

# Movie Recommendation System

## Latar Belakang

Banyaknya film yang beredar saat ini membuat pengguna mengalami kesulitan untuk mencari tontonan yang sesuai dengan kemauan mereka. Sistem rekomendasi yang tersedia sekarang umumnya hanya berdasarkan popularitas, genre, atau film yang pernah ditonton sebelumnya, sehingga kurang bisa memenuhi selera spesifik pengguna terhadap alur cerita atau plot yang diinginkan pengguna. Proyek ini bertujuan mengembangkan *movie recommendation system* berbasis plot dan kumpulan film-film yang sejenis untuk mengatasi masalah tersebut. Fitur unggulan sistem ini adalah kemampuan bagi pengguna untuk memilih beberapa film sebagai contoh, lalu sistem akan merekomendasikan film lain dengan alur cerita yang sangat mirip. Selain itu, pengguna juga bisa memasukkan plot yang mereka inginkan dan sistem akan menampilkan film-film yang memiliki plot yang mirip. Hal ini diharapkan dapat meningkatkan relevansi dan personalisasi rekomendasi film bagi pengguna.

## Dataset

Dataset yang digunakan untuk proyek ini diambil dari:

<https://www.kaggle.com/datasets/rounakbanik/the-movies-dataset/data>

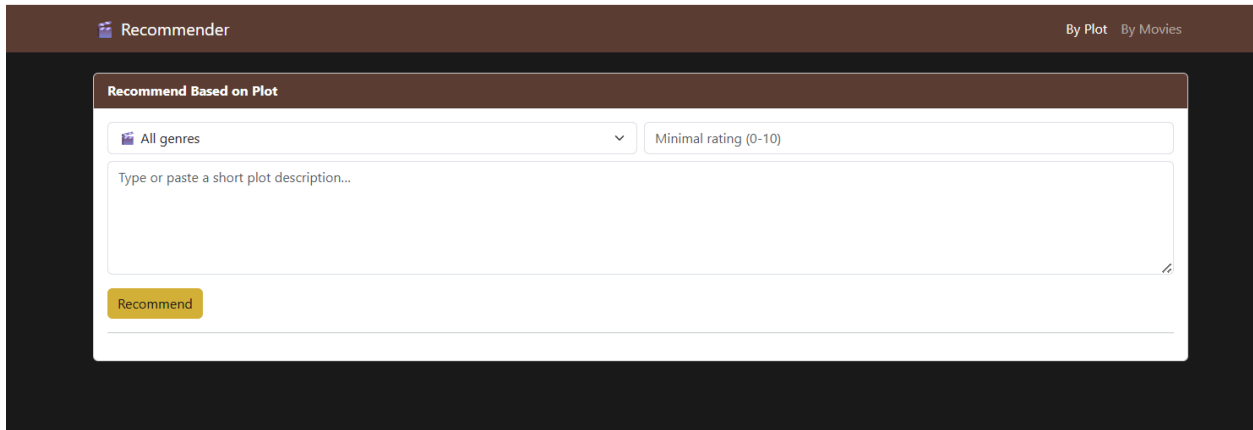
## Metode

Metode yang digunakan untuk merekomendasikan film melibatkan **HuggingFace Embeddings** dan **Qdrant Vector Database**. Pertama, deskripsi plot setiap film diubah menjadi representasi numerik (vektor embeddings) menggunakan model **intfloat/multilingual-e5-large** dari HuggingFace. Model embeddings ini ditrain menggunakan bahasa natural seperti dari Wikipedia, Multilingual CC News, dan Reddit sehingga tidak diperlukan preprocessing sebelum melakukan embedding karena memang model ini dilatih untuk melihat hubungan semantic di dalam paragraf. Vektor-vektor ini kemudian disimpan di *Qdrant*, sebuah database vektor, bersama dengan metadata film seperti judul, genre, rating, dan URL poster.

