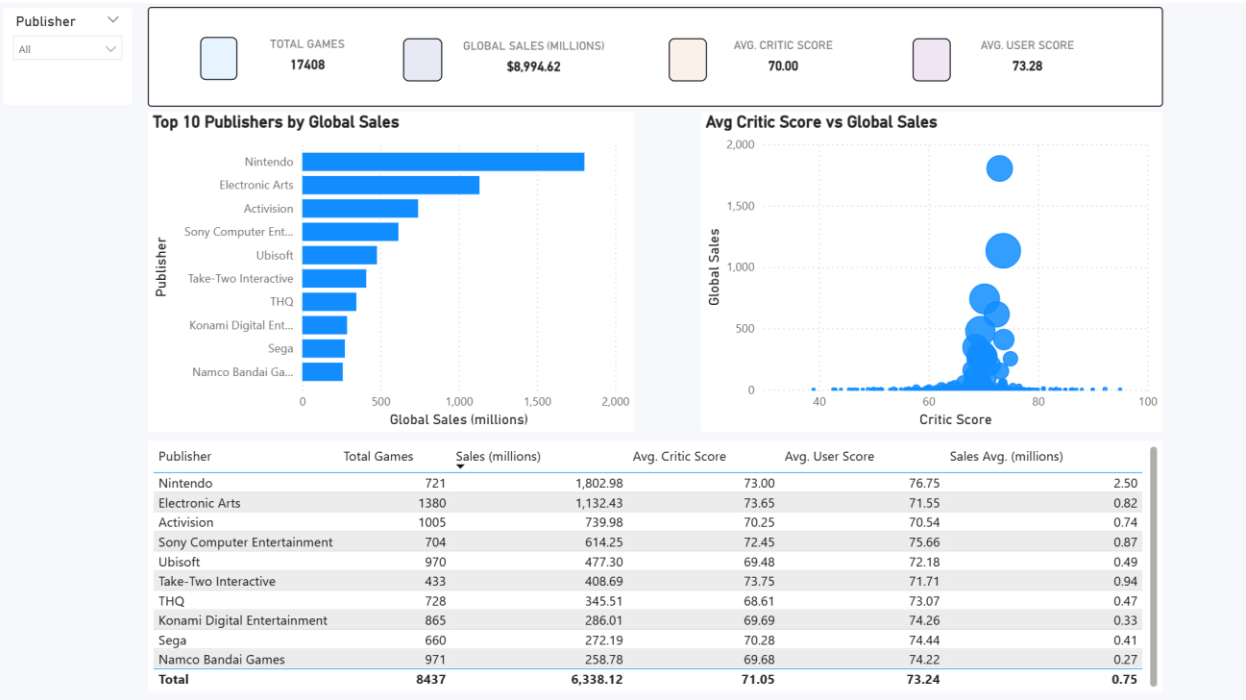
2. Platform Dashboard



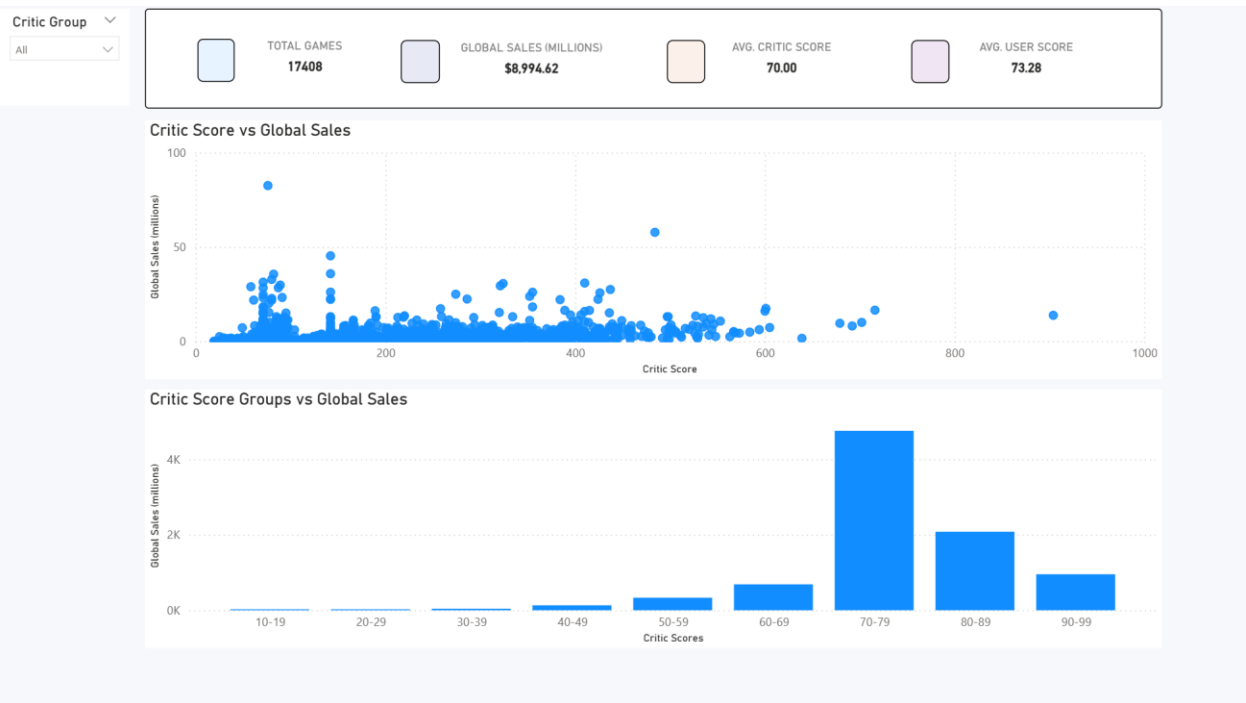
3. Genre Dashboard



4. Publisher Dashboard



5. Critic Score Dashboard



6. Key Insights

- Nintendo remains the sales leader and enjoys the highest user reception.
- Shooters and RPGs achieve outsized success compared to their production share.

- Strong reviews drive higher sales, but well-known franchises can succeed even with moderate scores.
- The 2006-2011 boom was fuelled by overlapping console lifecycles and blockbuster releases.
- Japan's preference for RPGs is consistent across all analyses.
- North America is the largest market, followed by Europe and Japan.

7. Conclusion & Recommendations

The project demonstrates how combining multiple tools (Excel, Python, SQL, and Power BI) can produce a holistic analysis of a large dataset.

Recommendations:

- Future releases should target regional genre preference for maximum sales impact.
- Publishers should balance critical quality and franchise branding for sustained success.
- Monitoring platform lifecycle overlaps can help time major releases to peak market conditions.

8. Limitations & Future Work

- Dataset only includes sales up to January 2017; excludes digital-only titles.
- Regional breakdown is limited to NA, EU, JP, and Other.
- Ratings data is incomplete for some titles.

Future work:

- Incorporate digital sales and DLC revenue.
- Apply machine learning to predict sales performance based on early metrics.
- Explore sentiment analysis from online reviews.

9. Deliverables

- Power BI Dashboard (.pbix + screenshots).
- Excel Analysis
- Python Jupyter Notebooks
- SQL Queries
- Reports