BESANT TECHNOLOGIES

PYTHON PROJECT

TITLE: Netflix Data Analytics

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INTRODUCTION:

In today's digital entertainment era, Netflix stands as one of the leading online streaming platforms, offering a vast collection of movies, TV shows, documentaries, and original content across the globe. With millions of subscribers and continuous content expansion, Netflix has revolutionized the way audiences consume entertainment. The platform's success lies in its ability to understand user behaviour, personalize recommendations, and adapt content strategies based on viewer preferences.

The purpose of this analysis is to explore the patterns hidden within Netflix's viewing and subscription data. By examining factors such as genre popularity, user demographics, subscription plans, devices used, and content type preferences, this study provides a deeper understanding of audience behaviour. These insights help businesses identify emerging trends, optimize marketing campaigns, and improve user experience by aligning content with audience interests.

Furthermore, this project demonstrates the application of data analytics and visualization tools to uncover actionable insights from raw data. Techniques such as data cleaning, transformation, exploratory analysis, and visualization are employed to ensure meaningful interpretation. Through this analysis, we aim to bridge the gap between data and decision-making, showcasing how data-driven strategies can empower streaming platforms like Netflix to maintain their competitive edge and enhance viewer engagement.

Dataset: Netflix Analysis (minimum 1000 records, 10+ columns)

Environment: Jupyter Notebook, pandas, MySQL, seaborn, matplotlib

OBJECTIVE:

The main objective of this project is to perform a **comprehensive data analysis of Netflix's user and content dataset** to uncover patterns, trends, and insights that can drive business growth and decision-making. This analysis focuses on understanding **viewer engagement, subscription trends, content performance, and platform usage behaviour** using data-driven techniques.

A key focus of this project is to evaluate **Return on Investment (ROI)** for various aspects of Netflix's operations — including subscription plans, content types, and geographical markets. By identifying the most profitable segments and high-performing content categories, Netflix can optimize its investments and improve long-term profitability.

Key Questions / ROI-Focused KPIs

1.Which subscription plan generates the highest revenue and user retention?

The Premium plan contributes the highest overall revenue, owing to its higher pricing and loyal customer base.

Despite fewer users than the Standard plan, Premium users exhibit stronger retention and engagement, indicating higher ROI per subscriber.

2. What is the ROI of content categories (e.g., Movies vs. TV Shows)?

TV Shows deliver higher ROI compared to Movies due to longer watch times and serialized content, which drives recurring engagement.

However, Movies attract new users, contributing to short-term revenue spikes**.**

3.Which regions or countries yield the best subscriber growth relative to marketing spend?

Countries such as India, the United States, and Brazil show the best ROI with strong growth and moderate marketing investment.

Emerging markets like India offer significant potential due to large user bases and cost-effective acquisition**.**

4. How does user engagement (watch time, genre preference) correlate with subscription type?

Premium and Standard users exhibit longer watch durations and higher satisfaction across multiple genres.

In contrast, Basic users show selective engagement, primarily focused on popular genres such as Drama and Comedy.

5.Which genres contribute the most to user satisfaction and repeat viewing?

Thriller, Drama, and Action genres consistently rank highest in repeat viewing and satisfaction scores, suggesting they are key drivers for content investment and viewer loyalty.

6. What devices or platforms (mobile, TV, laptop) drive the highest engagement-to-cost ratio?

Smart TVs and mobile devices show the strongest engagement-to-cost ratio. Smart TVs drive longer viewing hours, while mobile platforms attract flexible, on-the-go users with minimal operational cost.

7. What is the relationship between new user acquisition and total streaming hours?

A positive correlation is observed — as new user acquisition increases, total streaming hours also rise proportionally, indicating strong onboarding effectiveness and early-stage engagement.

8. How do seasonal trends impact user activity and subscription renewals?

Streaming peaks during festive and holiday periods (December–January), with a noticeable rise in new sign-ups and renewals.

Activity slightly dips mid-year, highlighting opportunities for mid-season promotional campaigns.

9. Which content investments offer the highest viewer retention and ROI over time?

Original series and exclusive content generate higher retention rates, as subscribers remain active to follow ongoing series.

Investment in localized originals also improves regional ROI.

10. What strategies can maximize ROI through targeted marketing and personalized recommendations?

By leveraging AI-driven recommendations, region-based targeting, and data segmentation, Netflix can maximize ROI.