Saat mencari film, baik dengan memasukkan plot atau memberikan daftar film yang disukai, sistem akan mengubah input Anda menjadi vektor. Vektor ini kemudian digunakan untuk mencari film serupa di Qdrant berdasarkan kesamaan vektor. Hasil pencarian kemudian difilter berdasarkan kriteria tambahan seperti genre atau rating minimum, dan film-film yang paling relevan akan ditampilkan. Untuk kumpulan film dari user, sistem akan merekomendasikan film yang memiliki akumulasi *similarity score* paling tinggi.

## Demo Web

### 1. Recommender by plot page (localhost/plot)

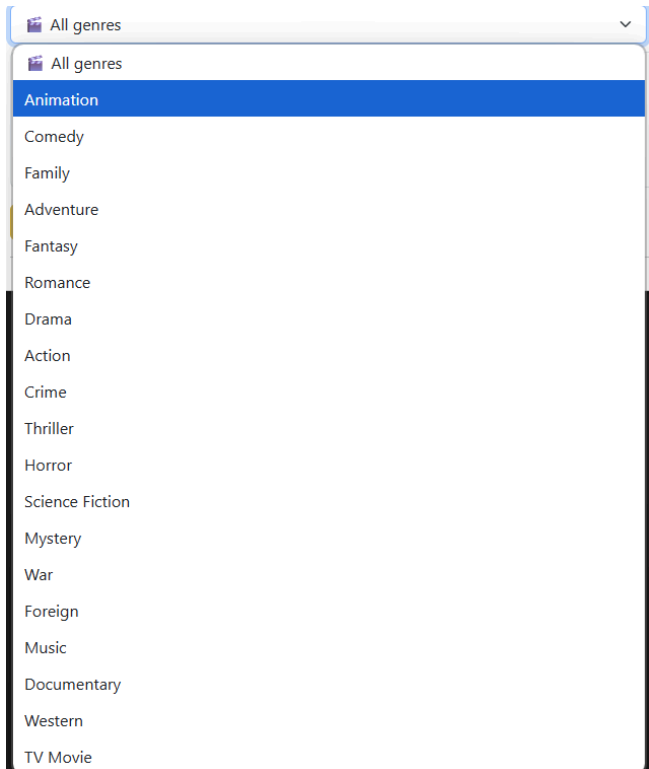


The screenshot shows a web application titled 'Recommender' with a dark brown header. On the right side of the header, there are two links: 'By Plot' and 'By Movies'. The main content area is titled 'Recommend Based on Plot'. It features a dropdown menu for 'All genres' with a downward arrow, a text input field for 'Minimal rating (0-10)', and a larger text area for 'Type or paste a short plot description...'. Below these fields is a yellow 'Recommend' button.

Page Recommender by plot merupakan page yang akan merekomendasikan film berdasarkan genre, rating (minimal), dan plot yang kita deskripsikan (wajib ada).

#### Fitur:

##### a. Memilih Genre



The screenshot shows a dropdown menu for selecting a genre. The menu is open, displaying a list of genres: All genres, Animation, Comedy, Family, Adventure, Fantasy, Romance, Drama, Action, Crime, Thriller, Horror, Science Fiction, Mystery, War, Foreign, Music, Documentary, Western, and TV Movie. The 'Animation' genre is currently selected and highlighted in blue.

##### b. Menginput rating

Minimal rating (0-10)



## C. Menginput Plot

Type or paste a short plot description...

## Contoh Demo:

### Input:

**Recommend Based on Plot**

Action

5

A local neighborhood kid suddenly receives superpowers, thanks to the bite of a radioactive spider

Recommend

Loading...

### Output:

Recommender

By Plot By Movies


**Recommend Based on Plot**

Action

5

A local neighborhood kid suddenly receives superpowers, thanks to the bite of a radioactive spider

Recommend



**Spider-Man** (6.8)  
After being bitten by a genetically altered spider, nerdy high school student Peter Parker is endowed with amazing powers.

