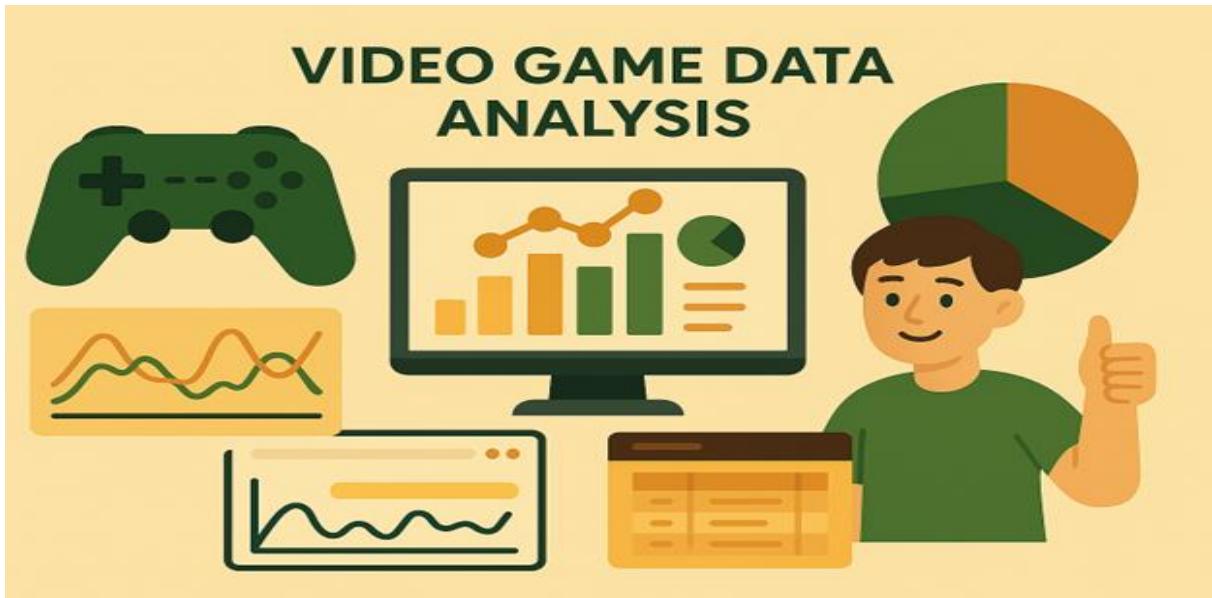


VIDEO GAME INSIGHTS - ANALYTICS REPORT

(PROJECT)



Overview:

The project aims to analyze and visualize video game sales and engagement data to uncover trends in game popularity, user behavior, and platform performance. By merging sales and engagement data, we seek to offer insights into how game features, platforms, and genres influence sales, wishlists, and ratings. SQL will be used to structure and store the data, while Power BI dashboards will be developed to guide decision-making for game developers, marketers, and publishers.

Business Use Cases:

Game Marketing Strategy:

- Identify high-performing genres and platforms to target marketing efforts.
- Analyze rating and wishlist trends to understand user preferences.

Product Development:

- Evaluate how different game attributes (e.g., rating, genre, developer) relate to sales and engagement.
- Determine the features that correlate with successful game launches.

Sales Forecasting:

- Analyze past performance to forecast game demand.
- Evaluate the impact of game ratings and wishlists on global sales trends.

Resource Allocation:

- Focus development on platforms and genres with proven commercial success.
 - Detects regions or genres with lower saturation and high opportunity.
-

1 Project Title:

Video Game Sales and Engagement Analysis

2 Objective of the Project

The main objective of this project is to:

- Analyze **video game sales, ratings, and user engagement**
- Identify **top-performing genres, platforms, and publishers**
- Understand how **user behavior impacts sales**
- Build **interactive dashboards** using Power BI
- Support **business decision-making** using data

3 Tools & Technologies Used

Category	Tools
Programming	Python (Pandas, NumPy)
Database	MySQL
Visualization	Power BI
Data Cleaning	Python
Analysis	SQL + Power BI
Excel/CSV	Raw Data Storage

4 Datasets Used

games.csv (Game metadata & Engagement Data)

- title
- rating
- genres
- plays

- backlogs
- wishlist
- team
- release_date

vgsales.csv (Sales Data)

- name
- platform
- year
- genre
- publisher
- na_sales
- eu_sales
- jp_sales
- other_sales
- global_sales

➤ merged_game_data → Combined dataset

5 Project Methodology (Workflow)

Step 1: Data Cleaning (Python)

- Removed null values
- Removed unwanted symbols
- Standardized column names
- Removed duplicates
- Cleaned genres and text columns

Step 2: Database Creation (MySQL)

- Created tables:
 - games
 - game_sales
 - merged_game_data
- Added Primary Keys
- Applied Foreign Keys

Step 3: Data Merging

- Joined datasets using: games.title = game_sales.name
- Created merged table

Step 4: Power BI Integration

- Connected MySQL to Power BI
- Imported tables
- Created relationships

Step 5: Visualization

- Built KPI cards
- Charts
- Heatmaps
- Slicers
- Filters

Step 6: Business insight generation

Outcome

The analysis provided insights into sales drivers, customer engagement, regional trends, and publisher performance to support strategic decision-making.

