

Project Development Roadmap:

Water Potability Prediction using IBM Watson AI

1. Define Project Scope and Objectives:

- Goal of project: predicting water potability.
- Scope: Parameters will be considered for checking water potability such as ph., Hardness, Solids, Chloramines, Sulfate, Conductivity, Organic carbon, Trihalomethanes, Turbidity

2. Data Collection and Preparation:

- Gather a comprehensive dataset containing water quality parameters.
- Cleanse the data: handle missing values, outliers, and inconsistencies.
- Perform exploratory data analysis to understand the dataset.

3. Feature Selection and Engineering:

- Identify relevant features that influence water potability.
- Engineer new features if necessary, considering domain knowledge.

4. Data Splitting:

- Split the dataset into training and testing sets to evaluate the model's performance accurately.

5. Model Selection:

- Choose suitable machine learning algorithms for classification tasks.
- Integrate IBM Watson services, like Watson Studio, Watson Machine Learning, Watson AutoAI, for model development.

6. Model Training and Tuning:

- Train the selected model using the training dataset.
- Fine-tune hyperparameters to optimize the model's performance.

7. Model Evaluation:

- Evaluate the model using the testing dataset.
- Metrics like accuracy, precision, recall, and F1-score used to assess the model's effectiveness.

8. Integration with IBM Watson AI:

- Integrate the trained model with IBM Watson AI services for deployment.
- Utilize Watson APIs to incorporate AI capabilities into application.

9. Testing and Debugging:

- Thoroughly test the integrated solution, ensuring it functions correctly and provides accurate predictions.

10. Documentation and Reporting:

- Document the entire process, including data preprocessing, model development, and integration steps.
- Prepare a report summarizing your findings, methodologies, and results.

11. Deployment and Monitoring:

- Deploy the solution, making it accessible to users.
- Implement monitoring mechanisms to track the model's performance and user interactions.

12. Maintenance and Updates:

- Regularly update the model with new data to enhance accuracy.
- Address user feedback and make necessary improvements.