Towards a Comprehensive AI Teaching Assistant Based on Course Forums
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Educational forum posts processing is a demanding and time-consuming task for instructors. In this paper, we present the kernels of a system based on natural language processing. Together with future implementation of the database, receiving and sending module, and user interface, the system can be served as an intelligent teaching assistant for educational forum posts processing for small courses, which aims at alleviating the workload of instructors. Currently, this system is capable of conducting the following tasks: (a) Automatically label new posts into pre-designed categories. (b) Identify posts whose content is similar or identical to another existing post. (c) Identify posts that do not contain enough information for the instructors to understand or answer the question. (d) Automatically answer students' questions about the implementation of coding assignments using English translation of the solution code. We applied six language models, four prediction models, together with two API packages to build the system. Our result showed that the system reached the highest accuracy of over 90% on task (a), over 98% on task (b), and over 95% on task (c), which shows the bright prospect of extending it to a fully functional and practical plug-in.