Aqua365

Team #4
Ishan Kanungo
Priyansh Patel
Swaroop Patwari
Esha Sah

Problem Statement

- California being a draught region, low water flows and extended heat had degraded the water quality.
- The biodiversity of these water bodies have suffered over the years.
- Due to the degrading water quality, the fishing industry has lost over 1 billion dollars in last 80 years.
- A crucial first step to preserving and protecting freshwater habitats is by acknowledging the current quality of water and understanding its forecasted values.

Water Quality Index

WQI is calculated using a weighted geometric average. Weight factor used for different variables are defined by National Sanitation Foundation(NSF)

These parameters are:

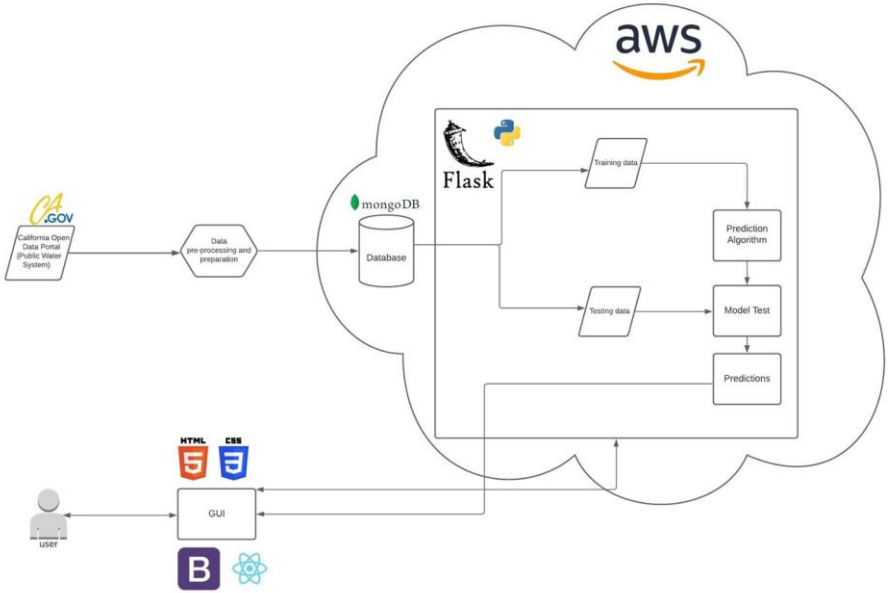
- Dissolved oxygen (DO)
- Coliform
- Nitrate
- pH
- Biochemical oxygen demand (BOD)
- Temperature
- Electric conductivity

Persona

- Government agencies like California Department of Water Resources
- Stakeholders of Pisciculture industries
- Aquatic Life conservationists

Technologies used

- Machine Learning Model:
  - Linear Regression
  - XG boost
  - PMD Arima
- Database:
  - MongoDB
- Backend:
  - Flask
- Frontend:
  - React



Demo

Future Scope

- Implementing IoT to gather data through sensors and implementing machine learning to automatically detect anomalies and alert the stakeholders.
- Our scope can be extended to industries that conduct controlled breeding of marine life as well as pisciculture sector.