



AI-Powered Movie Recommendation System

PROJECT SYNOPSIS ON

Create a machine learning model to predict the sentiment of movie reviews and recommend films to users based on their preferences.

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AI-powered recommendation system for a music streaming platform

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Table of Contents

Introduction	4
Literature Survey	6
Methodology/ Planning of work	6
Facilities required for proposed work	7

Introduction

Choosing a movie that suits one's tastes might be difficult in a time when there are a lot of entertainment options available. This problem is solved by the Sentiment Prediction and Movie Recommendation System, which provides consumers with an extensive and intelligent platform for traversing the wide world of movies. This system attempts to transform the movie-watching experience by utilizing natural language processing and machine learning to provide two crucial features: sentiment analysis of movie reviews and customized movie suggestions. By carefully combining sophisticated algorithms with data-driven insights, the system aims to provide consumers the power to make wise choices and choose movies that precisely suit their interests.

A smart and effective movie recommendation system is more important than ever in a time when streaming services provide an unimaginably wide selection of options. The Sentiment Prediction and Movie Recommendation System uses advanced algorithms to comprehend personal preferences and viewing behaviors in addition to analyzing the sentiment of movie reviews to predict audience reactions. Through the smooth integration of personalized suggestions and sentiment analysis, this system aims to improve the movie-watching experience by creating a stronger bond between audiences and the films they watch. This initiative, which is at the vanguard of innovation, has the potential to completely transform how we discover and experience cinematic art as technology continues to influence the way we consume entertainment.

Literature survey

- Sentimental Analysis of Movie Reviews Using Machine Learning
Harsh Sharma¹ , Satyajit Pangaonkar¹ , Reena Gunjan² and Prakash Rokade³
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- Maas, A. L., Daly, R. E., Pham, P. T., Huang, D., Ng, A. Y., & Potts, C. (2011). Learning Word Vectors for Sentiment Analysis. Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies.
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Methodology/ Planning of work

Define the project's goals and parameters, as well as the particular features and functions of the Sentiment Prediction and Movie Recommendation System. To make sure that their expectations and requirements are met, identify the important stakeholders and get their feedback.

User Needs Analysis: To ascertain the requirements, inclinations, and problems encountered by possible users, carry out usability tests, user interviews, and surveys. Determine typical use cases and user situations to direct the creation of features and functionalities that successfully meet user needs.

technological Requirements Analysis: Evaluate the project's technological requirements and limitations, taking into account factors like scalability, computational capacity, and data availability. Ascertain which frameworks, technologies, and instruments are most appropriate for putting the recommendation system and sentiment analysis components into practice.

Feasibility Study: Determine whether the Sentiment Prediction and Movie Recommendation System can be implemented within the allocated spending limit and time frame. Take into account elements like the availability of data, the difficulty of the method, and the technical know-how needed to complete the project successfully.

Risk assessment: Determine possible risks and difficulties that might occur in the course of development, such as problems with data quality, restrictions on the performance of the model, or complicated integration. Create plans for contingency and mitigation to address and reduce the effect of hazards that have been identified.

Project Planning and Scheduling: Draft a thorough project plan that outlines the duties, deadlines, and deliverables necessary for every stage of



the project's development. Set a reasonable deadline and distribute resources wisely to guarantee the project is finished on time.

Establishing clear channels of communication and cooperation between team members, external partners, and project stakeholders is important. To keep track of project milestones, resolve problems, and guarantee conformity with project objectives, schedule frequent progress meetings and status reports.

Documentation and Reporting: Keep records of the results of the planning and analysis stage, such as risk management plans, user needs assessments, project scope documents, and technical requirements specifications. To inform pertinent stakeholders and project sponsors on the project plan, goals, and tactics, provide thorough reports and presentations.

Facilities required for proposed work

Software prerequisites:

Languages Used in Programming:

Python: A popular language for data processing and machine learning applications.

SQL: For database management and querying to retrieve information about user interactions. Shell scripting: For resource management and task automation.

Libraries and Development Frameworks:

Sentiment Analysis:

The Natural Language Toolkit, or NLTK: NLTK is a Python natural language processing library that offers features for sentiment analysis, tokenization, stemming, lemmatization, and part-of-speech tagging.

scikit-learn: A Python machine learning toolkit, scikit-learn provides a range of classification tools and algorithms, such as ensemble approaches for sentiment analysis, Support Vector Machines (SVM), and Naive Bayes.

TensorFlow / Keras: More sophisticated sentiment analysis models, like Convolutional Neural Networks (CNNs) or Recurrent Neural Networks (RNNs), can be implemented using deep learning frameworks like TensorFlow or Keras.

Recommended Film:

Unexpected: A Python package made expressly for creating and assessing recommender systems. Surprise offers a range of tools for processing datasets, evaluation metrics, and collaborative filtering techniques.

**Tools for Development:**

an Integrated Development Environment (IDE) for coding, debugging, and testing machine learning models, such PyCharm, Visual Studio Code, or Jupyter Notebook.

Git or alternative version control systems to facilitate team member cooperation and source code management.

For managing dependencies and guaranteeing the development environment is reproducible, use Docker or virtual environments.

Hardware prerequisites:**Computer Resources:**

High-performance CPUs or GPUs: To effectively train deep learning models. Memory (RAM): Enough memory to manage big datasets and training models. Storage: Sufficient space to hold model checkpoints, datasets, and other project files.

Creating a network:

dependable internet access to download datasets, use cloud services, and work remotely with colleagues.