

Sprint – 4

TESTING –USING VARIOUS PARAMETERS

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| Team ID | PNT2022TMID13654 |
| Project Name | Efficient water quality analysis and prediction using Machine learning. |

Testing using various parameters :

Software testing is used to assess the quality of the product. Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation.

Conduct testing in a water quality analysis and prediction using machine learning project include,

- Define the objectives of the project and the target audience for the predictions.
- Determine what type of data is available for the project, and whether it is enough to train a machine learning model.
- Design a testing strategy that will assess the accuracy of the predictions made by the machine learning model.
- Execute the testing strategy and analyze the results to identify any areas where the predictions were not accurate.

-Make improvements to the machine learning model based on the findings from the testing process.

Code for testing using svm model:

```
from sklearn.ensemble import RandomForestClassifier

rf_classifier = RandomForestClassifier(n_estimators = 20, criterion =
'entropy', class_weight = "balanced_subsample", random_state = 51)

rf_classifier.fit(X_train_final, y_train)

y_pred = rf_classifier.predict(X_test_final)

accuracy_score(y_test, y_pred)

print(classification_report(y_test, y_pred))
```

output prediction:

Best water quality test cases:

It contains the best constraints in water which is suitable for drinking and for various purposes.

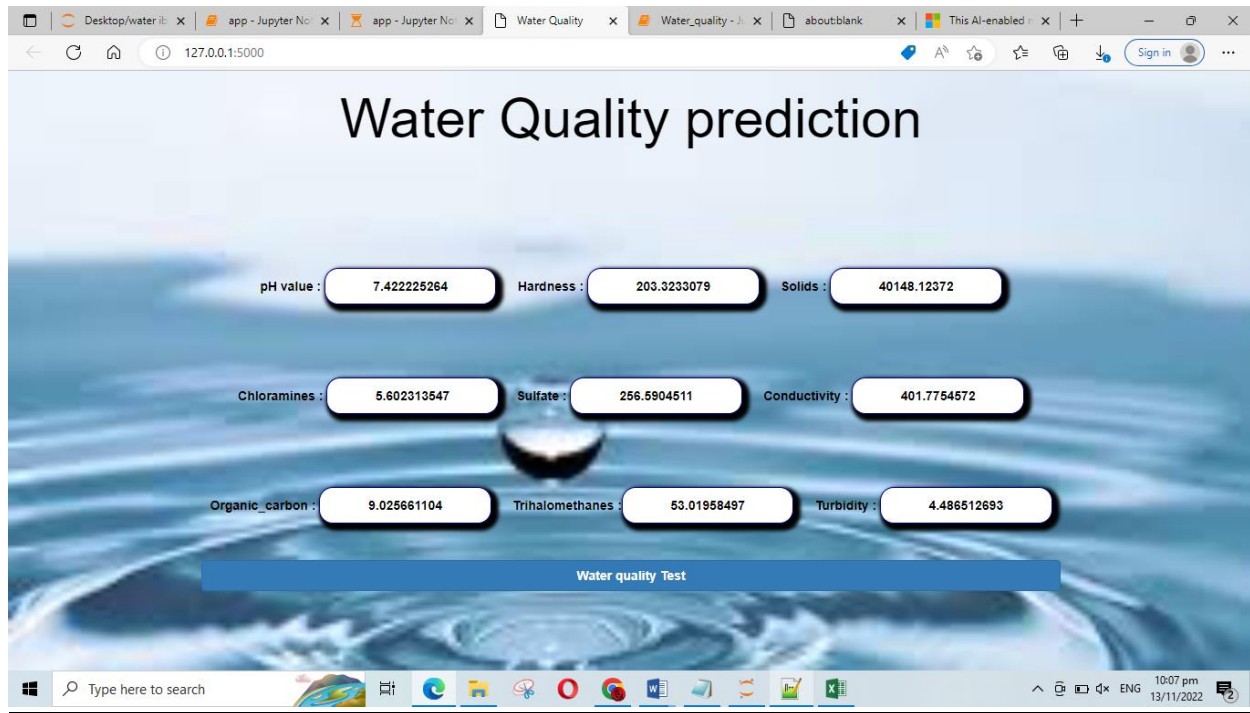
Water Quality prediction

pH value : 7.422225264 Hardness : 203.3233079 Solids : 40148.12372

Chloramines : 5.602313547 Sulfate : 256.5904511 Conductivity : 401.7754572

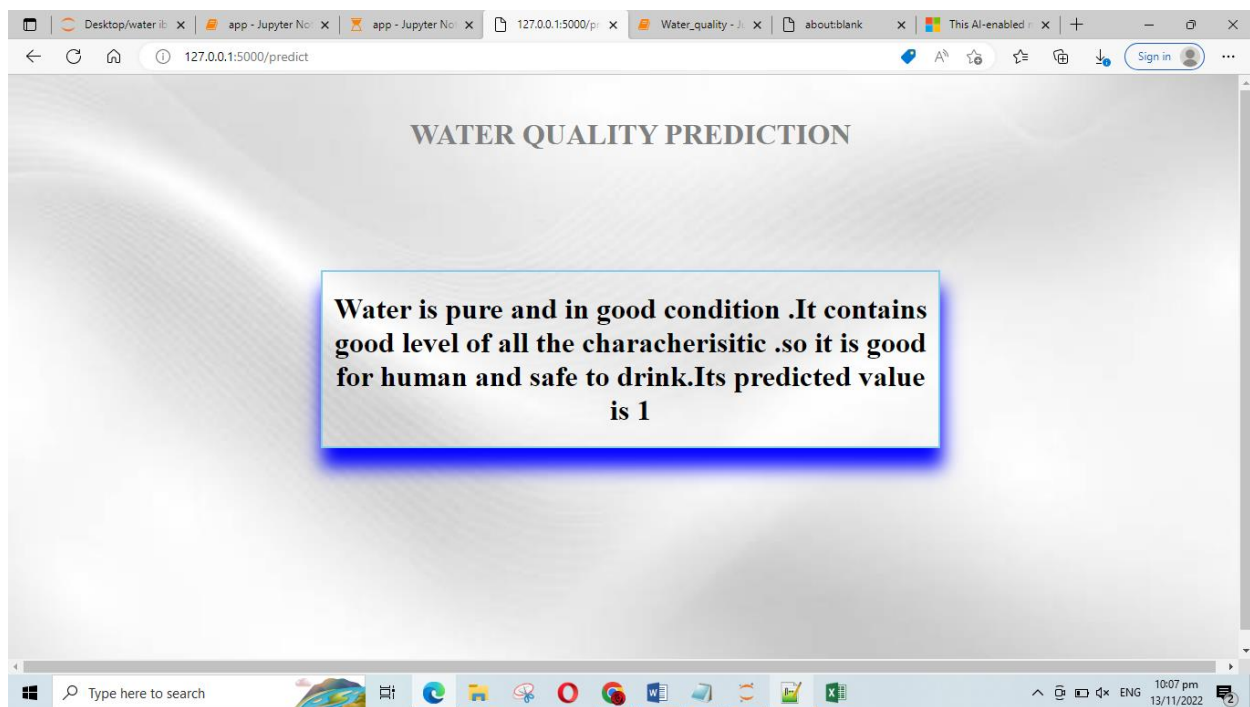
Organic_carbon : 9.025661104 Trihalomethanes : 53.01958497 Turbidity : 4.486512693

Water quality Test



WATER QUALITY PREDICTION

Water is pure and in good condition .It contains good level of all the characherisitic .so it is good for human and safe to drink.Its predicted value is 1



Worse water quality test cases:

It contains the worst constraints in water which is not suitable for drinking and for various purposes.

