

Movie Recommendation System

Using Machine Learning in Python



Table of content

-  Introduction
-  Abstract
-  Team mates
-  Machine Learning
-  Recommendation system
-  Algorithm
-  Hardware & Software
-  Development tools
-  Development process
-  Glimps of our project
-  Future scope
-  Conclusion

Abstract

In this hustling world, entertainment is a necessity for each one of us to refresh our mood and energy. Entertainment regains our confidence for work and we can work more enthusiastically. For revitalizing ourselves, we can listen to our preferred music or can watch movies of our choice.

For watching favourable movies online, we can utilize movie recommendation systems, which are more reliable, since searching of preferred movies will require more and more time which one cannot afford to waste. In this paper, to improve the quality of a movie recommendation system, a Hybrid approach by combining content based filtering and collaborative filtering, using Support Vector Machine as a classifier and genetic algorithm is presented in the proposed methodology and comparative results have been shown which depicts that the proposed approach shows an improvement in the accuracy, quality and scalability of the movie recommendation system than the pure approaches in three different datasets.

Introduction

The project is all about a Recommendation Engine which in general term means predicting an output by the program itself with minimal interference of the user.

It uses different algorithms and a few input details to give proper suggestions and recommendations.

This project is "Movie Recommendation Engine" which on proper accuracy, will recommend the list of top 15 movies matching with the movie provided as input by the user that would be suitable accordingly.



