Recomendation system

[Content based] [Hybrid]

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

→ Neighborhood based App.
→ Model Based App.
→ Hybrid.

Movielens Dataset

Vihaan.

~~Squid~~
~~Deep Net~~ → How AI models analize genoms.
→ More accurate prediction on gene mutation.

Basic Process we'll follow.

User ID → User ~~Matrix~~ Vector.
Movie ID → Movie ~~Mat~~ Vector

Embedding:
sequence → dense vector

- Dot product of User & Movie Vector.
  → Match score.
- Train embeddings via gradient decent ~~to~~

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

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

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

Rishabh Ideas :D

- Fake News → • By analysing text content.
  •
  ~~NLP~~
  ~~Text~~
- Music classification → Based on audio classify music & recommend music
- Student grading
- News summarisation
- Resume screening

Model Training :

- num users = No. of users in embedding.
- Initializers = Random / Pretrained weights. [Starting point for model to train]
- Regularizers = Penalty on to avoid overfitting.
- l2 = Mean of the squares of the coefficient
- Ridge = Squares of the coeff.

Embedding dimensions = 4√(Entire vocab count)

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Embedding Bias : • Store using Embedding.
• Use By addition.

Task : he-normal Research
- Parallels key he-normal.

Calling model :

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

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

Rishabh Task : Paper for finding optimum learning rate

- Washington university four researchers found:
- Improve efficiency & safety for humans in manufacturing industry

User ID → Watched → Find rating
                  → Predict using encoder
        → Not Watched

If multiple values are then then → flatten.
Test to be seen for the decision on

Vikaan Report - 3

ML model for heat dispersion

- Phonons : Heat carrying particles.