

# **Project Report Format**

<b>Date</b>	<b>18.11.2022</b>
<b>Team id</b>	<b>PNT2022TMID49528</b>
<b>Project name</b>	<b>Efficient water quality analysis and prediction using machine learning</b>

## **1. INTRODUCTION**

### **1.1 Project Overview**

Water is the most significant resource of life, crucial for supporting the life of most existing creatures and human beings. Living organisms need water with enough quality to continue their lives. Water quality has a direct impact on public health and the environment. In this project we are going to implement a water quality prediction using machine learning techniques. In this technique, our model predicts that the water is safe to drink or not using some parameters like Ph value, conductivity, hardness, etc.

### **1.2 Purpose**

The goal is to predict the spatio - temporal water quality in terms of the power of hydrogen (pH), value for the next day based on the historical data of water measurement indices. This model predicts water quality and is used to indicate whether or not it is suitable for drinking based on some parameters

## **2. LITERATURE SURVEY**

### **2.1 Existing problem**

<https://www.mdpi.com/2073-4441/11/11/2210>

### **2.2 References**

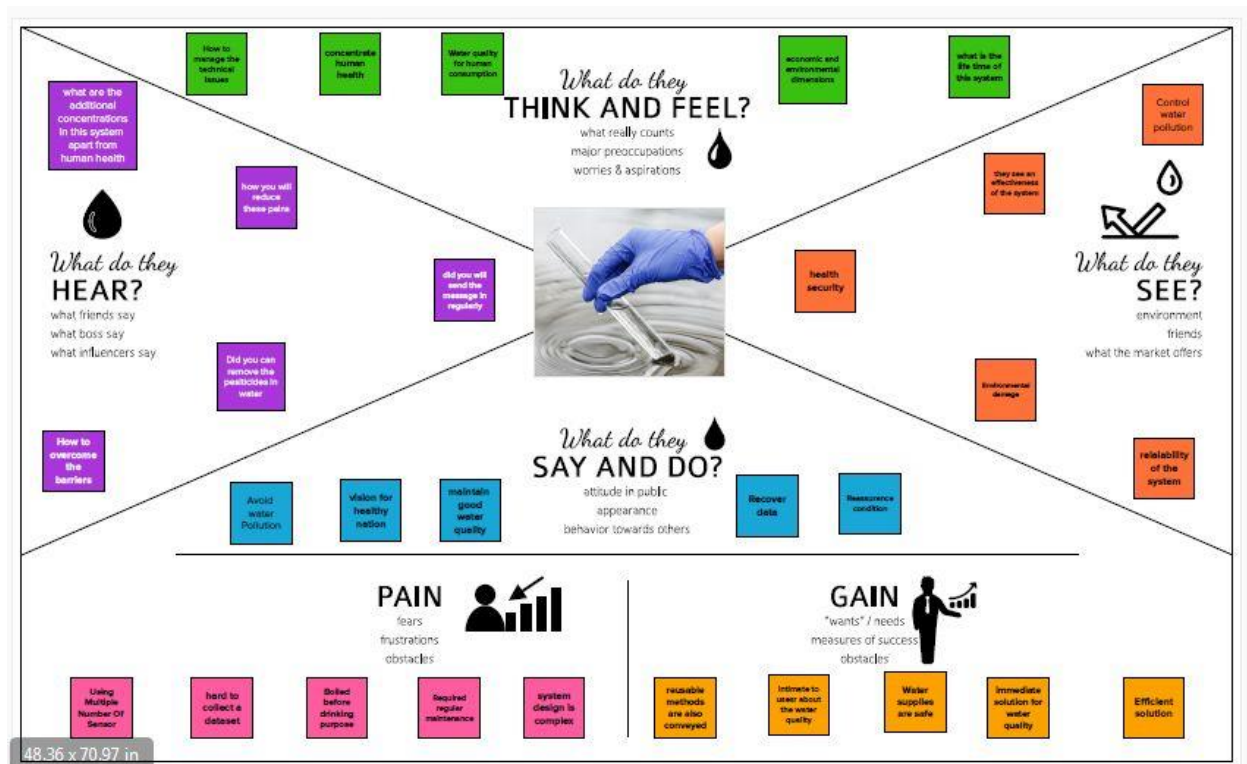
1. PCRWR. National Water Quality Monitoring Program, Fifth Monitoring Report (2005–2006); Pakistan Council of Research in Water Resources Islamabad: Islamabad, Pakistan, 2007. Available online: <http://www.pcrwr.gov.pk/Publications/Water%20Quality%20Reports/Water%20Quality%20Monitoring%20Report%202005-06.pdf> (accessed on 23 August 2019).
2. Mehmood, S.; Ahmad, A.; Ahmed, A.; Khalid, N.; Javed, T. Drinking Water Quality in Capital City of Pakistan. Open Access Sci. Rep. 2013, 2. [CrossRef]
3. PCRWR. Water Quality of Filtration Plants, Monitoring Report; PCRWR: Islamabad, Pakistan, 2010. Available online: <http://www.pcrwr.gov.pk/Publications/Water%20Quality%20Reports/FILTRTAION%20PLANTS%20REPOT-CDA.pdf> (accessed on 23 August 2019).

