A General Tail Item Representation Enhancement Framework for Sequential Recommendation

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Problems & Ideas

- Problems of conventional sequential recommendation
  - User dynamic interests is extracted from sequential behaviors.
  - Existing methods simply ignore the existence of tailed items whose interacted frequency is very low.
- Ideas: leveraging contextual information of tailed items to help enhance the representation of corresponding ones.

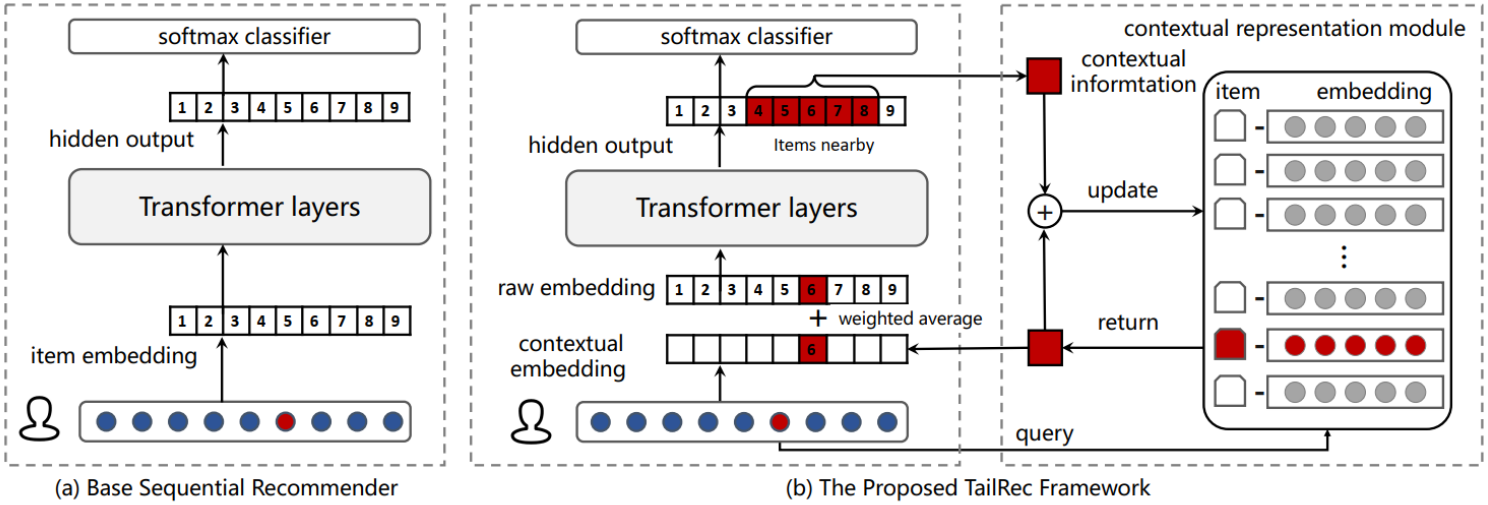

Fig. 3 (a) Base sequential recommender, (b) Contextual representation enhanced sequential recommender framework.

Main Contributions

- Contributions:
  - We present empirical evidence that poorly represented tail items not only significantly harm sequential recommendation performance but also impede the training process. This justifies the importance of our research questions.
  - We propose a general sequential recommendation framework named TailRec to focus on improving the embedding quality of tail items. In TailRec, the newly designed contextual representation module is very easy to leverage but also applicable for a series of sequential recommenders.
  - We conduct experiments to validate the effectiveness of TailRec on multiple benchmark recommenders. The experimental results demonstrate that TailRec can not only produces more promising recommendation performances than baselines but also significantly accelerate the training process of benchmark recommender models.