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Determination of Water Pollution and Water Quality with Decision Trees

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Abstract : With the increasing emphasis on water quality worldwide, the search for and expanding the market for new and intelligent monitoring systems has increased. The current method is the laboratory process, where samples are taken from bodies of water, and tests are carried out in laboratories. This method is time-consuming, a waste of manpower, and uneconomical. To solve this problem, we used machine learning methods to detect water pollution in our study. We created decision trees with the Orange3 software we used in our study and tried to determine all the factors that cause water pollution. An automatic prediction model based on water quality was developed by taking many model inputs such as water temperature, pH, transparency, conductivity, dissolved oxygen, and ammonia nitrogen with machine learning methods. The proposed approach consists of three stages: preprocessing of the data used, feature detection, and classification. We tried to determine the success of our study with different accuracy metrics and the results. We presented it comparatively. In addition, we achieved approximately 98% success with the decision tree.

Keywords : decision tree, water quality, water pollution, machine learning
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