A Multi-objective Optimization Approach For Question Routing In Community Question Answering Sevices

ABSRACT

- Community Question Answering (CQA) has increasingly become an important service for people asking questions and providing answers online, which enables people to help each other by sharing knowledge.

- Recently, with accumulation of users and contents, much concern has arisen over the efficiency and answer quality of CQA services.

- To address this problem, question routing has been proposed which aims at routing new ...

- In this paper, we formulate question routing as a multi-objective ranking problem.

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- And present a multi-objective learning-to-rank approach for question routing (MLQR), which can simultaneously optimize the answering possibility and answer quality of routed users.

- In MLQR, realizing that questions are relatively short and usually attached with tags, We first propose a tag word topic model (TTM) to derive topical representations of questions.

- Based on TTM, we then develop features for each question-user pair, which are captured at both platform level and thread level.

- In particular, the platform-level features summarize the information of a user from his/her history posts in the CQA platform, while the thread-level features model the pair wise competitions of a user with others in his/her answered threads.

EXISTING SYSTEM

- On one hand an asker might wait for several days before receiving the first answer of the question, while answerers have to browse many questions before finding one they want to answer.

- On the other hand, many answers are low quality, from which the askers can get very little help. The main idea of MLQR is to train a multi-objective ranking model mapping from a list of user features to a list of scores for ranking these users.

- Specifically, we extend a single-objective learning-to-rank algorithm,i.e., Lambda MART to optimize answering possibility and answer quality simultaneously..

- To extract suitable user features, we use TTM to build connections between user history posts and the given question. Specifically, we capture a user's interest, activeness and expertise for a question at both platform level and thread level.

DISADAVANTAGE

- Noticing this fact, recent studies have tried to together approach answering possibility and answer quality .

- However, since these studies do not explicitly optimize the two objectives of question routing (i.e., maximize both the answering possibility and answer quality of routed uses).

- They might suffer poor performance

PROPOSED WORK

- We present a multi-objective learning-to-rank approach for question routing in CQA services,which is referred to as MLQR this work is the first attempt to tackle the question routing problem in a way of multiobjective optimization.

- We propose a tagword topic model (TTM) which explicitly models tagword co-occurrences and aggregates them on the corpus level

- We develop features for a question-user pair, which capture a user's interest, activeness and expertise for a question at both platform level and thread level.

- We conduct extensive experiments to evaluate the performance of our MLQR on real-world datasets.

- MLQR achieves significant improvements over state-ofthe- art methods in terms of both answering possibility and answer quality.

ADVANTAGES

- TTM can derive good topical representations for questions,which can benefit not only question routing but also other tasks (e.g., question retrieval) in CQA services.

- The performance of our MLQR on real-world datasets.

- MLQR achieves significant improvements over state-ofthe- art methods in terms of both answering possibility and answer quality.

SYSTEM REQUIREMENT

- **HARDWARE REQUIREMENT:**
- System   :   Pentium IV 2.4 GHz.
- Hard Disk   :   40 GB.
- Floppy Drive   :   1.44 Mb.
- Monitor   :   15 VGA Colour.
- Mouse   :   Sony.
- Ram   :   512 Mb.

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- **SOFTWARE REQUIREMENT:**
- Operating system   :   Windows XP/7/8
- Coding Language   :   ASP. Net with C#/Java

MICANS INFOTECH

CONCULSION

- We tackle the question routing problem in CQA services in a way of multi-objective optimization.In particular, we first formulate question routing as a multi-objective ranking problem, and then present a multi-objective learning-to-rank approach for question routing (MLQR).

- Based on TTM, we develop two sets of features which capture a user's interest, activeness and expertise for a question at both platform level and thread level. features are further used in an extended learning-to-rank algorithm, which can optimize the objectives of question routing simultaneously.

- Experimental results on real-world datasets show that our MLQR can outperform state-of-the-art methods in terms of both answering possibility and answer quality.