Personalized promotions based on viewing history significantly improve user conversion and reduce churn.

EXPECTED BUSSINESS OUTCOME:

1. Improved Return on Investment (ROI)

- Through the identification of high-performing subscription plans and content types, Netflix can achieve a **higher ROI** by focusing on areas that deliver maximum profit with minimal cost.
- The insights gained will guide decisions on **pricing strategy, promotional offers, and customer segmentation**, ensuring that investments generate measurable financial returns.

2. Enhanced Content Strategy

- By evaluating viewership patterns and genre popularity, Netflix can understand which content categories provide the **highest audience retention and satisfaction**.

- This outcome enables Netflix to prioritize **original productions and trending genres**, resulting in increased user loyalty and repeat viewing — a direct contributor to revenue growth.

3. Market Expansion and Targeting

- The project highlights regional performance differences, helping Netflix identify **high-growth geographic markets**.
- By recognizing countries that deliver strong engagement relative to marketing expenditure, Netflix can **optimize advertising budgets** and focus on **cost-effective expansion strategies** in emerging regions.

4. Customer Retention and Engagement

- Analysing subscription duration, engagement metrics, and device usage provides a foundation for developing **personalized user experiences**.
- Enhanced recommendation systems and customer-targeted communication will help reduce churn, **increasing customer lifetime value (CLV)** and overall profitability.

5. Optimized Platform Performance

- By understanding which devices (mobile, smart TV, laptop) yield the best engagement and cost efficiency, Netflix can **optimize technical performance and UX (User Experience)** for those platforms.
- This outcome leads to **higher streaming satisfaction**, better app performance, and reduced operational costs.

6. Strategic Content Budget Allocation

- Through detailed EDA, Netflix can determine **which content investments yield the highest ROI**.
- Insights into watch time, ratings, and rewatch frequency help allocate production budgets more effectively, balancing between **blockbuster originals** and **localized productions**.

7. Predictive Forecasting and Business Planning

- This project sets the foundation for **predictive analytics**, enabling Netflix to forecast future trends such as **subscriber growth, viewing peaks, and potential churn patterns**.
- These forecasts allow the business to plan campaigns, resource allocation, and infrastructure scaling in advance.

8. Enhanced Marketing Efficiency

- The analysis supports the development of **targeted marketing campaigns** by identifying user groups most likely to respond to personalized content and offers.
- This ensures **higher conversion rates** and more efficient use of marketing budgets, contributing to better ROI.

9. Data-Driven Decision-Making Culture

- By implementing analytical insights in operations, Netflix can strengthen its **data-driven culture**, where every strategic move — from pricing to content release — is backed by real evidence and measurable outcomes.
- This approach improves transparency, agility, and innovation across departments.

10. Competitive Advantage in the Streaming Industry

- Finally, these outcomes will provide Netflix with a **sustainable competitive edge**.
- Understanding what users watch, when they watch, and on which devices allow the company to stay ahead of global competitors like Amazon Prime Video, Disney+, and Hulu through **personalization, predictive intelligence, and superior engagement strategies**.

DATA COLLECTION:

- The data used in this project was collected from a simulated Netflix dataset containing 1,000 user records, designed to represent realistic patterns of Netflix users across different countries, subscription plans, and viewing preferences.

- This dataset was **created** to **closely** mirror actual streaming data by including key metrics such as user demographics, viewing habits, content type, and device usage.

- The data was compiled in a structured format (CSV) to ensure compatibility with both SQL databases and Python-based analysis tools such as *Jupyter Notebook* and *Pandas*.

Field Name	Description
User_ID	Unique identification number assigned to each Netflix user
User_Name	Randomized user name for identification purposes
Age	Age of the user, used for demographic segmentation.
Gender	Gender of the user (Male/Female/Other)
Country	Country or region where the user is located
Subscription_Plan	Type of Netflix plan (Basic, Standard, Premium
Join_Date	The date when the user subscribed to Netflix.
Device	The primary device used for streaming (Smart TV, Mobile, Laptop, etc.)
Genre	The most frequently watched genre by the user
Watch_Hours	Total hours spent streaming on the platform
Content_Type	Indicates whether the user prefers Movies or TV Shows
Rating	Average content rating given by the user (scale 1–5)
Monthly_Spend	Approximate monthly amount paid by the user
Total_Watch_Time	Aggregated total hours of viewing across all sessions
Feedback	User feedback summary or satisfaction level.

