

Recommendation system

Page No.

Date

[Content based] → [Hybrid]

[Collaborative Filtering]: Using filters to recommend a particular entity.
- Based on earlier interaction with user.

- Neighborhood based App.
- Model Based App.
- Hybrid.

MovieLens Dataset

Squid Vijayan
DeepNet → How AI models analyze genomes.
→ More accurate prediction on gene mutation.

Basic Process we'll follow.

User ID → User ~~Matrix~~ Vector.

Movie ID → Movie ~~Matrix~~ Vector

Embedding:

sequence → dense vector

- Dot product of User & Movie Vector.
→ Match score.

- Train embeddings via gradient descent

Preprocessing:
• Convert to numeric
• & Map. the data.

Normalize: Scale values between 0 & 1 to improve the loss score.

$$\text{Scaled values} = \frac{x - \min}{\max - \min}$$

Reusable Ideas :-

- Fake News → • By analysing text content.

AKP

Text

- Music classification → Based on audio classify music & recommend music

- Student tracking

- News summarisation

- Resume screening

Model Training :

- num users = No. of users

[Starting point for model to train] → Random Initializers = Pretrained weights in embedding.

- Regularization = Penalty on to avoid overfitting.
- L2 = Mean of the squares of the coefficient
- Ridge = Squares of the coeff.

Embedding dimension:

$$= \sqrt{\text{entire vocab context}}$$

Calculating Bias: • Store using embedding
• Use by addition.

Task: he-normal Research
- Parallel by he-normal

Calling model:

- Using tensor dot for output of embedding vectors.
- Sigmoid to make output between $[0, 1]$.
- Then call the model.

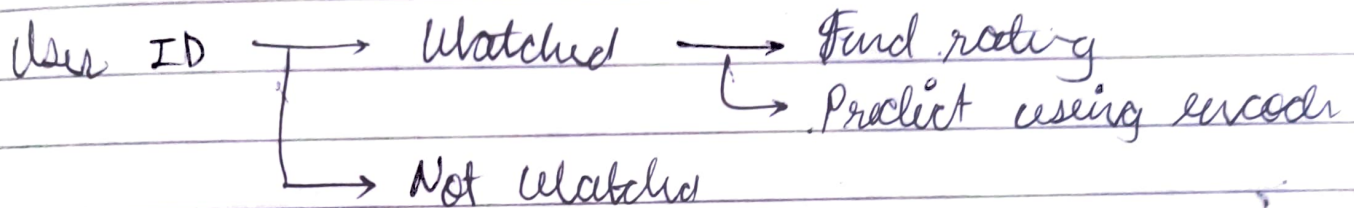
Compile

- Binary Cross entropy - For two vectors.
- Sparse Cross entropy - For $>$ two vectors.
- Optimizer - Adam

Rehab Task: Paper for finding optimum learning rate.

- Washington university for researches found:

- Improve efficiency & safety for humans in manufacturing industry



If multiple values are then then \rightarrow flatten.

Test to be seen for the demonstration

Vibhaan Report - 3

ML model for heat dispersers

- Phonons : Heat carrying particles.