Take Home Challenge
AIPI 531 S23
Deadline: 05/04/2023

Objectives:
1.Train different session (contextual, sequential) based product recommendation recommenders for E-commerce use cases and compare the performances of the recommenders.
2.Include the CQL loss to improve the model performance.
3.Include item and/or user features as side information for cold items/users.

Requirements:
In the deliverables and experiments, one of the recommenders needs to be a Deep RL recommender [DRL2] and at least two different datasets are used for training/testing. Also, at least two offline evaluation metrics are used for benchmarking.

The required tasks:
1.Considering the CQL loss
2.Including the item and/or user features

Each team will be assigned to one of the tasks. Each team will only need to work on one of the tasks.

Deliverable/submission:
A link to your well organized Github open source repository including
1.Introduction (overview)
2.Instructions (how to run the code)
3.Results (benchmarking)
4.Source Code (please organize your code)

No report or presentation is required.

****Please specify the contribution of each member in your team (who did what and who implemented what).****

Datasets:
1.Retailrocket, https://www.kaggle.com/datasets/retailrocket/ecommerce-dataset
2.Diginetica, https://competitions.codalab.org/competitions/11161#learn_the_details
3.Amazon, https://nijianmo.github.io/amazon/index.html
4.H&M,
https://www.kaggle.com/competitions/h-and-m-personalized-fashion-recommendations/data?select=transactions_train.csv

Deep RL models:
(the locations of the source code can be found in the papers):
1.https://arxiv.org/abs/2111.03474 [DRL2] ← Use this one
2.https://arxiv.org/abs/2006.05779 [DRL1]
3.https://arxiv.org/abs/2206.07353 [DRL3]

Offline evaluation metrics:
1.NDCG
2.Hit Ratio
3.MRR
4.MAP
5.etc.

Repositories for session (contextual, sequential) based recommenders:
1.Microsoft Recommenders, https://github.com/microsoft/recommenders
2.RecBole, https://github.com/RUCAIBox/RecBole

Repositories from Duke students:
(Class 2022 Fall):
1.AIPI Team 2, https://github.com/architkaila/recommenders_aipi590

(2022 Spring):
1.MIDS, https://github.com/gamecicn/Kaggle_HM
2.AIPI A, https://github.com/omartinez182/recommenders
3.AIPI B, https://github.com/omartinez182/Sequence-Based-Recommenders

Papers With Code benchmarks:
https://paperswithcode.com/task/session-based-recommendations

Troubleshooting:
Please contact TA if you have any questions or issues installing the packages. You need to do the work, but TA may help you resolve the packages' installation issues.