**Knowledge Streams**

**Movie Recommendation System Using Machine Learning**

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1. **Problem Statement**

With many movies available today, users often need help finding films that match their preferences. There is a need for an efficient recommender system that can suggest films based on users' tastes and content similarity.

1. **Stack/Technology/Framework/Hardware/Models/Tools**

**Programming Language:** Python

**Libraries/Frameworks:** Pandas, Scikit-Learn, Flask, Streamlit

**Machine Learning Model:** Content-Based Filtering

**Database**: SQLite

**Deployment Platform:** Heroku

**Development Tools:** Jupyter Notebook, Visual Studio Code

1. **Proposed Solution**

We propose developing a content-based movie recommender system that utilizes metadata like movie descriptions, genres, and cast to find similar movies. The system will utilize user ratings and movie metadata to generate personalized recommendations. The recommender system will be deployed on Heroku for easy access and scalability, featuring a simple web interface for users to input a movie and receive personalized recommendations.

1. **Methodology**

Data Collection

Pre-processing

Feature Extraction

Model Development

Similarity Computation

API Integration

Web Interface Development

Deployment on Heroku

1. **Real - life applications**

**Streaming Services**: Enhancing user experience by providing tailored movie recommendations.

**Online Retail**: Recommending movies as part of a broader recommendation engine for multimedia products.

**Entertainment Websites**: Offering personalized movie suggestions to increase user engagement.

**Educational Platforms**: Suggesting educational movies and documentaries based on user interests.

**Marketing**: Analyzing user preferences to recommend movies that align with targeted marketing campaigns.