

**PAI(**LAB**)**

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**Task 12**

This project helps you find movies that are similar to the one you search for. You can type a few words about a movie or its description, and it will recommend other movies that match your interest. It uses smart tools like AI to understand and compare the meaning of movie descriptions.

**Tools and Libraries Used**

This project uses some helpful tools (Python libraries):

* **Pandas** – Handles the movie data in table format.
* **Regular Expressions (re)** – Cleans the text by removing special characters and making everything lowercase.
* **Sentence Transformers** – A tool that converts text into numbers so computers can understand and compare them.
* **NumPy** – Helps with number-related tasks and saves data.
* **FAISS** – A fast search tool that helps find similar movies quickly by comparing their data.

**How the System Works (Step-by-Step)**

**1. Reading the Movie Data**

The movie information is stored in a file. This file is opened and read. It contains details like the movie title, description, director, critic reviews, rating, and year.

**2. Cleaning the Data**

Some parts of the data are not useful (like IDs), so they are removed. If any values are missing, they are replaced with blank spaces to avoid problems. Then, all the text is cleaned by:

* Removing special characters like commas or symbols
* Making all letters lowercase

**3. Combining Movie Details**

To make comparison easier, the system takes all important information from each movie (like title, description, reviews, etc.) and combines it into one big text block for each movie.

**4. Changing Text into Numbers**

The combined text for each movie is converted into a set of numbers. These numbers are called "embeddings." They help the computer understand what each movie is about. Each movie gets its own unique set of numbers based on its content.

These number sets are saved so the system doesn’t have to create them again every time.

**5. Creating a Searchable Database**

FAISS is used to organize the movie data in a smart way. It creates an index that helps in searching for similar movies very quickly.

This index is also saved so it can be used again without rebuilding everything from scratch.

**6. Finding Similar Movies**

When a user types a query (like a short description or idea for a movie), the system does the following:

* It turns the query into a set of numbers (just like it did for the movies).
* It searches the saved index and finds movies with similar number sets.
* It then shows the top few movies that match best.

**Why This Project Is Useful**

* It gives movie suggestions based on **meaning**, not just keywords.
* It combines many aspects of each movie (like reviews, title, and year) to make better recommendations.
* It uses smart AI tools and fast search techniques to work efficiently.

**Final**

This project is a good example of how artificial intelligence can be used in real life to help people discover movies they might like. To improve this project even more, we could:

* Add filters like genre, rating, or release year,
* Make a user-friendly website or app,
* Include user feedback or watch history for personalized recommendations.