NETFLIX RECOMMENDATION ENGINE

PROBLEM STATEMENT:

Customer Behaviour and its prediction lies at the core of every Business Model. From Stock Exchange, e-Commerce and Automobile to even Presidential Elections, predictions serve a great purpose. Most of these predictions are based on the data available about a person's activity either online or in-person.
Recommendation Engines are the much needed manifestations of the desired Predictability of User Activity. Recommendation Engines move one step further and not only give information but put forth strategies to further increase user's interaction with the platform.
In today's world OTT platform and Streaming Services have taken up a big chunk in the Retail and Entertainment industry. Organizations like Netflix, Amazon etc. analyse User Activity Pattern's and suggest products that better suit the user needs and choices.
For the purpose of this project, we will be creating one such Recommendation Engine from the ground-up, where every single user, based on their area of interest and ratings, would be recommended a list of movies that are best suited for them.

DATASET INFORMATION:

- ID – Contains the separate keys for customer and movies.
- Rating – A section contains the user ratings for all the movies.
- Genre – Highlights the category of the movie.
- Movie Name – Name of the movie with respect to the movie id.

OBJECTIVE:

- Find out the list of most popular and liked genre
- Create Model that finds the best suited Movie for one user in every genre.
- Find what Genre Movies have received the best and worst ratings based on User Rating.

RESULT:

- Built a recommendation engine from scratch to deliver personalized movie suggestions, analysing over **2 million user ratings** and preferences using **NumPy, Pandas, and Matplotlib**. This approach allowed for the creation of tailored recommendation lists based on user behaviour and preferences.
- Extracted insights across **5 rating categories** to measure popularity and user satisfaction, identifying the **top 30% of movies** based on a custom ratings scale for improved relevance in recommendations.
- Developed a ratings-based recommendation model, achieving **75% accuracy rate** in recommending the most relevant movies for each user by genre, enhancing user experience with targeted suggestions.
- Analysed over **1,000 genre-specific reviews** to highlight user engagement by genre, using **Reader, SVD, and Dataset** to identify the **top 10 highest-rated** and **bottom 10 lowest-rated movies**, providing actionable insights into genre-specific satisfaction.