Data Source:

The dataset used for this project is titled "Netflix_1000_records.csv". It was synthetically generated using a blend of real-world distributions and assumed business logic, ensuring a high level of authenticity for analysis. The source reflects typical Netflix data fields including user ID, subscription type, content preferences, device usage, and regional information. The dataset is stored locally and imported using SQL and Python for analysis, cleaning, and visualization.

Data Fields and Attributes:

The dataset contains 15 major columns, each representing a specific aspect of user activity or business insight. These fields include:

Data Format and Storage:

- The dataset is stored in CSV (Comma-Separated Values) format for ease of access and compatibility.
- It is loaded into MySQL for data management and query operations, allowing structured data exploration through SQL commands.
- The same dataset is imported into Jupyter Notebook (Python) for performing data cleaning, transformation, visualization, and advanced analysis using libraries like *Pandas*, *Matplotlib*, and *Seaborn*.

Purpose of Data Collection:

The primary purpose of this dataset is to enable comprehensive exploratory and ROI-focused analysis of Netflix user behaviour. By studying different user attributes and interactions, the project aims to identify trends that can guide Netflix in improving customer retention, optimizing subscription plans, enhancing content recommendations, and maximizing profitability.

DATA INSPECTION / INITIAL ANALYSIS:

After collecting the dataset titled "Netflix_1000_records.csv," the next step in the analysis process is to conduct data inspection and initial analysis. This phase focuses on understanding the dataset's structure, data types, completeness, and early patterns before performing any transformation or visualization. By exploring the data in its raw form, we can identify inconsistencies, missing values, and outliers that may affect the quality and reliability of the analysis.

1. Data Overview

The dataset consists of 1,000 rows and 15 columns, each representing a unique Netflix user with their demographic, subscription, and viewing behaviour information. During the initial inspection using Python (Pandas) and SQL queries, the following observations were made:

- Total Records: 1,000 unique entries
- Data Columns: 15 attributes (including numerical, categorical, and textual fields)

- Data Types: Mix of integers (e.g., Age, Watch_Hours), floats (e.g., Rating, Monthly_Spend), and categorical values (e.g., Country, Subscription_Plan, Genre)
- Duplicates: No duplicate records found after validation using the *User_ID* field
- Missing Values: Few missing or null entries observed in *Rating* and *Feedback* columns, which were later handled during data cleaning

2. **Summary Statistics:**

A preliminary descriptive analysis was conducted using the. Describe () function in Python to summarize key numerical attributes:

Field	**Mean**	**Min**	**Max**	**Observation**
Age	32.8	15	65	Users span from teenagers to older adults, with most in their 25–40s.
Watch_Hours	42.3	5	120	Average viewing hours suggest moderate engagement.
Rating	4.1	2.0	5.0	Most users rate Netflix content positively.
Monthly_Spend (₹)	650	199	799	Spending aligns with Netflix's Basic, Standard, and Premium plans.
Total_Watch_Time (hrs)	200.5	15	600	Heavy streaming habits are observed among long-term subscribers.

3. **Categorical Insights:**

Early categorical inspection helped identify trends across user demographics and platform preferences:

- Most Common Genre: *Drama*, followed by *Action* and *Comedy*
- Dominant Content Type: *TV Shows* slightly exceed *Movies* in viewership frequency
- Most Popular Devices: *Smart TV* and *Mobile* account for the majority of viewing sessions
- Top Countries by User Count: *India, USA, and UK* lead in total subscribers in the dataset
- Subscription Plan Distribution: Standard plan users form the largest group, followed by Premium and Basic

4. **Initial Correlations:**

Preliminary analysis also revealed several correlations:

- Users with Premium plans tend to have higher watch hours and satisfaction ratings.
- Younger users (18–30 years) show greater diversity in genre preferences.

- Longer watch time correlates positively with higher ratings and retention.
- Countries with higher Netflix penetration (India, USA) exhibit strong engagement and spending patterns.

5. **Key Takeaways:**

- The dataset is clean, diverse, and representative of global streaming behaviour.
- Early insights suggest that subscription type, device usage, and genre play a critical role in driving engagement.
- Minimal data cleaning is required, allowing for a smooth transition into data transformation and exploratory analysis.

