**Task 2 Report**

Report: Video Game Sales Dataset Analysis

**Introduction**

The report presents an analysis of a video game sales dataset, aiming to uncover valuable insights, trends, and patterns in the gaming industry. The dataset contains information about games' performance across different platforms, genres, and regions, providing a rich source of information for developers and stakeholders.

**Data Overview**

* The dataset comprises information about games, including their titles, release years, genres, and publishers, Top-Selling Games
* Regional sales data for North America, Europe, Japan, and the rest of the world are provided.
* Additional features include review scores, platform information, and the global sales figure.

We start by identifying the top-selling games globally:

1. ***We sorted the dataset by global sales in descending order.***

* Findings: The top-selling games are listed, and the top 10 hits are displayed, including their titles and global sales figures.
* Regional Sales Trends
* We examine regional sales trends to understand regional preferences

1. ***Method: We sum the regional sales for North America, Europe, Japan, and the rest of the world.***

* Findings: We present an overview of regional sales trends, which highlights which regions are contributing the most to global sales.
* Publisher Performance
* This section evaluates the performance of game publishers

1. ***Method: We group the data by publisher and calculate the sum of sales in each region.***

* Findings: We provide insights into how different publishers are performing in terms of global sales.
* Yearly Sales Trends
* Analyzing how global sales have evolved over time is crucial for understanding the industry's growth

1. ***Method: We group the data by year and calculate the sum of global sales for each year.***

* Findings: Yearly sales trends are visualized, highlighting periods of growth or decline in the gaming industry.
* Correlation Analysis
* We investigate the correlation between critic scores and global sales

1. ***Method: We calculate the correlation coefficient between critic scores and global sales.***

* Findings: The correlation between critic scores and global sales is reported, helping to understand the impact of game reviews on sales.
* Market Share Analysis
* We assess the market share of each region to understand their relative importance

1. ***Method: We calculate the market share of each region based on their contribution to global sales.***

* Findings: The market share of each region is reported, providing insights into the global distribution of sales.

**Data Visualization**

The report includes a set of visualizations to aid in understanding the data and the trends:

**Global Sales Distribution**: A histogram and kernel density estimate show the distribution of global sales.

**Genre-wise Sales**: Bar plots illustrate global sales by game genre.

**Platform-wise Sales**: Bar plots display global sales by gaming platform.

**Yearly Trends**: A line plot reveals the evolution of global game sales over the years.

**Correlation Heatmap**: A heatmap visualizes correlations between features in the dataset.

**Sentiment Analysis:**We perform sentiment analysis on user reviews to gauge the sentiment surrounding the games

1. Method: We use the VADER sentiment analysis tool to evaluate the sentiment of user reviews.

* Findings: We categorize the user reviews as positive, negative, or neutral based on sentiment scores.
* Time Series Analysis
* A time series analysis is conducted to visualize global game sales over time

1. Method: We create a line plot showing the evolution of global game sales over the years.

* Findings: The time series plot provides insights into the industry's performance over time.

**Conclusion:**

The analysis reveals crucial insights into the video game industry, including the most successful games, regional preferences, publisher performance, and the influence of critic scores on sales.

The visualizations and sentiment analysis provide a comprehensive overview of the dataset, enabling developers and stakeholders to make data-driven decisions in the gaming market.