## 2. Recommender by Movies page (localhost/movies)

Recommender By Plot By Movies

**Recommend Based on Selected Movies**

All genres Minimal rating (0-10)

Search movie ...

Selected:

Recommend

Page Recommender by movies merupakan page yang akan merekomendasikan film berdasarkan genre, rating (minimal), dan movie yang kita select untuk comparison.

Fitur: Genre dan Rating masih sama.

### A. Input Movie

Search movie ...

Please enter 2 or more characters

Minimal Input  $\geq 2$  karakter untuk judul movie

Search movie ...

The amazing spider

The Amazing Spider-Man

The Amazing Spider-Man 2

Input akan memunculkan movie yang mengandung kata-kata terdekat dengan input

**Recommend Based on Selected Movies**

All genres Minimal rating (0-10)

Search movie ...

The amazing spider

The Amazing Spider-Man

The Amazing Spider-Man 2

Selected:

The Amazing Spider-Man

Recommend

User select movie yang ingin digunakan sebagai comparison, boleh lebih dari 1.  
Demo:

Recommend Based on Selected Movies

All genres


3

Selected:

The Amazing Spider-Man


Spiderman: The Ultimate Villain Showdown

Recommend




**Spider-Man 2** 6.7

Peter Parker is going through a major identity crisis. Burned out from being Spider-Man, he decides to shelve his superhero alter ego, which leaves the city suffering in the wake of carnage left by the evil Doc Ock. In the meantime, Parker still can't act on his feelings for Mary Jane Watson, a girl he's loved since childhood.




**Spider-Man** 6.8

After being bitten by a genetically altered spider, nerdy high school student Peter Parker is endowed with amazing powers.



**Spider-Man 3** 5.9

The seemingly invincible Spider-Man goes up against an all-new crop of villain – including the shape-shifting Sandman. While Spider-Man's superpowers are altered by an alien organism, his alter ego, Peter Parker, deals with nemesis Eddie Brock and also gets caught up in a love triangle.



**The Amazing Spider-Man 2** 6.5

For Peter Parker, life is busy. Between taking out the bad guys as Spider-Man and spending time with the person he loves, Gwen Stacy, high school graduation cannot come quickly enough. Peter has not forgotten about the promise he made to Gwen's father to protect her by staying away, but that is a promise he cannot keep. Things will change for Peter when a new villain, Electro, emerges, an old friend, Harry Osborn, returns, and Peter uncovers new clues about his past.

Recommend Based on Selected Movies

All genres


3

Selected:

The Amazing Spider-Man


Captain America

Recommend




**Captain America: The First Avenger** 6.6

Predominantly set during World War II, Steve Rogers is a sickly man from Brooklyn who's transformed into super-soldier Captain America to aid in the war effort. Rogers must stop the Red Skull – Adolf Hitler's ruthless head of weaponry, and the leader of an organization that intends to use a mysterious device of untold powers for world domination.




**Spider-Man 2** 6.7

Peter Parker is going through a major identity crisis. Burned out from being Spider-Man, he decides to shelve his superhero alter ego, which leaves the city suffering in the wake of carnage left by the evil Doc Ock. In the meantime, Parker still can't act on his feelings for Mary Jane Watson, a girl he's loved since childhood.



**Spider-Man** 6.8

After being bitten by a genetically altered spider, nerdy high school student Peter Parker is endowed with amazing powers.



**Captain America: The Winter Soldier** 7.6

After the cataclysmic events in New York with The Avengers, Steve Rogers, aka Captain America is living quietly in Washington, D.C. and trying to adjust to the modern world. But when a S.H.I.E.L.D. colleague comes under attack, Steve becomes embroiled in a web of intrigue that threatens to put the world at risk. Joining forces with the Black Widow, Captain America struggles to expose the ever-widening conspiracy while fighting off professional assassins sent to silence him at every turn. When the full scope of the villainous plot is revealed, Captain America and the Black Widow enlist the help of a new ally, the Falcon. However, they soon find themselves up against an unexpected and formidable enemy—the Winter Soldier.