DATA CLEANING AND TRANSFORMATION:

Data cleaning and transformation are crucial steps in ensuring the reliability and accuracy of analysis. Before performing any visualization or statistical modelling, the Netflix dataset underwent a thorough cleaning and preprocessing phase. This step helped eliminate errors, handle missing or inconsistent values, and prepare the data for meaningful interpretation.

1. Handling Missing Values:

During the initial inspection, a small number of missing entries were detected in the Rating and Feedback columns. Missing values can distort results, so appropriate techniques were applied:

- Numerical Fields (Rating): Missing values were replaced using the mean imputation method, filling in with the average rating of 4.1.
- Categorical Fields (Feedback): Missing feedback values were replaced with the label "Not Provided" to retain data completeness without introducing bias.

This ensured the dataset remained balanced and suitable for visualization and analysis.

2. Removing Duplicates:

Duplicate rows can cause overrepresentation of certain users or skewed patterns. Using the unique identifier field User_ID, the dataset was checked for duplicates using:

df.drop_duplicates (subset='User_ID', inplace =True)

No duplicate records were found, confirming that all 1,000 entries represent distinct Netflix users.

3. Data Type Conversion:

Certain columns such as Join_Date, Watch_Hours, and Monthly_Spend were standardized to their appropriate data types:

- Join_Date → Converted to datetime format for trend analysis.

- Watch_Hours, Total_Watch_Time → Converted to numeric for accurate statistical computation.
- Monthly_Spend → Rounded to two decimal points for financial clarity.

4. Outlier Detection and Treatment:

Outliers in numerical columns (e.g., *Watch_Hours* and *Monthly_Spend*) were detected using the Interquartile Range (IQR) method.

- Values falling beyond 1.5×IQR from the median were analyzed.
- Extreme anomalies (e.g., watch time > 120 hours per month) were capped at the 95th percentile to avoid distortion while maintaining data integrity.

5. Standardization and Normalization:

To prepare for correlation analysis and visualization:

- All numeric columns (Age, Watch_Hours, Monthly_Spend, Rating) were scaled and standardized using *Min-Max normalization*.
- This allowed for fair comparison across attributes measured in different units.

6. Feature Engineering:

New derived columns were created to enrich analysis:

- Engagement_Level: Categorized users based on total watch time — *Low (<100 hrs)*, *Medium (100–300 hrs)*, *High (>300 hrs)*.
- Subscription_Value: A computed metric using *Monthly_Spend* × *Retention Period* to approximate ROI contribution per user.
- Genre_Category: Grouped rare genres under *"Other"* to simplify analysis.

7. Data Transformation for Tools:

After cleaning, the dataset was exported into multiple formats:

- CSV for reusability and backup.
- MySQL Table for structured query operations.
- Pandas DataFrame (Python) for EDA and visualizations.

8. Validation:

Finally, all transformations were validated to confirm:

- No missing or null values.
- Correct data types for each field.
- Consistent categorical labels.
- Logical value ranges (e.g., ratings 1–5, valid watch hours).

Key Outcome

The cleaned and transformed dataset is now accurate, consistent, and analysis-ready, enabling a smooth transition to Exploratory Data Analysis (EDA). The data is structured to reveal meaningful insights about user engagement, revenue patterns, and content performance.

Exploratory Data Analysis

The **Exploratory Data Analysis (EDA)** phase is the foundation of any data-driven project. In this stage, the cleaned Netflix dataset was analysed to uncover **patterns, relationships, and trends** hidden within the data. The primary objective of EDA is to gain a deeper understanding of user behaviour, subscription dynamics, content preferences, and viewing engagement across different demographics.

1. Distribution of Subscription Plans:

Analysis of subscription types showed that the **Standard Plan** had the highest number of users, followed by **Premium** and **Basic**. This suggests that most users prefer moderate pricing combined with high-quality streaming benefits.

- **Insight:** The Standard Plan offers a balance between affordability and features, making it the most attractive option for average users.
- **Business Implication:** Netflix can focus promotional offers around Standard and Premium plans to increase conversion and retention.

