

LYRA

A Video Recommendation Platform

where stories align

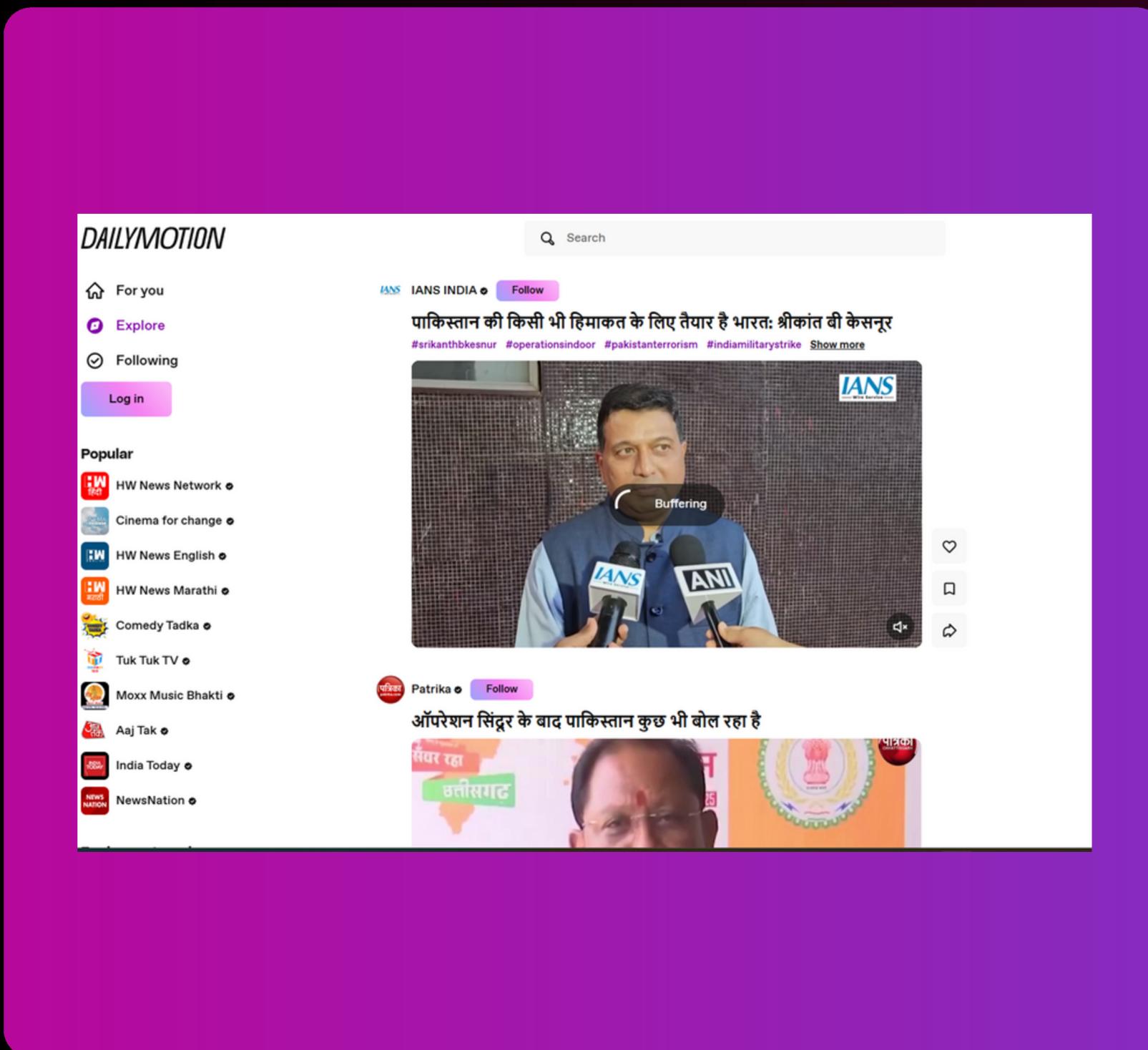
G.SHREYA MRIDULA 220701271
V.SRINIRANJAN 220701287

Problem Statement

**A Video Recommendation Platform which
recommend videos to users through personalised
recommendation.**

Idea Origin

Daily motion a french company whise recommendation system is very weak .So we decided to make a model which has stronger recommendation system that daily motion



Overview of Lyra

Lyra is a personalized video streaming platform.

