

# Video Game Sales and Engagement Analysis

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**Tools Used:** Python, SQL, Power BI

**Project Type:** EDA + Business Intelligence Dashboard

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## 1. Project Overview

This project analyzes video game data to understand user behavior and market performance.

Two datasets are used:

- `games.csv` – contains game titles, genres, ratings, wishlist, and engagement details.
- `vgsales.csv` – contains regional and global sales information.

The objective is to:

- Understand game trends and user preferences
  - Identify top-performing platforms and publishers
  - Analyze how ratings and user engagement affect sales
  - Build an interactive Power BI dashboard for insights
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## 2. Tools Used

- **Python** – Data cleaning, normalization, merging datasets
  - **SQL** – Structured storage and querying of cleaned data
  - **Power BI** – Interactive dashboards and visual analysis
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## 3. Data Cleaning & Preparation

Using Python (Pandas):

- Removed missing and inconsistent values
- Standardized text fields (lowercase, trimming spaces)
- Converted data types (dates, numbers)
- Cleaned `games.csv` → `games_clean.csv`

- Cleaned vgsales.csv → vgsales\_clean.csv
- Merged both datasets based on game title

In Power BI:

- Created calculated columns (GameRating, GameWishlist)
- Built proper relationships
- Created bins for Rating and Wishlist

This ensured accurate analysis across both datasets.

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## **4. Dashboard Insights**

### **Page 1 – Games Overview**

#### **Key Insights:**

- Adventure and RPG-related genres dominate the dataset.
  - Most games fall in the 3–4 rating range, indicating generally positive feedback.
  - Only a few games receive very high wishlist counts, showing concentrated user interest.
  - Game releases increased significantly after 2000, reflecting industry growth.
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### **Page 2 – Sales Performance**

#### **Key Insights:**

- PlayStation and Nintendo platforms generate the highest global sales.
  - North America leads in sales, followed by Europe and Japan.
  - Nintendo, Electronic Arts, and Activision are top publishers.
  - Global game sales peaked around 2008–2010 before declining.
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### **Page 3 – Merged Market Analysis**

#### **Key Insights:**

- Action, Sports, and Shooter genres generate the highest revenue.
- A few platforms dominate market share.

- Sales show a lifecycle pattern: slow growth → rapid rise → decline.
  - Time and platform choice strongly influence commercial success.
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## **Page 4 – Ratings & Engagement Impact**

### **Key Insights:**

- Games with higher ratings (4–5) achieve significantly higher average sales.
  - There is a clear positive relationship between rating and revenue.
  - Higher wishlist ranges correspond to higher average sales.
  - User engagement is a strong predictor of commercial success.
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## **6. Conclusion**

This project demonstrates how data analytics can uncover valuable business insights in the gaming industry. By combining user behavior data with sales performance:

- We identified top genres, platforms, and publishers.
- We proved that higher-rated and highly wishlisted games perform better commercially.
- We built an interactive dashboard that supports data-driven decision-making.