Team mates



KISHOR KUMAR

Reg No: D192000379



ANANYA MUKHERJEE

Reg No: D192000364



DHRUBAJIT GOPE

Reg No: D192000374



ANKUSH PAUL

Reg no: D192000368



RIMI MONDAL

Reg No: D192000389

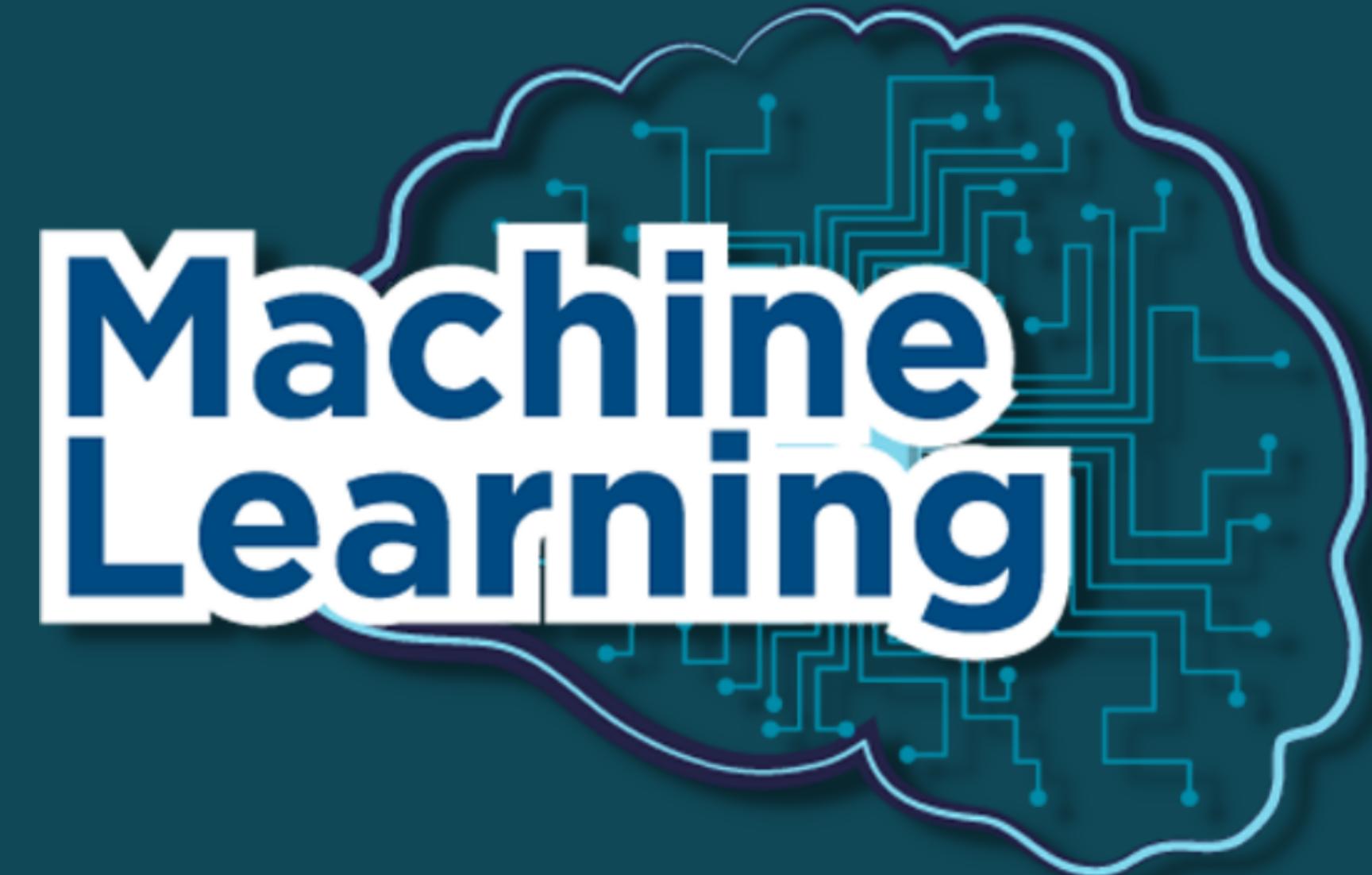


SUBHOJIT CHAKRABORTY

Reg No: D192000403

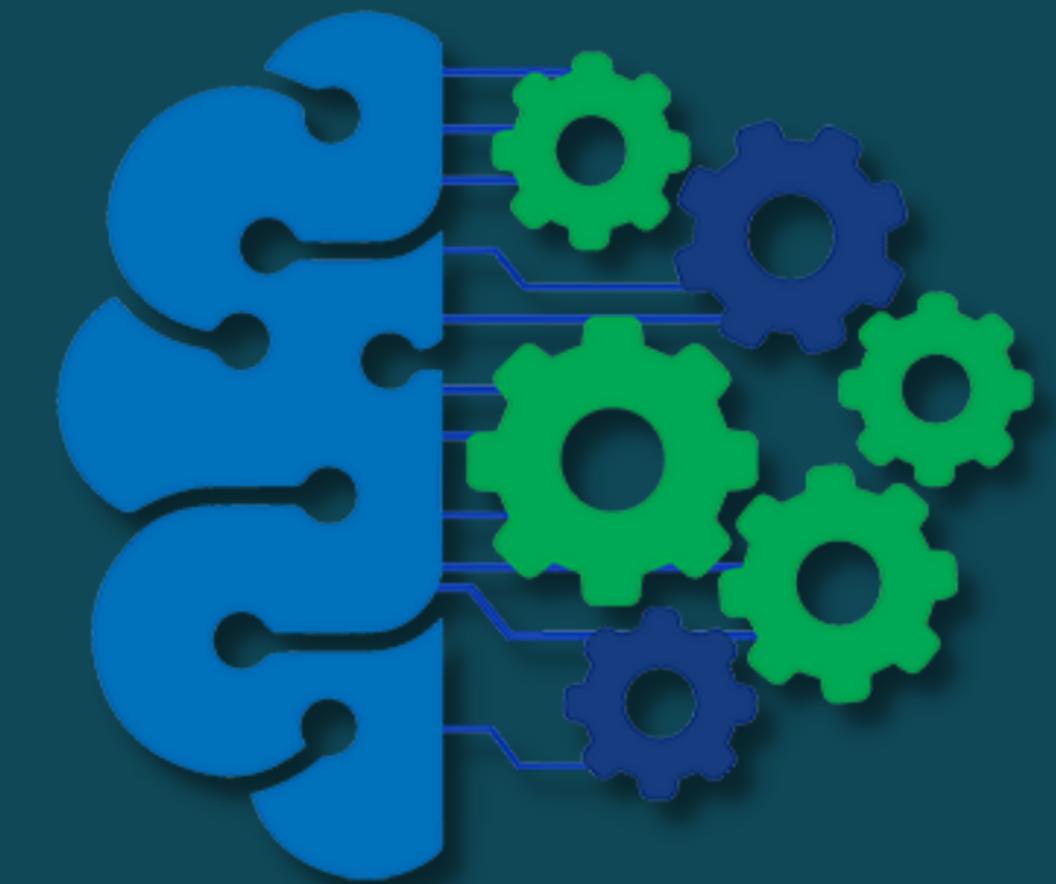
What is machine learning ?

