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# Predicting Water Quality Conditions in Wimmera Catchment, Australia: A Machine Learning Approach Using Environmental Parameters

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The research aims to determine the water quality condition of Wimmera catchment in Australia based on the different environmental parameters like temperature, turbidity, electrical conductivity, dissolved oxygen, and hydrogen potentials (pH). A quantitative approach on the data set extracted from the Australian government data repository was used in the study and machine learning algorithms such as Clustering, Gradient boosting, and Random Forest algorithms were used based on the nature of the data set. Using the mentioned methodologies initial identification of the number of clusters that could be generated based on the parameters using water flow conditions was performed. The regimes of water flow were predicted based on the different environmental parameters throughout the sampling locations in the Wimmera catchment.

**Keywords**: *water quality conditions, environmental parameters, regimes of flow, clustering, gradient boosting, random forest algorithm*