Big Data Case Study - NETFLIX

By

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1. Introduction

1.1 NETFLIX

Netflix is a streaming service that gives customers access to a wide selection of movies and TV series. Netflix uses big data to inform its business decisions in order to maintain the interest and attention of its viewers. Netflix has been so successful that it has become the model for how modern media companies should operate. So, how did it become the undisputed streaming champion? It all boils down to how Netflix employs big data analytics from its users. Its total number of subscribers accounted for **230.8 million** globally at the end of 2022.

1.2 BIG DATA

It analyzes enormous amounts of organized, semi-structured, and unstructured data to extract insight meaning from which one pattern can be developed that will be helpful to take a choice for seizing the new business opportunity, improving the product or service, and ultimately company success. Big data and other large amounts of data utilized in business make sense using data science.
The following describes the data science workflow:

- Goals and the problem of corporate determination - The criteria taken into account include the organization's goal, the level it wishes to reach, and the problem it is now facing. Whatever kind of data are relevant are taken into account based on these parameters.
- Data collection from relevant sources: Data from relevant sources are gathered.

- Cleaning and filtering collected data – non-relevant data are removed. (*The Big Data World: Big, bigger and biggest* 2018)

1.3 Roles of Big data in Netflix:

Content suggestions: To make tailored recommendations for each user, Netflix's algorithm examines user information such as watching preferences, ratings, and searches. While producing recommendations, the system takes into account elements like genre preferences, language, and even the time of day.

Netflix uses big data to determine the kinds of episodes and movies that its customers are most interested in watching. To decide what new shows and films to make, it gathers and analyzes data on viewer behaviors, tastes, and responses to various forms of material.

Netflix chooses select television programs and motion pictures to purchase from other studios or production organizations using big data. It analyzes viewing data to gauge a title's prospective appeal and assesses the cost of acquiring the rights.

Netflix employs big data for quality control to make sure that their streaming service runs without a hitch. To identify and address problems that might cause buffering or other streaming issues, it continuously analyzes data on user behavior and system performance.

Big data is, in general, a crucial part of Netflix's business strategy. By using data to inform its choices, Netflix can improve the user experience, draw in and keep users, and eventually expand its customer base.

2. Project:

2.1 Optimizing Content Recommendations on Netflix

Objective: The objective of this project is to optimize content recommendations on Netflix to improve customer engagement and retention. Specifically, the

project aims to develop better algorithms for recommending TV shows and movies to users based on their viewing history, ratings, and other data points.

Data Collection: Netflix collects vast amounts of user data, including viewing history, ratings, searches, and user feedback. The company also collects data on the content available on its platform, including information on the genre, cast, director, and other metadata.

Data Analytics: The project team uses big data technologies such as Apache Hadoop, Apache Spark, and machine learning algorithms to analyze the data collected by Netflix. They use advanced analytics techniques such as natural language processing, sentiment analysis, and collaborative filtering to identify patterns and trends in user behavior and preferences. (Flynn, 2020)

Reports: The project team generates reports to communicate their findings and recommendations to the management team. The reports include data visualizations such as charts, graphs, and heat maps to help the management team understand the patterns and trends in user behavior and preferences.

Results and Impact: The project has resulted in significant improvements in the accuracy and effectiveness of Netflix's content recommendation algorithms. By using big data analytics to better understand its users and their preferences, Netflix has been able to increase customer engagement and retention. The company's recommendation algorithms now drive a significant portion of its user engagement and help to differentiate it from other streaming services. The project has also helped to establish Netflix as a leader in using big data to drive business decisions in the entertainment industry.

2.2 Impact of big data on Netflix:

A high-budget series like House of Cards being approved without a pilot would often appear risky. Netflix still put its faith in its big data, and it worked. One of their most popular shows helped establish them as a reputable news provider rather than primarily a streaming service. (Flynn, 2020)

On top of what you watch, Netflix looks at how you watch it. The system also notices things like:

- How much of a series or movie have you watch
- How often and where do you pause

- Where you watch things
- When you watch things
- Your searching and scrolling behavior
- If and how often do you rewatch content

3. Lessons Learned:

Netflix is a well-known company that has leveraged big data to revolutionize the entertainment industry. Here are some of the lessons we can learn from Netflix's use case:

Personalization is key: Netflix uses big data to personalize the user experience. It analyzes the viewing history and other data to recommend movies and TV shows that the user is likely to enjoy. This has made the service more engaging and has led to increased user satisfaction.

Data quality is important: Netflix relies heavily on data to make decisions, so the accuracy and completeness of the data are critical. Netflix has developed sophisticated data processing and cleaning tools to ensure the quality of the data.

Experimentation is crucial: Netflix is constantly experimenting with new features and algorithms to improve its recommendation engine and other services. This experimentation is possible because of the company's data-driven approach.

Collaboration between data scientists and business teams is essential: Netflix has a close collaboration between its data scientists and business teams. This collaboration helps ensure that the data scientists are working on problems that are aligned with the business goals and that the business teams can use the data to make informed decisions.

Privacy and security must be a priority: Netflix collects a lot of personal data from its users, so privacy and security are top priorities. Netflix uses encryption and other security measures to protect user data and is transparent about its data collection practices.

Big data requires specialized skills: To leverage big data effectively, companies need data scientists, engineers, and other specialized roles. Netflix has a dedicated team of data scientists and engineers who work on big data projects.

In summary, Netflix's use of big data has shown us that personalization, data quality, experimentation, collaboration, privacy and security, and specialized skills are all critical for success in the big data era.

REFERENCE LINKS:

Flynn, S. (2020, December 29). *How netflix uses big data to rule the streaming world*. ReHack. from https://rehack.com/featured/how-netflix-uses-big-data-to-rule-the-streaming-world/

GeeksforGeeks. (2018, February 6). *The Big Data World: Big, bigger and biggest*. Geeksfor, from https://www.geeksforgeeks.org/the-big-data-world-big-bigger-and-biggest/?ref=lbp%2F/