Uses Neural Collaborative Filtering
for recommendations.

Backend powered by FastAPI,
frontend planned with React.

Recommendation Engines

AI algorithms analyze user data
to provide personalized
recommendations for
products, content, and
services.

Neural collaborative filtering

AI uses collaborative filtering to
analyse users data stored in
database and recommend
videos

fastApi

Fast api is used to act as a
bridge between well trained
model and frontend

TechStack

Languages: Python

Frameworks: FastAPI,
TensorFlow/Keras, Scikit-learn

Frontend: React

Tools: Git, Docker (optional), Unicorn

Storage: CSV files, Pickle for models

Datasets For training

training_data.csv –

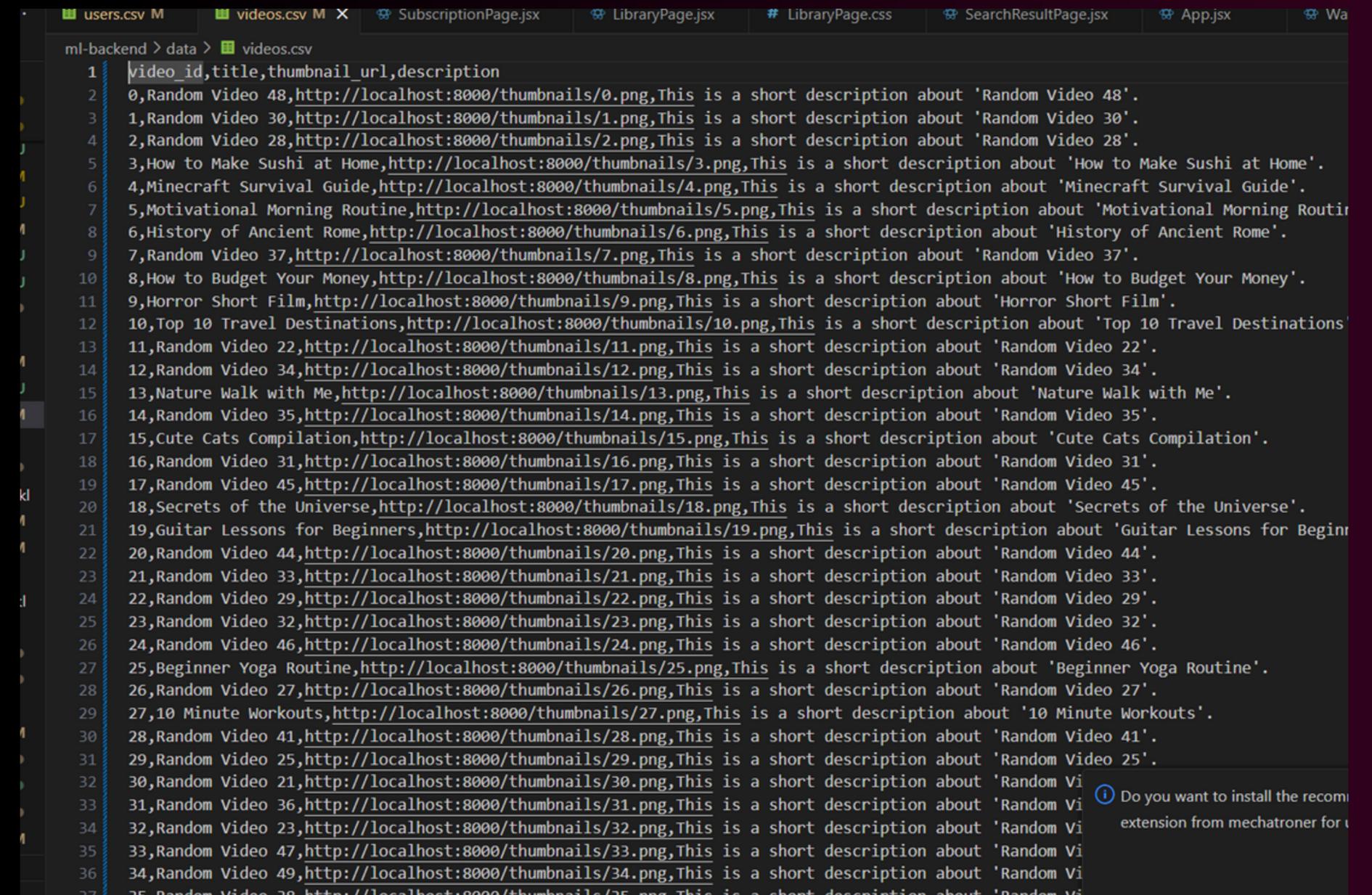
Main dataset (1836 rows)

