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Abstract
The cholecystitis rate in Taiwan is on the rise because Taiwnese like occidental diet. The laparoscopic cholecystectomy is a main approach to cure the cholecystitis. However, if there is inflammation around the gallbladder and it is difficult to identifiy the gallbladder, the operation should change from laparoscopic cholecystectomy to the open cholecystectomy and this operation change is called conversion. The rise of cholecystotomy conversion ratio increases medical cost and harms the patient safty. The reasons causing cholecystectomy are still vague and under research. If we can build a prediction system for cholecystectomy conversion, it will be helpful to protect patient safety and to low operation cost.
This study applied decision tree C4.5 and support vector machine SVM to build the conversion prediction system. This study also applied the committee machine (including Adaboost and Bagging) and imbalance strategies (including over-sampling method, under-sampling method, and cost-sentivity method) to ehance the performance of the prediction system. The empirical results showed that using C4.5 and Bagging method could build a good C4.5 model for conversion prediction. The results also showed that the automatic feature selection mechanism is also helpful on selecting important features to build a good model.
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