Water Quality Monitoring System: A Data-Driven Approach

This pitch deck presents a data-driven approach for water quality monitoring. We will discuss the design and implementation of a comprehensive system that leverages data analysis to improve public health and achieve SDG 6: Clean Water and Sanitation.

JW by john wambugu

SDG 6: Clean Water and Sanitation

SDG 6 aims to ensure availability and sustainable management of water and sanitation for all. This goal is crucial for human health, social development, and environmental sustainability.

Problem Definition: Water Quality and Public Health

Poor water quality is a significant public health concern, leading to waterborne diseases, such as diarrhea, cholera, and typhoid fever. These diseases can cause serious illness, particularly among vulnerable populations.

Database Design: Schema and ERD

The database schema is designed to capture comprehensive water quality data, including physical, chemical, and biological parameters. The ERD (Entity Relationship Diagram) illustrates the relationships between different entities within the database.

Sample Data: Illustrative Examples

The system uses a variety of data sources, such as sensor readings, laboratory analyses, and citizen reports. This data is collected regularly to provide a comprehensive overview of water quality.

Parameter	Value
pH	7.2
Temperature	25°C
Turbidity	1 NTU
Chlorine	0.5 ppm

Data Retrieval and Analysis: SQL Queries and Insights

SQL queries are used to retrieve and analyze the data. We can identify trends, patterns, and anomalies in water quality data, providing valuable insights for decision-making.

- Identify high-risk areas based on water quality parameters.
- Track the effectiveness of water treatment interventions.
- Monitor the impact of pollution sources on water quality.

Excel Analysis: Data Import and Visualization

The data is imported into Excel for further analysis. We utilize Excel's powerful data visualization tools to create insightful charts, graphs, and dashboards.

Interactive Dashboard: Key Visualizations

The interactive dashboard provides stakeholders with a clear and concise overview of water quality data. This allows for real-time monitoring and informed decision-making.