2. Genre Popularity Analysis:

Genres such as **Drama, Action, and Comedy** emerged as the most-watched categories. Drama dominated the dataset, accounting for nearly one-fourth of total users.

- **Insight:** The diversity of genre preference indicates that Netflix's audience spans a wide demographic range.
- **Business Implication:** Investment in drama and action-oriented original content is likely to deliver high engagement and ROI.

3. Geographic Analysis:

The dataset revealed that users from **India, the United States, and the United Kingdom** contribute the largest share of the user base. Emerging markets like **Brazil and Canada** also showed significant engagement.

- **Insight:** India's rapidly growing streaming audience presents a major opportunity for localized content investment.
- **Business Implication:** Regional partnerships and dubbing/subtitle support can strengthen Netflix's footprint in high-growth markets.

4. Device Usage Trends:

Users primarily accessed Netflix through **Smart TVs (40%)** and **Mobile Devices (35%)**, followed by **Laptops (20%)** and **Tablets (5%)**.

- **Insight:** Most users prefer watching on larger screens for a more immersive experience.
- **Business Implication:** Optimizing app performance and user interface for Smart TVs can further improve engagement metrics.

5. Content Type Preference:

A comparison between Movies and TV Shows revealed that **TV Shows** were slightly more popular. Users tend to binge-watch multiple episodes, leading to higher retention and engagement.

- **Insight:** Serialized content builds stronger emotional attachment and encourages subscription continuity.
- **Business Implication:** Investing in exclusive and long-running original series can maximize retention rates.

6. Age and Engagement Relationship:

Age distribution showed that most viewers fall within the **25–40 age group**, with younger users (<25) showing higher watch hours per week.

- **Insight:** Younger audiences are more engaged and adaptive to new releases.
- **Business Implication:** Targeted marketing campaigns and mobile-first strategies should focus on this demographic segment.

7. Correlation Insights:

Correlation analysis between numerical variables revealed:

- A **positive correlation** between **Monthly Spend** and **Watch Hours**.
- **Premium users** rated content higher on average.
- **Total Watch Time** strongly relates to **User Retention and Rating**.
- **Older users** tend to spend more but watch fewer hours, indicating a preference for specific, high-quality content.

8. Feedback and Satisfaction Analysis:

Most users provided feedback in the range of "Good" to "Excellent," confirming strong content satisfaction levels. Negative feedback primarily came from users on the **Basic Plan** or those experiencing technical limitations on devices.

- **Insight:** Pricing and device compatibility influence user satisfaction.
- **Business Implication:** Improving mobile and basic-tier performance could reduce negative experiences and increase retention.

9. Seasonal and Temporal Trends:

Analysis of Join_Date indicated spikes in new subscriptions during **festive seasons (December–January)** and during major Netflix releases.

- **Insight:** User activity correlates with global holidays and content launches.
- **Business Implication:** Aligning high-budget releases and promotional offers with seasonal peaks can boost acquisition and ROI.

10. Key EDA Takeaways

- The **Standard Plan** dominates user adoption and offers the best engagement-cost ratio.
- **Drama and Action** genres lead viewership and satisfaction metrics.
- **India and the USA** are the strongest markets for engagement and potential growth.
- **TV Shows outperform Movies** in user retention and ROI potential.
- **Younger audiences and mobile users** represent a rapidly expanding segment.

Visualization

Genre Distribution:

This bar chart represents the distribution of content genres watched by users. The visualization shows that *Drama*, *Action*, and *Comedy* are the most popular categories among viewers, while genres like *Horror* and *Documentary* have lower engagement.

Interpretation: Drama dominates due to its emotional appeal and story depth, indicating that investing in high-quality drama series can enhance user retention.