- Machine learning (ML) is a type of artificial intelligence (AI) that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do so.
- Machine learning algorithms use historical data as input to predict new output values.
- Types of machine learning
 1. Supervised learning
 2. Unsupervised learning
 3. Semi-supervised learning
 4. Reinforcement learning



What is recommendation system ?

- Recommender systems are the systems that are designed to recommend things to the user based on many different factors.
- The recommender system deals with a large volume data and it filters out the most relevant data on the basis of input given by the users.
- Types of recommendation system
 1. Collaborative Recommender System
 2. Content based Recommender System
 3. Demographic based Recommender System
 4. Utility based Recommender System
 5. Knowledge based Recommender System
 6. Hybrid Recommender System

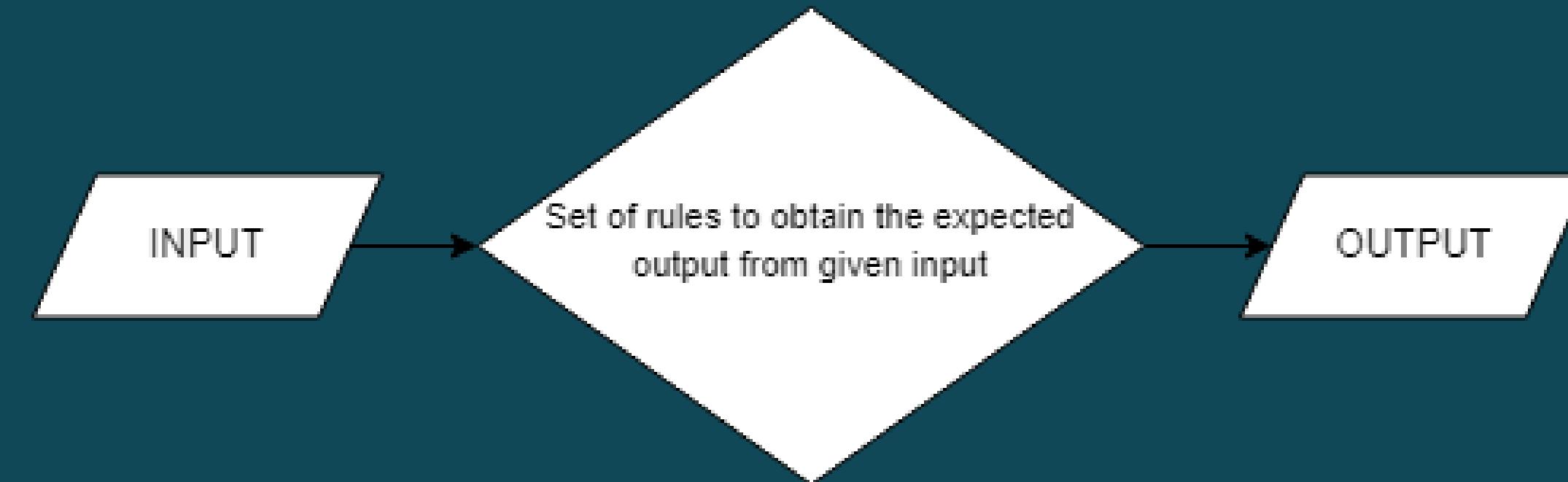


MACHINE
LEARNING

What is Algorithm ?

- An algorithm is a step-by-step procedure that defines a set of instructions that must be carried out in a specific order to produce the desired result.
- Algorithms are generally developed independently of underlying languages, which means that an algorithm can be implemented in more than one programming language.

A simple flow of algorithm



Hardware & Software Requirements

HARDWARE

- A PC with Windows/ Linux OS
- Processor with 1-7-2-4 ghz speed
- Minimum of 4 GB RAM
- 2 GB Graphics card

SOFTWARE

- Text Editor [VS Code/ Jupyter Notebook]
- Anaconda distribution package
- Python libraries

Development tools

 Language: Python

 Technology: Machine Learning [supervised]

 Algorithm: KNN

 IDE: Jupyter Notebook & VS Code

 Framework: Streamlit

 Dataset: TMDB 5000 Movies

 Recommendation: Content-based



Development tools : Contd.

