# Personalized Movie Recommendation with AI-Driven Matchmaking System

## Overview

This document outlines the design and implementation of an AI-powered movie recommendation system that provides personalized movie suggestions for users using a matchmaking algorithm. The system harnesses user preferences, behavioral data, and collaborative filtering enhanced by machine learning to deliver a refined and user-centric movie discovery experience.

## Features

* Matchmaking-based recommendation engine
* User behavior analysis and profiling
* Real-time and batch-based recommendation generation
* Integration of content-based and collaborative filtering techniques
* Scalable system for handling large-scale datasets
* RESTful API support for easy integration

## Technologies Used

* Programming Language: Python
* Libraries & Frameworks: Scikit-learn, TensorFlow, PyTorch, Pandas, NumPy
* Web Framework: Flask / FastAPI
* Database: PostgreSQL / MongoDB
* Containerization & Orchestration: Docker / Kubernetes

## Project Structure

project\_root/  
├── data/ # Data samples and preprocessing scripts  
├── models/ # Model training and saved models  
├── recommender/ # Recommendation algorithms and engine  
├── api/ # API endpoints and services  
├── config/ # Configuration settings  
├── tests/ # Unit and integration test suites  
├── Dockerfile # Docker container configuration  
├── requirements.txt # Dependencies and requirements  
└── README.md # Project overview and instructions

## Installation Steps

* Clone the Repository
* git clone https://github.com/fzgiri/personalized-movie-recommendation.git
* Navigate to the Project Directory
* cd personalized-movie-recommendation
* Install Dependencies
* pip install -r requirements.txt

## Usage Guide

* Run Data Preprocessing
* python data/preprocess.py
* Train the Recommendation Model
* python models/train.py
* Start the API Server
* uvicorn api.main:app --reload
* Access Recommendations
* GET /recommend?user\_id=123

## Contribution Guidelines

Contributions are encouraged! To contribute:  
- Fork the repository  
- Create a feature branch  
- Submit a pull request with a clear description of changes

## License

This project is licensed under the MIT License.

## Contact Information

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