A movie recommendation system is a machine learning project that uses algorithms to suggest movies to users based on their preferences and viewing history. The system uses data about movies, such as their genre, actors, director, and ratings, as well as information about user behaviour, such as their watch history, ratings, and reviews, to make personalized recommendations.

The main goal of a movie recommendation system is to provide users with a personalized and engaging experience, by suggesting movies that they are more likely to enjoy. This can help users discover new movies and TV shows, and increase their satisfaction with the service.

**Outline:**

Here is an outline of how you can create a movie recommendation system:

1. Collect data: Collect a dataset of movies from various sources such as IMDb, Rotten Tomatoes, or Netflix.
2. Pre-process the data: Pre-process the data by removing duplicate entries, cleaning up the data, and filling in any missing values.
3. Feature extraction: Use natural language processing (NLP) techniques to extract features from the movie descriptions and reviews. This could include things like the genre, actors, director, plot keywords, and ratings.
4. Train the model: Use a collaborative filtering algorithm like Matrix Factorization to recommend movies based on user preferences. You can also use content-based filtering or hybrid filtering methods to improve the recommendations.
5. Evaluate the model: Evaluate the model using metrics like precision, recall, and F1-score. You can also use A/B testing to measure the effectiveness of the recommendations.
6. Deploy the model: Deploy the model on a web or mobile app where users can input their preferences and receive personalized movie recommendations.

**Purpose:**

The purpose of this project is to create a movie recommendation system that provides personalized recommendations to users based on their preferences and past behaviour. This can be useful for movie streaming services like Netflix or Hulu, where users are often overwhelmed with the number of available movies and need help finding new movies to watch. By providing personalized recommendations, the movie recommendation system can improve user engagement and satisfaction, which can ultimately lead to increased revenue for the streaming service.

**Explaining our work:**

1. Initially we have imported the libraries which are required for our project.
2. We have collected the movie data and pre-processed the data according to our system.
3. Then we have only selected the important features form the dataset i.e. [‘genres’, ‘keywords’, ‘tagline’, ‘cast’, ‘director’] other features in the dataset may not be relevant for the movie recommendation system.
4. We have replaced the missing values in those five columns with null string. And combined all five features and placed those features into a single variable (All columns will be combined for each rows).
5. We converted text data to feature vectors using “TfidfVectorizer”, in this we fit and transform the text data into numeric form for comparing the similarities between the movies.
6. From those numeric values we are finding the cosine similarities (This is for recommendation of movies with same similarities.
7. Getting the user’s favourite movies form the user input.
8. We created a list that contains all the titles of the movies in the movie’s dataset. (This is done to find the close match with the user’s movie entry)
9. In order to find the close match, we use “difflib” library we used the following function to archive the close match(difflib.get\_close\_matches)
10. Then we found the index of the user’s input movie, by finding the index only we can find the similar movies which user likes to watch.
11. We calculated the similarity score with respect to the user input and other movies in the dataset . If the similarity score is less those movies are not similar to each other and if the similarity score is high those movies are similar and those movies are recommended to the user.
12. In doing the above step we created the enumerate list which loops over the list. And this enumerate will also gives how many times the list is running along with the similarity score.
13. We sorted the list based on the similarity score of the movies i.e. from high similarity score to low similarity score.
14. For loop is created to get the index value of the movie and with the index value we can get the title of the movie from the movies dataset.
15. For loop is set to run for 30 times that means we are recommending 30 movies to the user based on his favourite movies.

**Conclusion:**

A movie recommendation system can be useful to a wide range of people and businesses, including:

1. Movie streaming services: Streaming services like Netflix, Hulu, and Amazon Prime can use movie recommendation systems to provide personalized recommendations to their users. This can help increase user engagement and satisfaction, leading to increased revenue.
2. Movie theatres: Movie theatres can use movie recommendation systems to suggest movies to their customers based on their past viewing history and preferences. This can help increase ticket sales and improve the customer experience.
3. Movie critics and reviewers: Movie critics and reviewers can use movie recommendation systems to discover new movies and TV shows that they may have missed. This can help them stay up-to-date with the latest releases and provide more comprehensive reviews.
4. Movie enthusiasts: Movie enthusiasts can use movie recommendation systems to discover new movies and TV shows that they may not have heard of before. This can help them expand their movie knowledge and find hidden gems.

Overall, a movie recommendation system can be useful to anyone who wants to discover new movies and TV shows based on their personal preferences and past behavior. By providing personalized recommendations, a movie recommendation system can help users find movies that they are more likely to enjoy, improving their overall movie-watching experience.