2. users.csv – 50 user profiles

3. videos.csv – 50 videos with metadata

**4. watch_logs.csv – 1000 watch log
entries**

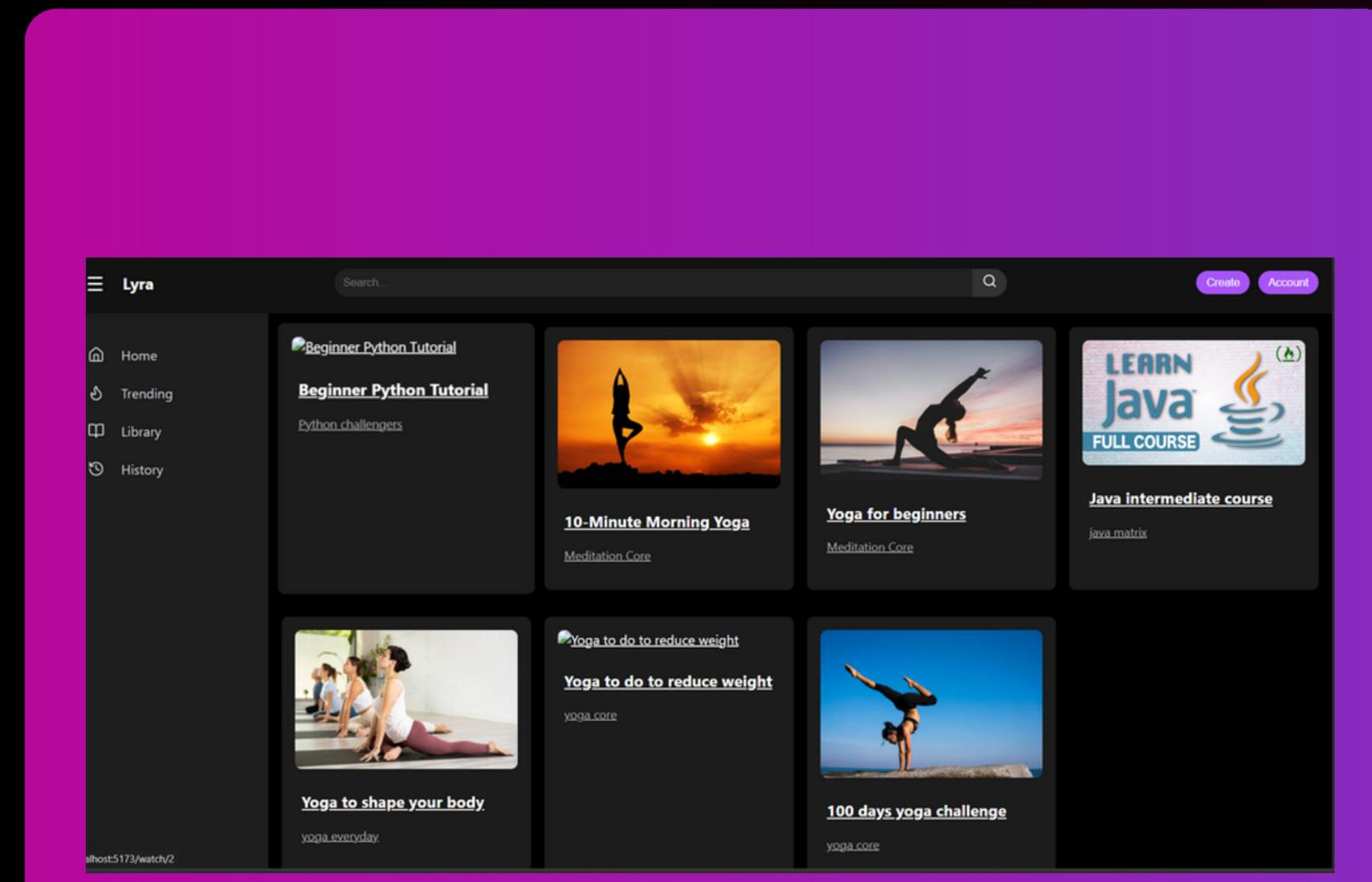
**Used for implicit feedback modeling and
evaluation**



```
ml-backend > data > videos.csv
video_id,title,thumbnail_url,description
1,Random Video 48,http://localhost:8000/thumbnails/0.png,This is a short description about 'Random Video 48'.
2,Random Video 30,http://localhost:8000/thumbnails/1.png,This is a short description about 'Random Video 30'.
3,Random Video 28,http://localhost:8000/thumbnails/2.png,This is a short description about 'Random Video 28'.
4,How to Make Sushi at Home,http://localhost:8000/thumbnails/3.png,This is a short description about 'How to Make Sushi at Home'.
5,Minecraft Survival Guide,http://localhost:8000/thumbnails/4.png,This is a short description about 'Minecraft Survival Guide'.
6,Motivational Morning Routine,http://localhost:8000/thumbnails/5.png,This is a short description about 'Motivational Morning Routine'.
7,History of Ancient Rome,http://localhost:8000/thumbnails/6.png,This is a short description about 'History of Ancient Rome'.
8,Random Video 37,http://localhost:8000/thumbnails/7.png,This is a short description about 'Random Video 37'.
9,How to Budget Your Money,http://localhost:8000/thumbnails/8.png,This is a short description about 'How to Budget Your Money'.
10,Horror Short Film,http://localhost:8000/thumbnails/9.png,This is a short description about 'Horror Short Film'.
11,Top 10 Travel Destinations,http://localhost:8000/thumbnails/10.png,This is a short description about 'Top 10 Travel Destinations'.
12,Random Video 22,http://localhost:8000/thumbnails/11.png,This is a short description about 'Random Video 22'.
13,Random Video 34,http://localhost:8000/thumbnails/12.png,This is a short description about 'Random Video 34'.
14,Nature Walk with Me,http://localhost:8000/thumbnails/13.png,This is a short description about 'Nature Walk with Me'.
15,Random Video 35,http://localhost:8000/thumbnails/14.png,This is a short description about 'Random Video 35'.
16,Cute Cats Compilation,http://localhost:8000/thumbnails/15.png,This is a short description about 'Cute Cats Compilation'.