Language: Python

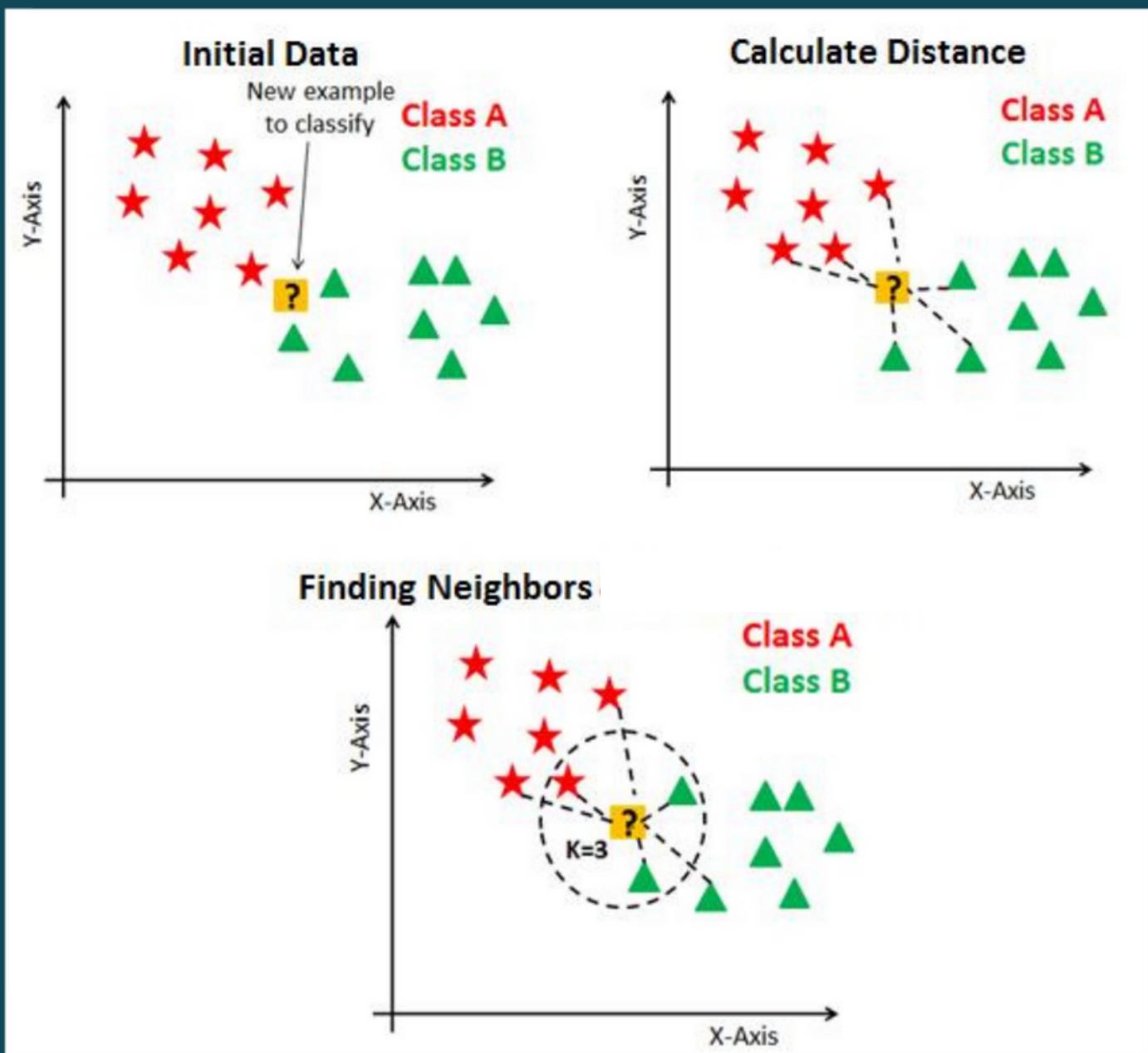
- Why we used python?
 1. Easy to code
 2. Free and open source
 3. Object oriented language
 4. GUI Programming support
 5. High-level programming language
 6. Python is portable language
 7. Interpreted language
 8. Supports both front-end and back-end development
 9. Large standard library
 10. Dynamically Typed Language



Development tools : Contd.