## 2.3 Problem Statement Definition

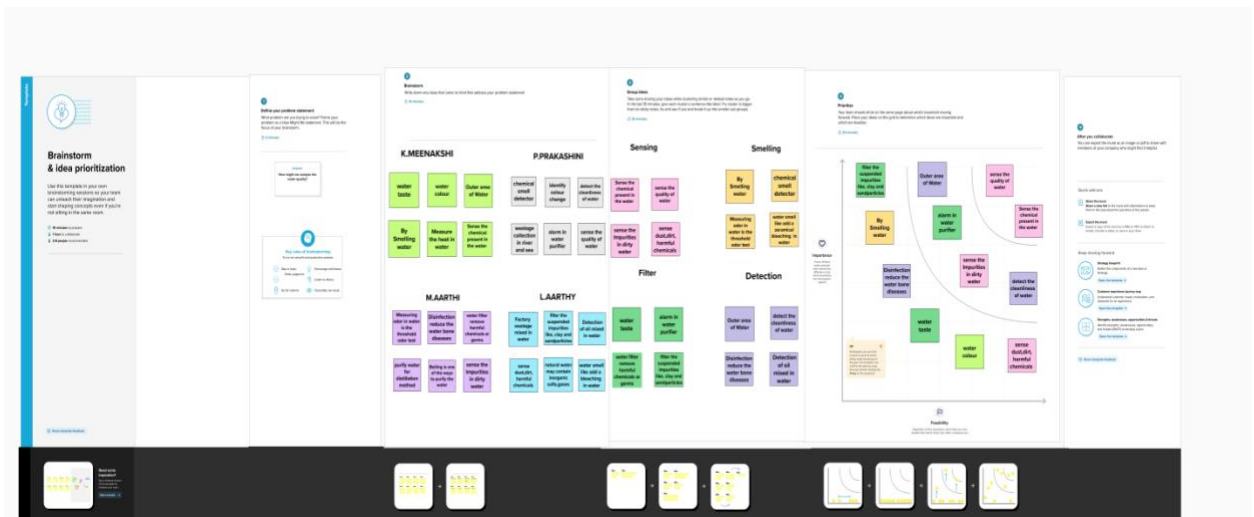
1. Deepak is a/an Officer  
Who needs To monitor the purity level of drinking water  
Because He is responsible for people welfare
2. Banu is a/an counselor of the area  
Who needs To know about the alternate methods to using a impurity water  
Because she will not know about these alternative methods
3. Priya is a/an one of person in this person  
Who needs To know about the alternate methods to using a impurity water  
Because she will not know about these alternative methods

