

DATA SCIENCE IN ENVIRONMENT AND SUSTAINABILITY



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PROBLEM FACED

Water pollution happens when undesirable elements enter the water, altering the water's quality and causing environmental impact.

Polluted water, according to the World Health Organization (WHO), is water whose composition has been altered to the point where it is no longer useable.

FINDINGS

-According to the Environmental Protection Agency (EPA), water pollution has polluted 46 percent of U.S. streams, 21 percent of lakes, 18 percent of coastal waterways, and 32 percent of the nation's wetlands.

INSIGHTS

-Many individuals simply toss their rubbish in the lake or on the ground rather than going to the trash can to dispose of it. They believe that this is practical. They do not consider the implications and impacts that it may have on the world in which they live.

ACTIONS

-The Clean Water Act of 1972, as well as other municipal and state legislation, should be updated to reflect contemporary situations.

DATASETS REQUIRED

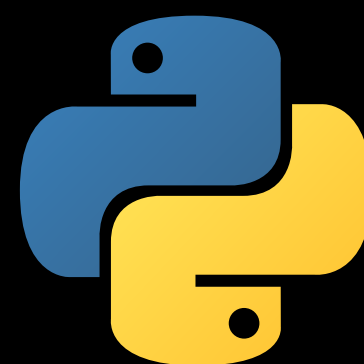
WATER

- pH
- Hardness
- Temperature
- Turbidity
- Potability

DISSOLVED SOLIDS

- Chloramines
- Sulphate
- Trihalomethanes
- Chlorophyll a
- Phycocyanin

TECHNOLOGIES AND TOOLS



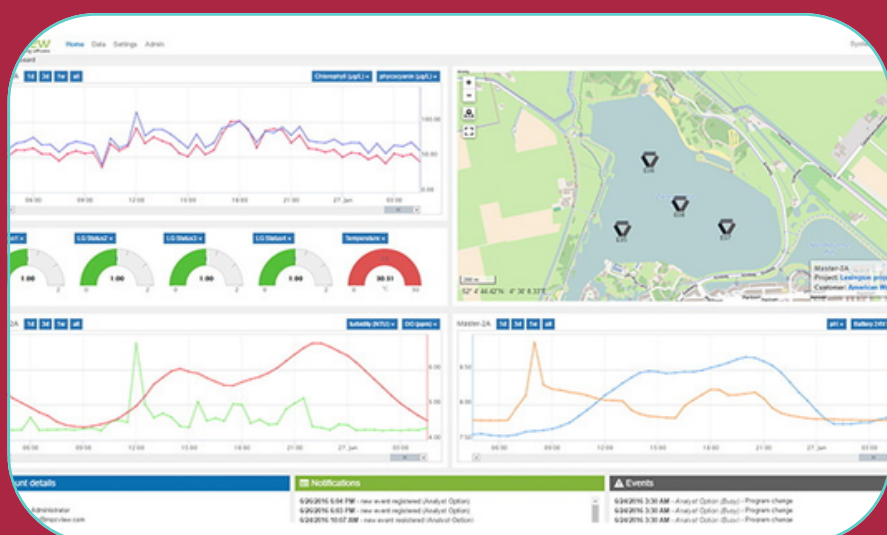
-Python is a high-level programming language with a rich ecosystem of machine learning libraries for data analysis.



-Scikit-learn is a Python library that provides a consistent interface for machine learning and statistical modelling, including classification, regression, clustering, and dimensionality reduction.

MOCKUP OF DATA PRODUCT

<https://www.lgsonic.com>



Real Time predictive forecasting

- Using water characteristics, forecast water quality in real time
- Based on the water conditions, monitor, predict, and regulate ultrasonic therapy frequencies.



Real time visual insights

- Automated data analysis reveals information on water quality, algae trends, and ultrasonic treatment progress.

References:

A. (2016, May 23). Why Do People Pollute? Why Do People. Retrieved June 18, 2022, from <https://whydopeople.net/why-do-people-pollute/>

J. (2021, June 5). Water Quality: Analysis (Plotly) and Modelling. Kaggle. Retrieved June 18, 2022, from <https://www.kaggle.com/code/jaykumar1607/water-quality-analysis-plotly-and-modelling>

LG Sonic. (2022, February 28). MPC-Buoy - All-in-One Solution to Algal Blooms. Retrieved June 18, 2022, from <https://www.lgsonic.com/products/mpc-buoy/>