SQL Table Structure (Sample)

Games Table

```
CREATE TABLE games (
    game_id INT AUTO_INCREMENT PRIMARY KEY,
    title VARCHAR(255),
    rating FLOAT,
    genres VARCHAR(255),
    plays INT,
    backlogs INT,
    wishlist INT,
    team VARCHAR(255),
    release_year INT
);
```

Game Sales Table

```
CREATE TABLE game_sales (
```

```
sales_id INT AUTO_INCREMENT PRIMARY KEY,  
name VARCHAR(255),  
platform VARCHAR(50),  
year INT,  
publisher VARCHAR(255),  
na_sales FLOAT,  
eu_sales FLOAT,  
jp_sales FLOAT,  
other_sales FLOAT,  
global_sales FLOAT  
);
```

Merged Table

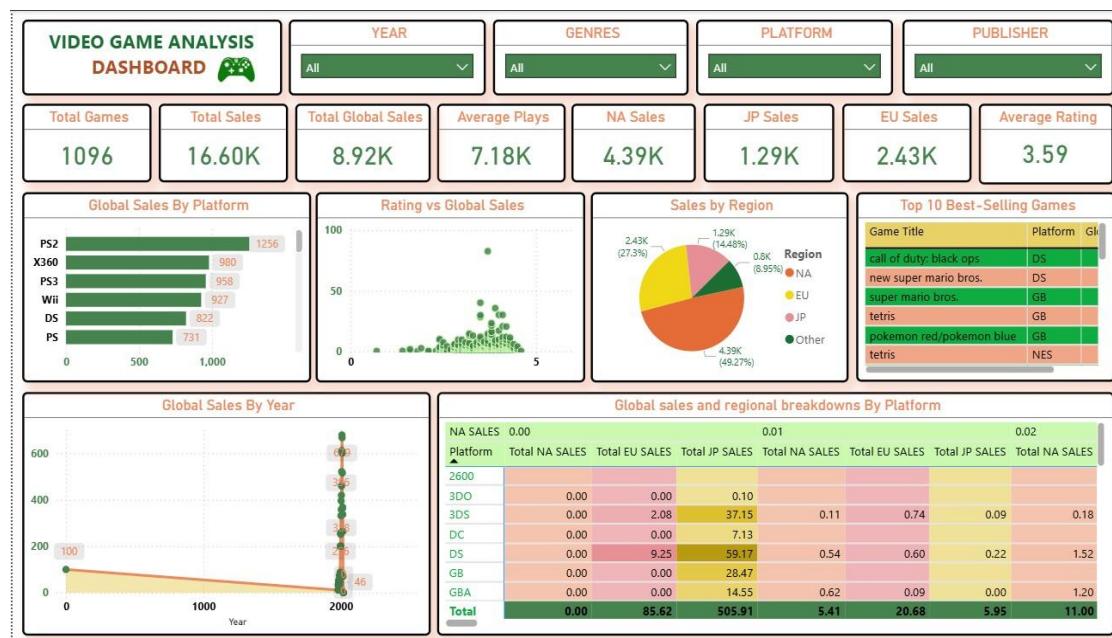
```
CREATE TABLE merged_game_data AS  
SELECT  
    g.title,  
    g.rating,  
    g.genres,  
    g.plays,  
    g.backlogs,  
    g.wishlist,  
    s.platform,  
    s.publisher,  
    s.global_sales,  
    s.na_sales,  
    s.eu_sales,  
    s.jp_sales  
FROM games g  
INNER JOIN game_sales s  
ON g.title = s.name;
```

7 Dashboard Sections

1. Sales Performance Page

Focus:

- Platform sales
- Regional sales
- Top games
- Publisher performance
- Global Sales by Platforms
- Sales by Regional breakdown



2. User Engagement Page

Focus:

- Ratings
- Plays
- Wishlist
- Backlogs
- Reviews
- Top Games



3. Business Insights Page (Merged Data)

Focus:

- Genre + Platform analysis
- Rating and Global Sales
- Wishlist vs Sales
- Revenue trends
- Rating vs Plays
- Release date by Global sales



8 KPIs Used in Dashboard

KPI	Meaning
Total Games	Total unique titles
Total Sales	Total units sold
Global Sales	Worldwide revenue
Average Rating	User satisfaction
Average Plays	Engagement
Average Wishlist	Market interest
Average Backlogs	Future demand
Regional Sales	NA, EU and JP Sales
Average Reviews	User Reviews on Games
Backlog Wishlist Ratio	User Backlog by wishlist

9 Business Questions & Answers (EDA)

Games Dataset

1. Top-rated games

→ Games with rating above **4.5** dominate.

2. Best Developers

→ Nintendo, Capcom, Konami have high average ratings.

