Power BI Project Documentation – Video Game Sales Data Analysis

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1. Project Introduction

The project aims to analyze video game sales data across different regions worldwide to identify market trends, the most popular genres and publishers, and regional preferences. The goal is to create an interactive report that facilitates business decision-making and enhances the understanding of market dynamics.

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2. Data Sources

The data was imported from a CSV file containing information about video game sales. Key columns include:

- **Name:** The name of the game.
- **Platform:** The platform (e.g., PS4, Xbox One, PC).
- **Year:** Year of release.
- **Genre:** The game's genre.
- **Publisher:** The game's publisher.
- **Regional_Sales:** Sales figures across different regions (USA, Europe, Japan).

Global_Sales was calculated as the sum of regional sales to ensure data consistency. The script for downloading the data is available on GitHub. The script was written in Python using the BeautifulSoup library. This dataset contains a list of video games that sold more than 100,000 copies. The data was collected through web scraping from the website vgchartz.com. The dataset includes 16,598 records, with two records removed due to incomplete information.

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3. Data Model

The data model consists of one fact table and one dimension table:

- **Fact Table:** Video game sales data.
- **Dimension Table:** Regions, created for regional analysis.
- **Relationships:** Key relationships connect game data with the regions dimension.

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4. Analysis Process

Data Preparation:

- Imported data from the CSV file into Power BI.
- In Power Query, the following steps were performed:

- Removed unnecessary columns.
- Missing values were marked as 1700, displayed as "No Value."

DAX Calculations:

- Measures created include:
  - Total Sales: `SUM(Sales[Global_Sales])`
  - Regional Sales: `SUM(Sales[Regional_Sales])`
- Functions like SWITCH and IF were utilized for dynamic measures.

Visualizations:

- Interactive charts and slicers were created for various dimensions (e.g., region, platform, publisher).

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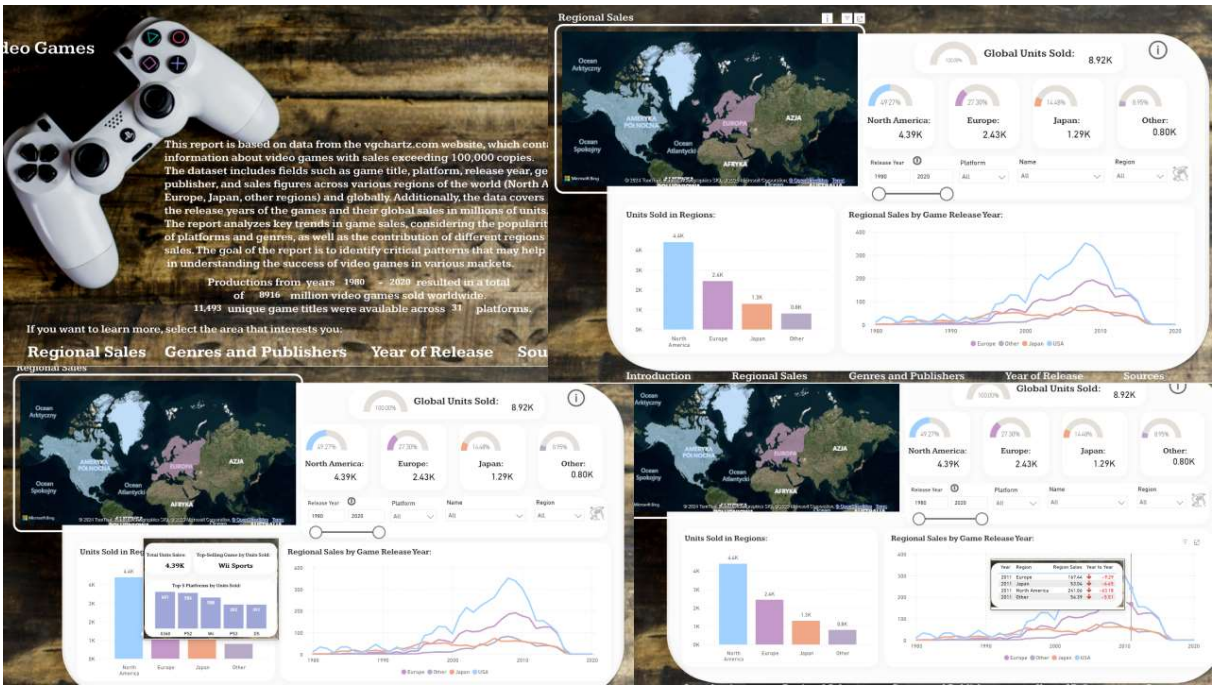
5. Visualizations

The report consists of several pages, each focusing on a different aspect of the analysis:

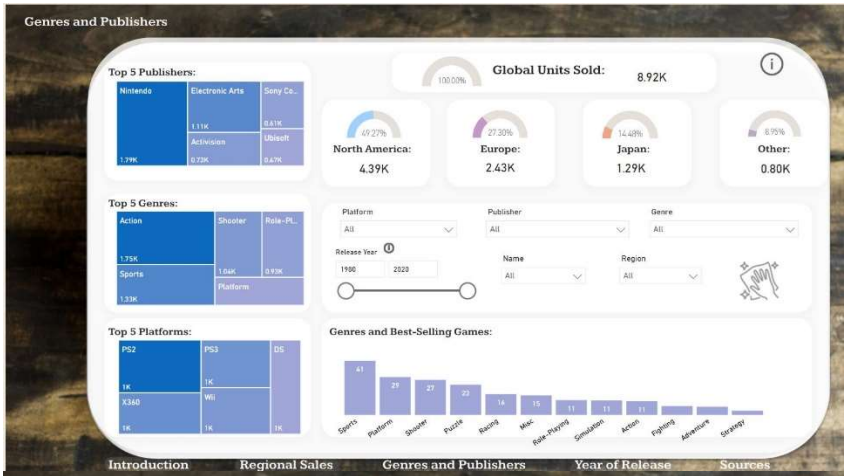
1. **Global Sales:**

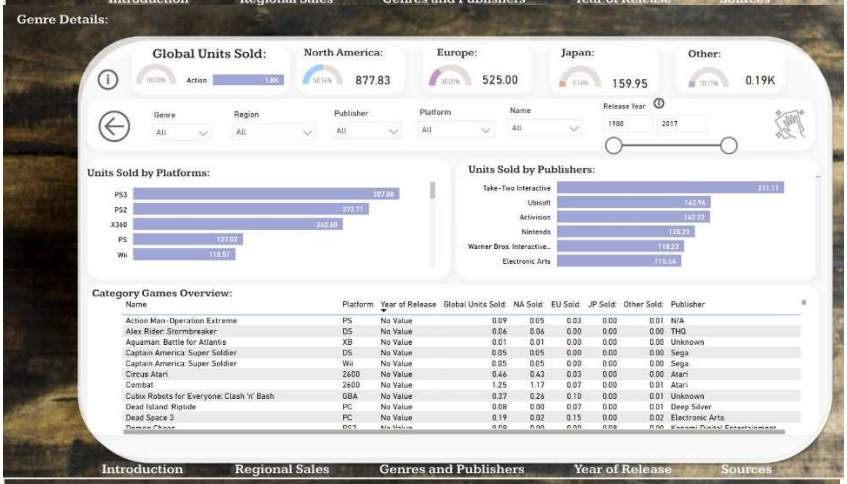


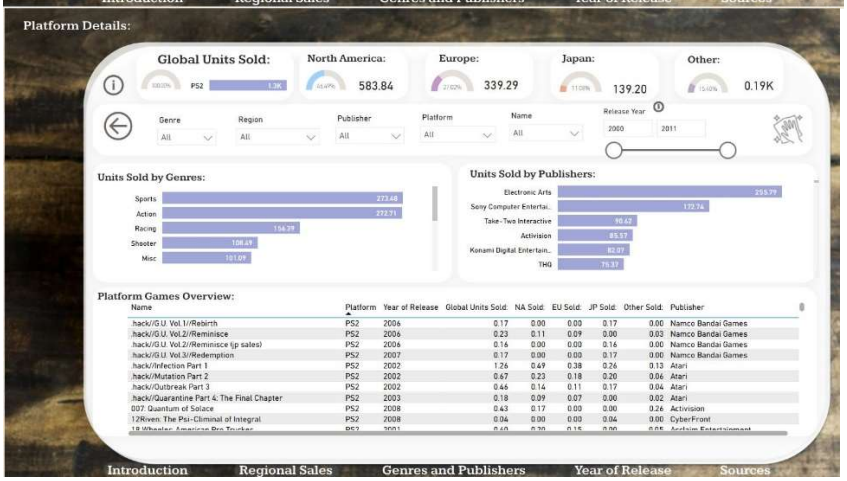
   - Bar charts showcasing top sales by region, top publishers, and most profitable games.
   - Line charts showing yearly publication trends and total sales per region, including year-over-year comparisons.
   - Info cards on regional sales contributions.

- Slicers for filtering by regions, platforms, game names, and time.