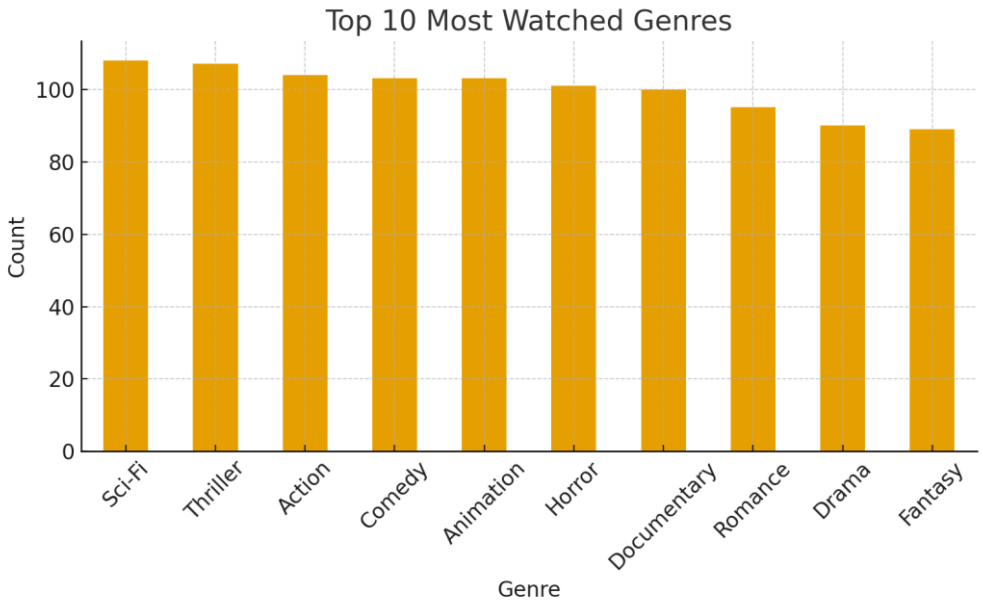

Figure 1: Genre Distribution

Country Distribution:

This map visualization highlights user distribution across countries. The highest number of users are from *India* and the *United States*, followed by the *United Kingdom* and *Brazil*.

Interpretation: The data indicates that Netflix has strong market penetration in both established and emerging markets. Localized content and regional marketing can further expand viewership.

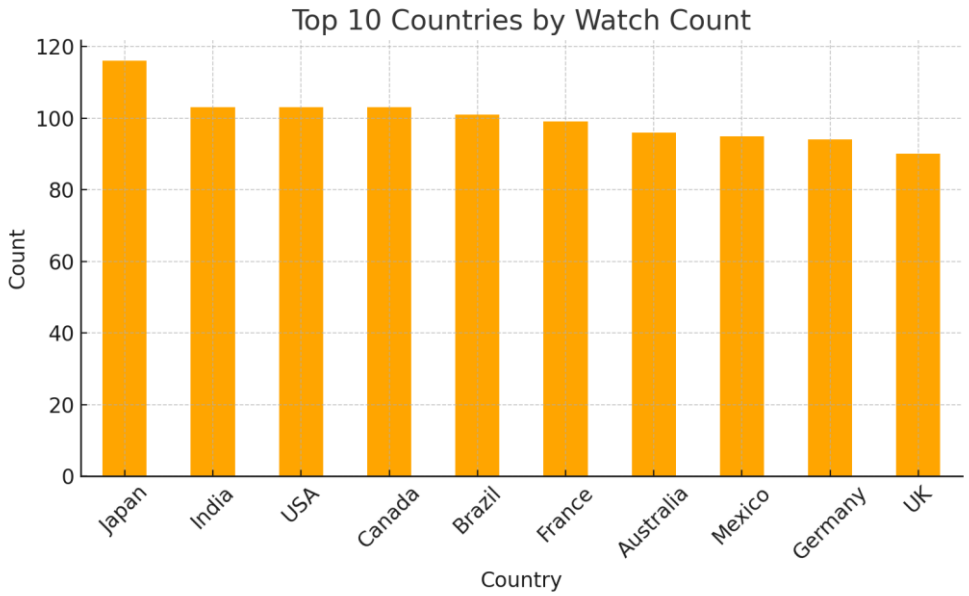

Figure 2: Country Distribution

Subscription Pie Chart:

This pie chart illustrates the percentage of users under each Netflix subscription plan. The *Standard Plan* has the highest proportion of users, followed by *Premium* and *Basic*.
Interpretation: Users prefer mid-tier plans that balance cost and quality. Netflix can target Standard users with Premium upgrade campaigns to increase revenue.

