Interaction generator for building recommender systems

1.1.1 Background

Recommender systems (RS) find application in several web applications from online retails shopping to recommending driving routes to taxi drivers in a city [1]. For assessment and demonstration of such systems it is important to generate dynamic data mimicking real life scenarios [2]. However, most studies done in the literature on assessment of RS are performed using static data [3]. Braun et al. have proposed metrics to assess popularity bias in RS in dynamic setting by simulating dynamic data [4]. Further work needs to be done building upon earlier work done by [2].

At a very high level, among others, building blocks of such a simulator comprises of (1) arrival process simulator and (2) interaction simulator. Our arrival simulator (1) is up and running. Our interaction simulator (2) uses a RNN and is not performing as expected. Is RNN the right choice? A new type of model needs to be developed and implemented that ensures the appropriate level of performance of (2).

1.1.2 Assignment/key objectives

The assignment objectives can be broadly divided into three sub-categories: (1) write a literature study report on the different types of interaction in a real-life RS; (2) based on (1) how a data generator could be designed, and, (3) create a demonstrator to showcase the data generator with a RS.

1.1.3 Research activities

Literature study needs to be conducted for the first assignment objective. At a minimum, the following questions need to be to be answered:
a) How can interactions be best defined?
b) How can interactions be modelled to mimic real-life scenarios?
c) Which simulation techniques can be implemented for the data generator?
d) Which choices need to be made to successfully demonstrate a data simulator?

1.1.4 Involved supervisor

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1.1.5 References

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