17,Random Video 31,http://localhost:8000/thumbnails/16.png,This is a short description about 'Random Video 31'.
18,Random Video 45,http://localhost:8000/thumbnails/17.png,This is a short description about 'Random Video 45'.
19,Secrets of the Universe,http://localhost:8000/thumbnails/18.png,This is a short description about 'Secrets of the Universe'.
20,Guitar Lessons for Beginners,http://localhost:8000/thumbnails/19.png,This is a short description about 'Guitar Lessons for Beginners'.
21,Random Video 44,http://localhost:8000/thumbnails/20.png,This is a short description about 'Random Video 44'.
22,Random Video 33,http://localhost:8000/thumbnails/21.png,This is a short description about 'Random Video 33'.
23,Random Video 29,http://localhost:8000/thumbnails/22.png,This is a short description about 'Random Video 29'.
24,Random Video 32,http://localhost:8000/thumbnails/23.png,This is a short description about 'Random Video 32'.
25,Random Video 46,http://localhost:8000/thumbnails/24.png,This is a short description about 'Random Video 46'.
26,Beginner Yoga Routine,http://localhost:8000/thumbnails/25.png,This is a short description about 'Beginner Yoga Routine'.
27,Random Video 27,http://localhost:8000/thumbnails/26.png,This is a short description about 'Random Video 27'.
28,10 Minute Workouts,http://localhost:8000/thumbnails/27.png,This is a short description about '10 Minute Workouts'.
29,Random Video 41,http://localhost:8000/thumbnails/28.png,This is a short description about 'Random Video 41'.
30,Random Video 25,http://localhost:8000/thumbnails/29.png,This is a short description about 'Random Video 25'.
31,Random Video 21,http://localhost:8000/thumbnails/30.png,This is a short description about 'Random Video 21'.
32,Random Video 36,http://localhost:8000/thumbnails/31.png,This is a short description about 'Random Video 36'.
33,Random Video 23,http://localhost:8000/thumbnails/32.png,This is a short description about 'Random Video 23'.
34,Random Video 47,http://localhost:8000/thumbnails/33.png,This is a short description about 'Random Video 47'.
35,Random Video 49,http://localhost:8000/thumbnails/34.png,This is a short description about 'Random Video 49'.
36,Random Video 30,http://localhost:8000/thumbnails/35.png,This is a short description about 'Random Video 30'.