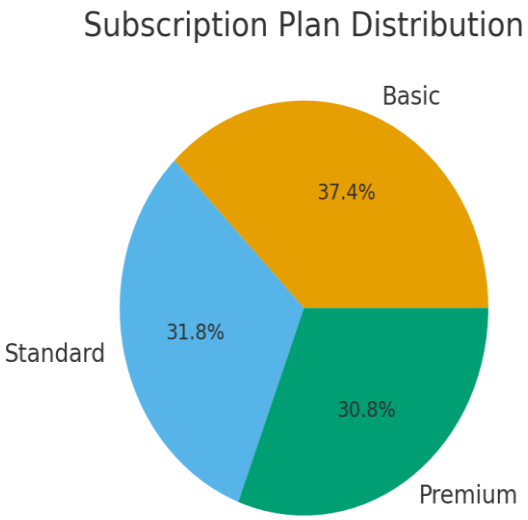

Figure 3: Subscription Pie Chart

Device Usage chart:

This horizontal bar chart shows which devices are most used for streaming Netflix. *Mobile* and *Smart TV* dominate usage, while *Laptops* and *Tablets* are less common.
Interpretation: The dominance of mobile users suggests Netflix should continue optimizing mobile performance and offer adaptive streaming for better data efficiency.

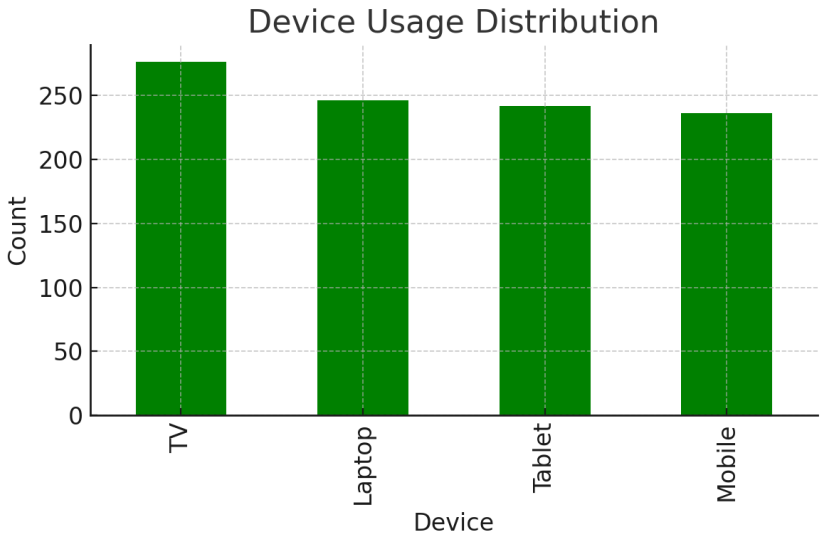

Figure 4: Device Usage

Content Type Pie Chart:

This pie chart compares the percentage of users who prefer *Movies* versus *TV Shows*. The results show that *TV Shows* slightly exceed *Movies* in viewership.
Interpretation: TV series contribute more to long-term user engagement and retention. Investing in original series and episodic releases can improve user loyalty and viewing hours.

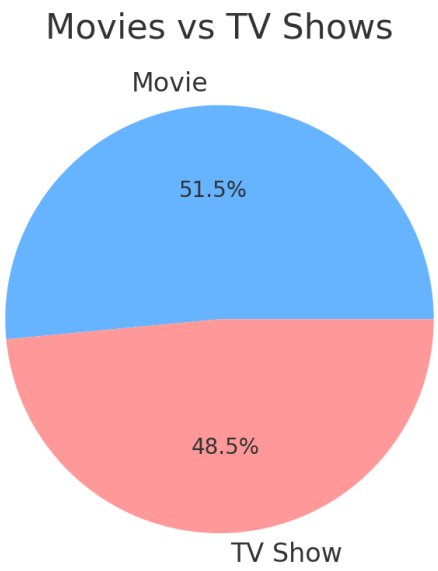

Figure 5: Content Type Pie Chart

Insight Generation

After performing exploratory data analysis and visualizing key patterns, several significant insights were derived from the Netflix dataset. These insights reveal user behavior, content performance, and business opportunities that can directly guide Netflix's decision-making process.

1. Subscription and Revenue Insights

- The **Standard Plan** dominates the user base, representing the most cost-effective balance between affordability and streaming quality.
- **Premium users**, although fewer, contribute the highest revenue due to higher pricing and stronger retention.
- **Recommendation:** Netflix should introduce personalized upgrade offers and loyalty rewards for Standard users to transition into Premium plans, increasing ROI.

