WATER QUALITY PREDICTION

PROJECT SYNOPSIS

Machine Intelligence

BACHELOR OF TECHNOLOGY- V Sem CSE

Department of Computer Science & Engineering

SUBMITTED BY

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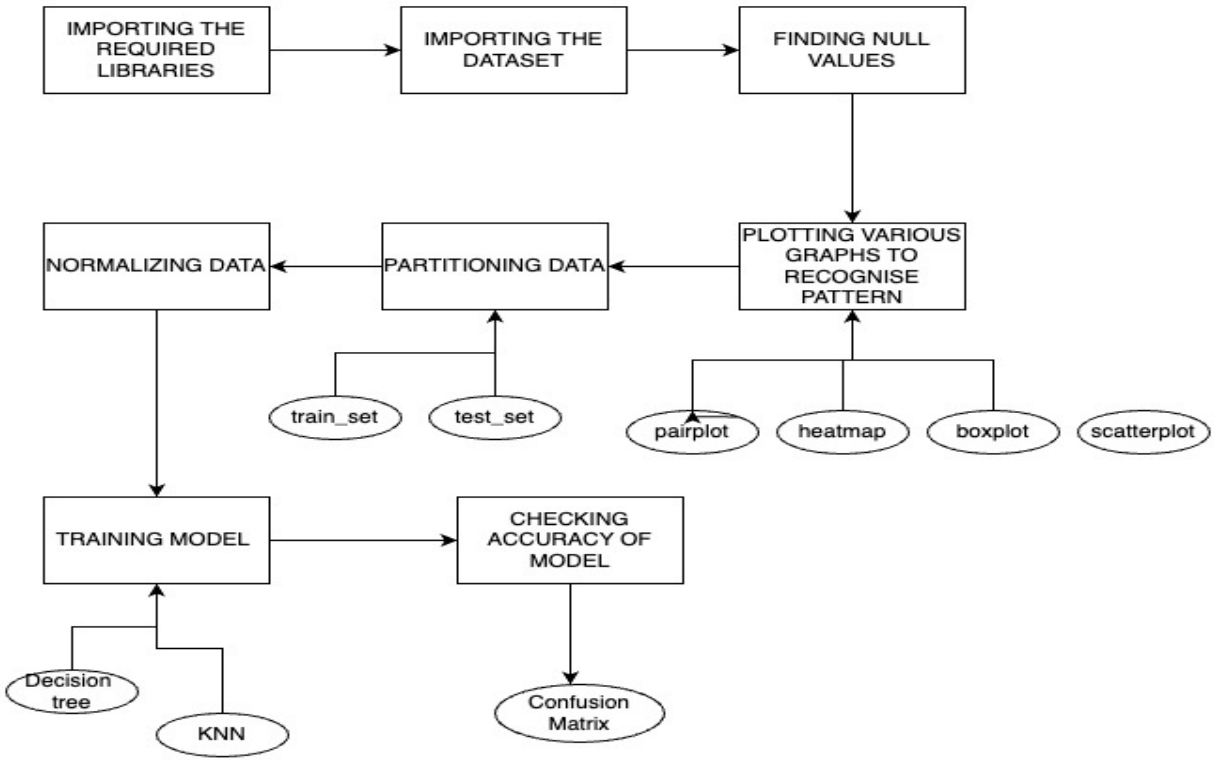
Abstract and Scope

Water is the most important resource for life, essential for the survival of most existing creatures and humans.
Living organisms require sufficient quality water to survive. There are some pollution levels that water species can tolerate. Exceeding these limits has an impact on the existence of these creatures and endangers their lives.
Most bodies of ambient water, such as rivers, lakes, and streams, have quality standards that indicate their quality. Furthermore, water specifications for other applications/usages have their own standards. Irrigation water, for example, must not be too saline or contain toxic materials that can be transferred to plants or soil, destroying ecosystems. Water quality for industrial uses necessitates different properties depending on the specific industrial processes. Natural water resources include some of the most affordable sources of fresh water, such as ground and surface water. However, human/industrial activities and other natural processes can pollute such resources.
As a result, rapid industrial development has caused water quality to deteriorate at an alarming rate. Furthermore, infrastructure, with a lack of public awareness and less hygienic qualities, has a significant impact on the quality of drinking water . Indeed, the consequences of polluted drinking water are extremely dangerous, negatively impacting health, the environment, and infrastructure. According to a United Nations (UN) report, approximately 1.5 million people die each year as a result of diseases caused by contaminated water. It is estimated that contaminated water causes 80% of health problems in developing countries.
Annually, five million deaths and 2.5 billion illnesses are reported . This is a higher mortality rate than deaths caused by accidents, crimes, or terrorist attacks .
As a result, it is critical to propose new approaches for analysing and, if possible, forecasting water quality (WQ).
It is recommended that when forecasting WQ patterns, the temporal dimension be taken into account to ensure that the seasonal change of the WQ is monitored. To assist in achieving our goal, we propose one of the data mining techniques decision tree, which classifies data sets based on a tree structure and predicts based on existing patterns and roles among the data sets. The decision tree method is used in this study to classify water quality in some hydrometric stations. The result will show that the decision tree method can accurately predict water quality classes based on a small number of hydrometric parameters.

Feasibility Study

The current method of monitoring water quality is laboratory analysis, which is appropriate, visible, and accurate; however, the need to transport samples to the laboratory and wait for results estimation makes it inconvenient for field use. This water management method will not be cost-effective. Scarcity of portable water due to increased organisation, industrialization, and untreated sewage disposal causes a variety of life-threatening diseases, particularly in infants and women. Water surveillance becomes critical in order to control the level of contamination. To help with this situation, appropriate automation using Machine Learning and Artificial Intelligence is used to solve it. This method eliminates the use of chemicals in evaluating water quality parameters and is also cost effective.

Design Approach



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