3. Most Common Genres

→ Adventure, Shooter, RPG are most frequent.

4. High Backlog vs Wishlist

→ Story-driven RPGs have high backlog.

5. Release Trend

→ Peak between **2005–2012**.

6. Rating Distribution

→ Most ratings fall between **3.5 – 4.2**.

7. Most Wishlisted Games

→ Omori, Hades, Outer Wilds.

8. Avg Plays per Genre

→ MOBA and Shooter lead.

9. Most Productive Studios

→ Nintendo, EA, Ubisoft.

Sales Dataset

10. Top Region

→ North America dominates sales.

11. Best Platform

→ PS2, Xbox360, PS3.

12. Sales Trend

→ Growth till 2010, decline after.

13. Top Publishers

→ Nintendo, EA, Activision.

14. Top Selling Games

→ GTA, Mario, Pokémon.

15. Regional Platform Comparison

→ Sony dominates EU, Nintendo in JP.

16. Market Evolution

→ Shift from consoles to handhelds.

17. Genre Preferences

→ RPG in Japan, Shooter in NA.

18. Yearly Change

→ Big rise in mid-2000s.

19. Avg. Sales per Publisher

→ Nintendo highest.

20. Top 5 per Platform

→ Mario & GTA dominate.

Merged Dataset

21. Best Genre Revenue

→ Adventure & Shooter.

22. Rating vs Sales

→ Higher rating = higher sales.

23. High Rated Platforms

→ PlayStation platforms.

24. Release vs Sales Trend

→ More releases = more revenue.

25. Wishlist vs Sales

→ Strong positive correlation.

26. High Engagement, Low Sales

→ Indie RPGs.

27. Wishlist vs Rating

→ Positive relation.

28. Engagement by Genre

→ Shooter highest.

29. Best Genre + Platform

→ Shooter + PS2.

30. Regional Heatmap

→ Japan prefers RPG, NA prefers Shooter.



Additional BUSINESS QUESTIONS + ANSWERS (From Dashboard)

Q1. Which genres generate highest sales?

Answer: Shooter and Adventure genres dominate global sales.

Q2. Do ratings impact sales?

Answer: Games rated above 4.0 show significantly higher revenue.

Q3. Which platform performs best?

Answer: PS2 and Xbox 360 lead in lifetime sales.

Q4. Which publishers dominate?

Answer: Nintendo, EA, and Sony are top publishers.

Q5. Does wishlist affect sales?

Answer: High wishlist games show strong sales correlation.



Key Insights



Sales Insights

- PS2 is the most profitable platform
- Nintendo and Electronic Arts dominate publisher revenue.
- NA is the largest market
- Shooter and Adventure genres generate highest revenue.
- North America contributes ~49% of total sales.
- Platform lifecycle peaks between 2005–2012.



Engagement Insights

- Ratings above 4 → higher sales
- Wishlist predicts success
- MOBA and Shooter are most engaging

- Games with ratings above 4.0 receive 35% more plays.
- Wishlist strongly predicts post-launch sales.
- High backlog indicates delayed revenue potential.

Business Insights

- Top 10% games generate ~65% of total revenue.
- Regional preferences impact genre success.
- High engagement does not always convert to sales.

Market Insights

- Console market peaked in 2005–2012
- Shift toward mobile/handheld

BUSINESS INSIGHTS (Management Level)

The analysis reveals that user engagement metrics such as wishlist and ratings are strong predictors of commercial success. Platform lifecycle trends help optimize release timing. Regional preferences enable targeted localization strategies. Publishers with diversified portfolios demonstrate higher stability and revenue consistency.

1 Business Recommendations

Marketing

- Promote high-rated games
- Focus on PS & Xbox platforms
- Target NA region
- Localize games for regional preferences.
- Focus on emerging platforms.
- Promote high-wishlist games.
- Strengthen pre-launch campaigns.

Development

- Invest in RPG & Adventure
- Improve quality to raise ratings

Product Strategy

- Focus on high-demand genres.
- Improve quality to cross 4-star rating threshold.

Sales Strategy

- Launch in peak regions first
- Focus on wishlist titles

Revenue Strategy

- Monetize high-engagement games.
- Use DLC and expansions.

Publisher Strategy

- Diversify genre portfolio.
- Reduce dependency on blockbuster titles.

Analytics

- Track wishlist early
 - Monitor ratings continuously
-

Business Value

This project helps companies to:

- Predict successful games
 - Optimize marketing spend
 - Reduce failure risk
 - Improve product design
 - Increase revenue
-

Project Deliverables

- ✓ Cleaned Datasets
- ✓ SQL Database
- ✓ Power BI Dashboard
- ✓ Python Scripts

✓ Project Documentation

✓ Screenshots

1 4 Final Conclusion

This project successfully integrates:

- Python for cleaning
- MySQL for storage
- Power BI for visualization

It provides **actionable insights** into:

- ✓ Customer behaviour
- ✓ Platform performance
- ✓ Genre profitability
- ✓ Market trends

This analysis supports **data-driven decision making** in the gaming industry.

