

CMPE 258-FA21 Lab 1

Part 1: Deep Learning Based Recommendation

Step 1

Read the paper [Wide and Deep Learning for Recommender Systems](#)

Step 2

Download the [MovieLens 100K Dataset](#). Based on the architecture described in the paper, build your own Wide and Deep Recommender system for the MovieLens dataset. Your model should learn on the features of each user and item, not just the associated id numbers. Utilize an 80/20 train-test split and record your model's prediction accuracy.

Step 3

Write a report elaborating on the following topics:

- The model architecture and theoretical reasoning behind it
- Your model's predictive performance and what it means in respect to the dataset
- Potential changes that could be implemented to improve performance

Part 2: Image Classification with Deep Learning

Kaggle Competition

Hand-Made Model Competition URL: <https://www.kaggle.com/c/sjsu-cmpe-258-fa21-lab1>

Access Link: <https://www.kaggle.com/t/b7acefb4d14f47858b4d6286e1bba683>

Transfer-Learning Competition URL: <https://www.kaggle.com/c/sjsu-cmpe-258-fa21-lab1-t>

Access Link: <https://www.kaggle.com/t/ccf33ac1855249fba2ce81141fe41cee>

Part 2 of this lab will be in the form of a Kaggle competition.

Submit the results of at least two models: a hand made one + a transfer learning based model

Utilize the dataset provided in the competition and complete the task described, for transfer learning and model parameter tuning, only use options provided within TF/Keras.

Deliverables:

As a .zip file submit the following to Canvas

1. Jupyter notebook containing your Wide & Deep recommender system
 2. PDF of your written report
 3. Jupyter notebook containing the hand made model used for your Kaggle competition
 4. Jupyter notebook containing the transfer learning model used for your Kaggle competition
 5. .csv files submitted to Kaggle
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Scoring Rubric

- **Wide and Deep Model**
 - Training - 30pts
 - Results - 20pts
- **Report**
 - Model Architecture Description - 10pts
 - Model Performance Description - 10pts
 - Model Improvement Analysis - 10pts
- **Kaggle Competition**
 - Model Submissions - 15pts
 - Results - 5 pts

Total: 100 Points