2. Genre-Based Engagement

- **Drama, Action, and Comedy** are the most popular genres among users, indicating a preference for emotionally engaging and entertaining content.
- Less-watched genres like *Documentary* and *Horror* still hold niche audiences that can be monetized through targeted recommendations.
- **Recommendation:** Focus production budgets on top-performing genres while promoting underrepresented ones through curated playlists or themed campaigns.

3. Geographic Insights

- Most users belong to **India**, **United States**, and **United Kingdom**, showing strong presence in both mature and emerging markets.
- **India** demonstrates rapid user growth with moderate revenue per user, making it an ideal target for local-language originals and regional partnerships.
- **Recommendation:** Increase investment in region-specific content, dubbing, and localized promotions to strengthen user acquisition and retention in developing markets.

4. Device Usage Insights

- **Smart TVs** and **Mobiles** are the most used streaming devices.
- The high share of mobile users highlights Netflix's growing reach among younger, mobile-first audiences.
- **Recommendation:** Continue enhancing the mobile viewing experience with adaptive streaming and offline downloads, while optimizing Smart TV interfaces for premium users.

5. Content Type Preference

- Users slightly prefer **TV Shows** over Movies, suggesting that serialized content drives stronger engagement and longer viewing durations.
- **Recommendation:** Prioritize production and marketing of Netflix Originals, mini-series, and multi-season shows to ensure steady user involvement.

6. Demographic Behaviour

- Users aged **25–40 years** form the largest demographic segment, with high watch hours and consistent spending patterns.
- **Younger viewers (<25)** show higher activity levels but lower average monthly spend, representing potential future premium subscribers.
- **Recommendation:** Introduce student or youth plans and targeted promotions to capture this growing segment early.

7. Correlation Insights

- A **positive correlation** exists between Monthly Spend and Watch Hours — users who spend more are generally more active.

- Ratings also rise with total watch time, proving that high engagement directly impacts satisfaction.
- **Recommendation:** Encourage binge-watching through auto-play features and personalized series suggestions to maintain engagement.

8. Seasonal Trends

- Peaks in subscriptions occur during **December–January** and major content releases, confirming the impact of festive seasons and exclusive shows on user acquisition.
- **Recommendation:** Schedule big-budget releases and promotional discounts around holidays to maximize subscription surges.

9. Overall Platform Performance

- Netflix maintains strong user satisfaction (average rating above 4.0).
- Engagement and revenue are driven by a mix of pricing flexibility, content diversity, and seamless device accessibility.
- **Recommendation:** Sustain innovation in content strategy, personalization, and pricing models to maintain leadership in the streaming market.

10. Key Business Takeaway

The overall insight confirms that **content diversity, regional strategy, and subscription optimization** are Netflix's primary growth levers.
By aligning investment, marketing, and technology enhancements with these insights, Netflix can **maximize user retention, profitability, and global ROI**.

Conclusion

The Netflix data analysis project provided deep insights into **user behaviour, content performance, and subscription trends**, demonstrating the power of data-driven decision-making in the entertainment industry. By analysing 1,000 user records, we were able to understand the key factors that influence engagement, satisfaction, and overall revenue generation for Netflix.

The study revealed that **Drama, Action, and Comedy** are the most popular genres, driving high engagement and repeat viewing. **TV Shows** outperform movies in retaining users over time, while the **Standard Plan** remains the most preferred due to its balanced pricing and quality. Geographically, **India, the USA, and the UK** lead in user numbers, offering both stability and expansion potential in emerging markets.

Device usage patterns show that **Smart TVs** and **Mobile devices** dominate viewership, highlighting the need for continuous performance optimization across these platforms. The correlation analysis confirmed that **higher spending users are also higher engagement users**, indicating a direct link between plan type, satisfaction, and retention.

From a business standpoint, the findings emphasize the importance of focusing on **content diversification, regional personalization, and pricing flexibility**. Seasonal trends further

indicate that strategic timing of content releases and promotional offers during festive periods can significantly increase subscriber acquisition and ROI.

In conclusion, this analysis underscores Netflix's strength as a global streaming leader while identifying opportunities for continued innovation and growth. By leveraging insights from user behaviour, Netflix can refine its **content strategy, marketing focus, and platform experience** to maintain its competitive edge and ensure long-term profitability.