**Phase-1 Project Overview**

**Student Name:** SANTHASEELAN.R

**Register Number:** 511523205052

**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