Algorithm: KNN

- K-Nearest Neighbour is one of the simplest Machine Learning algorithms based on Supervised Learning technique.
- K-NN algorithm assumes the similarity between the new case/data and available cases and put the new case into the category that is most similar to the available categories.
- K-NN algorithm can be used for Regression as well as for Classification but mostly it is used for the Classification problems.



Development tools : contd.



Framework: **Streamlit**

- Streamlit is an open-source Python library that makes it easy to create and share beautiful, custom web apps for machine learning and data science. In just a few minutes you can build and deploy powerful data apps.
- It is used to develop front - end of any python code to give a look of a website.
- We have also used this framework and built a website as front-end.



Development process

- We collected the **TMDB movies dataset** from kaggle.
- With the help of my team, we first cleaned out dataset into a new and fresh data frame
- For back-end development, we pre-processed out data set in **Jupyter Notebook**, and build our raw data set.
- Next, we dumped the back-end project in **pickle** files to start the front-end development.
- After completing the back-end, we used **VS Code** and web-app framework of python i.e. "**Streamlit**" to design the front-end.
- We designed the web-app, which will recommend the movie using **KNN Algorithm**.



Glimps of our project

The screenshot shows a dark-themed web application. On the left, a sidebar menu has a blue header bar with the text "MR System". Below it are five items: "Home" (highlighted with a black background), "MR System", "About us", and "Contact us". The main content area has a large title "Movie Recommendation System" in blue. Below the title is a question "What is Recommendation system ?" followed by a detailed explanation. To the right of the text is a circular icon containing a blue circuit board pattern. In the bottom right corner of the main area, there is a graphic of three interlocking gears.

Movie Recommendation System

What is Recommendation system ?

A recommendation system is a subclass of Information filtering Systems that seeks to predict the rating or the preference a user might give to an item. In simple words, it is an algorithm that suggests relevant items to users. Eg: In the case of Netflix which movie to watch, In the case of e-commerce which product to buy, or In the case of kindle which book to read, etc.

Use-Cases Of Recommendation System

There are many use-cases of it. Some are

A. Personalized Content: Helps to Improve the on-site experience by creating dynamic recommendations for different kinds of audiences (Eg: Netflix does

Glimpses of our project : contd.

MR System

Home

MR System

About us

Contact us

Select application:

Movie based

Select movie:

John Carter

Show Recommendation

Star Trek: Insurrec Mission to Mars Captain America: Th Escape from Planet Ghosts of Mars

D H U N D

Glimps of our project : contd.

X

≡

- MR System
- Home
- MR System
- About us
- Contact us

About us and our project.

I am Kishor Kumar and along with my team-mates, we have developed this project 'Movie Recommendation System'. It is a machine learning project developed in python language using a web application framework called 'Streamlit'.

We have provided all the details below:

NAME : Movie Recommendation System

TECHNOLOGY : Machine Learning

LANGUAGE USED : Python, HTML and CSS

IDE : Jupyter Notebook and VS Code

FRAMEWORK : Streamlit [Python's Web-based application development framework] & Elements of Bootstrap

TEAM MEMBERS



Glimps of our project : contd.



KISHOR KUMAR

Coding & UI Designing



DHRUBAJIT GOPE

Coding & Problem Solving



RIMI MONDAL

Documentation

Glimps of our project : contd.

The screenshot displays a website interface for a project. On the left, a sidebar menu is visible with the following items:

- MR System
- Home
- MR System
- About us** (highlighted)
- Contact us

The main content area features three team members, each with a circular profile picture and a name and role below it:

- ANANYA MUKHERJEE**
Documentation
- ANKUSH PAUL**
Analysis & Testing
- SUBAJIT CHAKRABORTY**
Analysis & Testing

Glimps of our project : contd.

