

**OCTIBER 2021**



**AKN WATER**  
FOR WATER QUALITY

**Prepared by:**

**Abdultawwab Safarji  
Najla Bin-Melha  
Khalid Alrashed**

**Prepared for:**

**T5**

# INTRODCATION

---

**AKN** is a material testing laboratory that focuses on water quality tests and classification. Our next step, to expand the business research and development that to start a project to automate the water classification process.

## DESIGN

---

The classification model was analyzed, drinking Safe drinking water  
In this project, the AKN used historical samples from various sources and constrained water quality standards based on the chemical, physical and biological specifications of the sample that was determined to be potable or non-potable.

## SCOPE


---

To classify water potability the following information from previous samples were used

- 1-Chemical properties (pH, Hardness, Total solids, chloramines, sulfate , conductivity,Trihalomethanes , Organic carbon)
- 2-Physical: Turbidity.



# ALGORITHMS

- Gradient Boosting Classifier
  - Extreme Gradient Boosting
  - Random Forest Classifier
  - CatBoost Classifier
  - Decision Tree Classifier
  - Light Gradient Boosting Machine
  - Extra Trees Classifier
  - Quadratic Discriminant Analysis
  - Naive Bayes K Neighbors Classifier
  - Logistic Regression
  - Ridge Classifier Linear
  - Discriminant Analysis
  - SVM - Linear Kernel
- 

# TOOLS

---

**Data manipulation:** NumPy and Pandas

**Modeling:** Sklearn

**Visualization:** matplotlib and seaborn

**Others:**

NullFormatter, Plotly, Missingno, Filterwarnings, Counter. Orange  
Dash, R Shiny.