37,Random Video 20,http://localhost:8000/thumbnails/36.png,This is a short description about 'Random Video 20'.
38,Random Video 42,http://localhost:8000/thumbnails/37.png,This is a short description about 'Random Video 42'.
39,Random Video 38,http://localhost:8000/thumbnails/38.png,This is a short description about 'Random Video 38'.
40,Random Video 48,http://localhost:8000/thumbnails/39.png,This is a short description about 'Random Video 48'.
41,Random Video 26,http://localhost:8000/thumbnails/40.png,This is a short description about 'Random Video 26'.
42,Random Video 43,http://localhost:8000/thumbnails/41.png,This is a short description about 'Random Video 43'.
43,Random Video 39,http://localhost:8000/thumbnails/42.png,This is a short description about 'Random Video 39'.
44,Random Video 22,http://localhost:8000/thumbnails/43.png,This is a short description about 'Random Video 22'.
45,Random Video 48,http://localhost:8000/thumbnails/44.png,This is a short description about 'Random Video 48'.
46,Random Video 28,http://localhost:8000/thumbnails/45.png,This is a short description about 'Random Video 28'.
47,Random Video 40,http://localhost:8000/thumbnails/46.png,This is a short description about 'Random Video 40'.
48,Random Video 34,http://localhost:8000/thumbnails/47.png,This is a short description about 'Random Video 34'.
49,Random Video 24,http://localhost:8000/thumbnails/48.png,This is a short description about 'Random Video 24'.
50,Random Video 46,http://localhost:8000/thumbnails/49.png,This is a short description about 'Random Video 46'.
```

Architecture:

Model: Neural Collaborative Filtering
Inputs: from login details in database
Layers: Embedding Layers->Deep->Sigmoid
Optimizer: Adam
Output: Probability of user watching a video



App Flow

- User opens a app.
- Login their id
- User see their personalised recommended videos pon home page
- User can search for any videos from database
- User can also find trending videos

Challenges

Challenges: Designing the NCF mode
Cold start problem ->future metadata
Filtering already-watched video efficiency ->optimised queries

Future scope

Cold
Filtering already-watched video efficiency -> optimised queries
Use larger datasets and cold start strategies
Add genre-based or timestamp based recommendation

