

## Hybrid Method for Smart Suggestions in Conversations for Online Marketplaces

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**Abstract :** Online/offline chat is a convenient approach in the electronic markets of second-hand products in which potential customers would like to have more information about the products to fill the information gap between buyers and sellers. Online peer in peer market is trying to create artificial intelligence-based systems that help customers ask more informative questions in an easier way. In this article, we introduce a method for the question/answer system that we have developed for the top-ranked electronic market in Iran called Divar. When it comes to secondhand products, incomplete product information in a purchase will result in loss to the buyer. One way to balance buyer and seller information of a product is to help the buyer ask more informative questions when purchasing. Also, the short time to start and achieve the desired result of the conversation was one of our main goals, which was achieved according to A/B tests results. In this paper, we propose and evaluate a method for suggesting questions and answers in the messaging platform of the e-commerce website Divar. Creating such systems is to help users gather knowledge about the product easier and faster, All from the Divar database. We collected a dataset of around 2 million messages in Persian colloquial language, and for each category of product, we gathered 500K messages, of which only 2K were Tagged, and semi-supervised methods were used. In order to publish the proposed model to production, it is required to be fast enough to process 10 million messages daily on CPU processors. In order to reach that speed, in many subtasks, faster and simplistic models are preferred over deep neural models. The proposed method, which requires only a small amount of labeled data, is currently used in Divar production on CPU processors, and 15% of buyers and seller's messages in conversations is directly chosen from our model output, and more than 27% of buyers have used this model suggestions in at least one daily conversation.

**Keywords :** smart reply, spell checker, information retrieval, intent detection, question answering

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