2. Genre and Publisher Popularity:



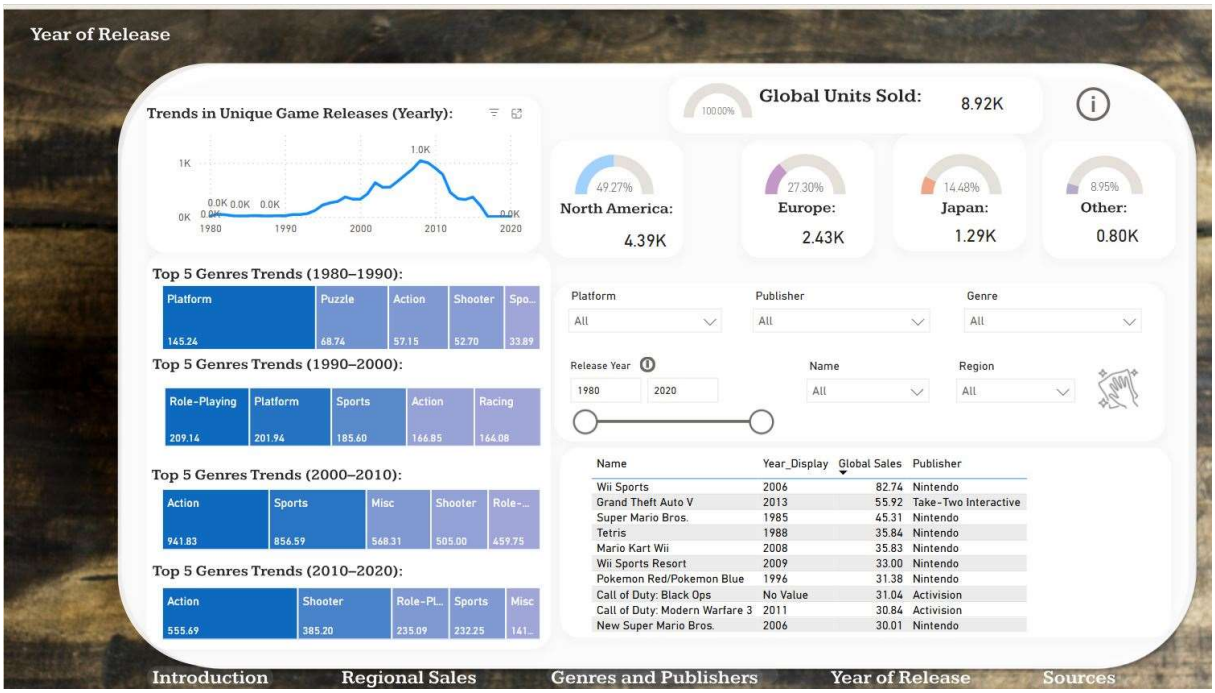




- Treemaps showing the top 5 genres, publishers, and platforms.
- Drill-through functionality to view a complete list of games within a genre, including publisher and platform popularity.

- Info cards on regional sales contributions.
- Slicers for filtering by regions, platforms, game names, and time.

3. Game Release Year Analysis:



- Treemaps showing changes in genre preferences over the years (1990/2000/2010/2020).
- A list of the top 10 most popular games.
- Slicers for filtering by regions, platforms, game names, and time.

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6. Insights

- **Genre Popularity (1990–2000):** Action, Sports, and Role-Playing genres dominated this period, generating the highest sales and showing their strong market presence.
- **Number of Unique Games Over Time:** The highest number of new games was released in [peak year, e.g., 2000], reflecting a dynamic market at that time. The growth in game releases, particularly in the late 1990s, can be attributed to technological advancements and an increasing number of platforms.
- **Regional Preferences:**
  - **Japan:** Role-Playing games dominate, highlighting a strong interest in narrative-driven titles.
  - **North America:** Action and Sports games are most popular, reflecting a preference for dynamic gameplay.

    - **Europe:** Genres like Action and Racing gained significant popularity, indicating diverse preferences.
- **Impact of Older Games:** Games released before 2000, such as *Super Mario Bros.* and *Pokémon Red/Blue*, still play a significant role in global sales, showing the enduring value of classics.
- **Market Fragmentation After 2000:** After 2000, the market became more fragmented, with an increase in the number of games and more evenly distributed sales among genres, suggesting higher competition and diverse player preferences.
- **Evolving Genre Preferences:** The 1990s were dominated by simpler genres like platformers and sports, while later years saw increased popularity of complex genres like Shooters and Role-Playing games, reflecting evolving player expectations.

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7. Scope and Limitations

- The data covers only selected years and may not fully represent the video game market.
- Missing values in the "Year" column could impact the accuracy of trend analysis.
- Analysis results rely on the correctness of the imported data.

Attachments:

- Example DAX Measures.
- Power BI Project File (.pbix): *gamesProject.pbix*.
- Data File (.csv): *vgsales.csv*.

Przykładowe funkcje w Dax:

Global Sales:

```
Global Sales = COALESCE(SUM('vgsales'[Sales]),0)
```

Ranking by Sales:

```
Rank by Sales = RANKX(All(vgsales[Name]),
    [Global Sales],
    ,DESC,Dense
)
```

Ranking by Platform Sales:

```
Rank by Platform = RANKX(All(vgsales[Platform]),
    [Global Sales],
    ,DESC,Dense
)
```

Top 5 Platforms:

```
Top 5 Platform =
IF(
    [Rank by Platform] <= 5,
    SUM(vgsales[Sales]),
    BLANK()
)
```

Top-Selling Game:

```
Top Selling Game =
    Var maxResale =  MAXX(
        'vgsales',
        vgsales[Sales]
    )
    RETURN
    CONCATENATEX(
    FILTER(
        ALLSELECTED('vgsales'),
        'vgsales'[Sales] = maxResale
    ),
    'vgsales'[Name],
    ", "
)


```