The image shows a screenshot of a mobile application interface. On the left, there is a dark sidebar menu with a blue header containing the text "MR System". Below the header, the menu items are listed with icons: "Home" (house), "MR System" (person icon), "About us" (person icon), and "Contact us" (envelope icon). The "Contact us" button is highlighted with a white background and black border. The main content area has a white background and features a title "Contact Form" in blue. Below the title are three input fields with placeholder text: "Please Enter Your Name", "Please Enter Email", and "Please Enter Your Message". At the bottom of the form is a "Submit" button.

- MR System
- Home
- MR System
- About us
- Contact us

Contact Form

Please Enter Your Name

Please Enter Email

Please Enter Your Message

Submit

Futute scope

- Neural Networks and Deep Learning have been all the rage the last couple of years in many different fields, and it appears that they are also helpful for solving recommendation system problems.
- In future we can modify our project with deep learning and neural networks, which can give results with maximum accuracy.
- MNC's like facebook, Amazon, Netflix they also use machine learning recommendation systems to attract their customers to take benifit of their products.



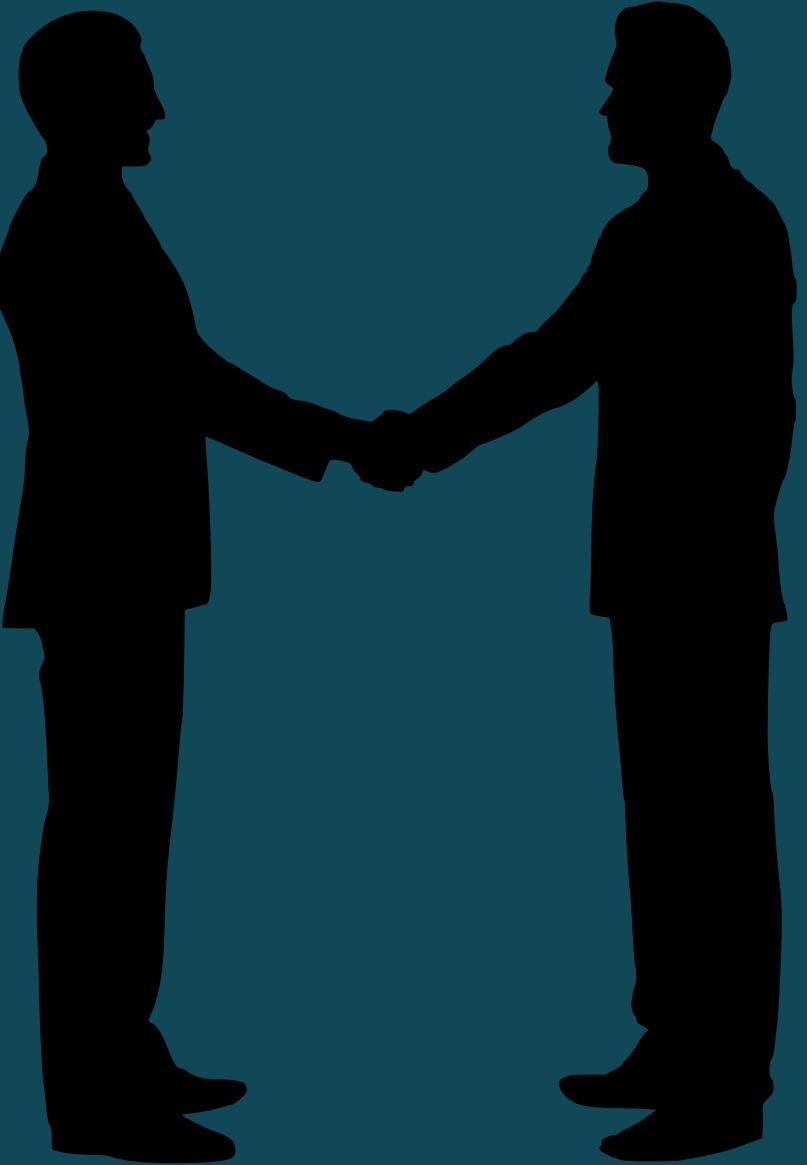
Conclusion

The project that we have created has a very good future scope because, now a days technology is leading it's path and people are dependable on machines.

So, these kind of real-time projects such as - movie recommendation, songs recommendation, car recommendation and there may be many more options.

Last but not the least, i would like to thank my team mates, our mentors , our honorable Principal, our Head of Department and the college management for having truthful faith on us.

Thank you



Thank You!

