Phase-1 Project Overview

Student Name: RAGURAM.R

Register Number: 511523205041

Institution: P.T.Lee ChengalvarayaNaicker College of Engineering & Technology

Department: INFORMATION TECHNOLOGY

Date of Submission: 25-04-2025

Ebpl-DS

Delivering Personalized Movie Recommendations with an AI-Driven Matchmaking System

Problem Statement:

- In today's content-rich environment, users face difficulty finding movies tailored to their tastes. Traditional recommendation systems fall short in personalization. Our project aims to deliver accurate, personalized movie recommendations using an AI-driven matchmaking system, improving user experience and satisfaction.

Objectives of the Project:

- - Build an AI-based system that delivers movie recommendations tailored to individual users.
- - Use both content and collaborative filtering techniques for accuracy.
- - Implement a matchmaking algorithm that learns from user behavior.

Scope of the Project:

- - **Features:** Recommendation engine, user profiling, real-time suggestions.
- - **Constraints:** Initial model limited to English-language movies, static dataset, web-based prototype deployment.

Data Sources:

- - **Dataset:** MovieLens & TMDb datasets.
- - **Source:** Public (Kaggle, TMDb API).
- - **Type:** Static dataset downloaded for analysis.

High-Level Methodology:

- - **Data Collection:** MovieLens (user data) & TMDb (movie metadata).
- - **Data Cleaning:** Removing duplicates, handling missing values, formatting issues.
- - **EDA:** Visualizations of genre trends, user preferences.
- - **Feature Engineering:** Creating user profiles, calculating similarity matrices.
- - **Model Building:** Content-based, collaborative, and hybrid models.
- - **Model Evaluation:** RMSE, Precision@K, Recall@K.
- - **Visualization:** Graphs, recommendations, user mapping.
- - **Deployment:** Flask-based web app.

Tools and Technologies:

- - **Programming Language:** Python
- - **Notebook/IDE:** Google Colab / Jupyter
- - **Libraries:** pandas, numpy, seaborn, matplotlib, scikit-learn, TensorFlow/Keras, Surprise
- - **Deployment Tools:** Flask, Streamlit

Team Members and Roles:

- - **RAGURAM.R:** Data collection, model building
- - **UGENDRAN.R:** UI design,
- -**PRIYADHARSHAN.A:**EDA,
- -**SANTHASEELAN.R:**testing