## 3. IDEATION & PROPOSED SOLUTION

### 3.1 Empathy Map Canvas



### 3.2 Ideation & Brainstorming





### 3.3 Proposed Solution

S.NO	Parameter	Description
1.	Problem Statement (Problem to be solved)	➤ In a current situation the human beings health in a bad condition . It is the water that is used daily that causes people to form a disease.
2.	Idea / Solution description	➤ Collecting data sets ,Analysing a water quality by comparing the current data set values with previous collected data set values and convey message to the user about the water quality and reusable methods also.
3.	Novelty / Uniqueness	➤ The information is sent to the user very quickly without any delay. ➤ Recycling methods are also reported along with water quality.
4.	Social Impact / Customer satisfaction	➤ Clean water consumption leads to healthy life. ➤ Learn about ways to reuse water without wasting it. ➤ Medical care, loss of productivity and even death can be avoided.
5.	Business Model (Revenue Model)	➤ Through advertisement can sell my project the private organization and public sectors can earn more. ➤ In an organization (hospital, school, college etc...) we explain our process to them and do water quality analysis and earn income in our business. ➤ Water quality is an important factor in economic development.
6.	Scalability of the solution	➤ Obtain quantitative information on the physical, chemical, and biological characteristics of water.

### 3.4 Problem Solution fit

Problem-Solution fit canvas 2.0		Purpose / Vision		
Define CS, fit into CC	<b>1. CUSTOMER SEGMENT(S)</b> <span>CS</span> Who is your customer? i.e. working parents of 0-5 y.o. kids  1. caretaker to monitoring patient health 2. The researcher learns and predicts natural processes in the environment	<b>6. CUSTOMER CONSTRAINTS</b> <span>CC</span> What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.  1. To monitor the quality of water and sent messages in advance of use from this water 2. The customer expect a low cost and efficient	<b>5. AVAILABLE SOLUTIONS</b> <span>AS</span> Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking  1. Artificial Neural Network(ANN) method is used to predict the water quality. 2. It can be executed in any application and it can continue without some issues by its parallel features. 3. We use GSM(Global system for Mobile communication) technologies and it provides basic to advanced voice and data services including roaming service.	Explore AS, differentiate
	<b>2. JOBS-TO-BE-DONE / PROBLEMS</b> <span>J&amp;P</span> Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one, explore different sides.  Jobs to be done: 1. Monitoring the water quality 2. collect the data sets  Problems: 1. Routinely analysis the data sets 2. drinking unhygienic water causes various diseases	<b>9. PROBLEM ROOT CAUSE</b> <span>RC</span> What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations.  1. Lack awareness among people 2. Improper machine maintenance or storage	<b>7. BEHAVIOUR</b> <span>BE</span> What does your customer do to address the problem and get the job done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)  1. Think about the budget of this project 2. Identify the accuracy of water quality 3. Service, flexibility and Convenience 4. accurate and relevant information	
Identify strong TR & EM	<b>3. TRIGGERS</b> <span>TR</span> What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.  1. Advertising that by drinking clean water you will get good health  <b>4. EMOTIONS: BEFORE / AFTER</b> <span>EM</span> How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design. 1. If the customer drinks a impurified water, he feels the insecurity of his health 2. In our project customer feel drink a quality water and secure of him health	<b>10. YOUR SOLUTION</b> <span>SL</span> If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour. 1. water quality predicted by the real time analysed data's 2. Instrumental and chemical analysis of collected field water samples. 3. The analytical results of parameters were evaluated based on the standard limits. 4. Water quality standards protect human health and avoid the costs related to medical care, productivity loss, and even loss of life.	<b>8. CHANNELS of BEHAVIOUR</b> <span>CH</span> <b>8.1 ONLINE</b> What kind of actions do customers take online? Extract online channels from #7 In online the customer read the informations and descriptions carefully and calculate the total purchasing amount,taxes,services and etc  <b>8.2 OFFLINE</b> What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development. 1. Using services properly, speaking out against wrong doing and lawfully purchasing goods and services	Extract online & offline CH of BE


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 Created by Daria Naprahina / Amaltama.com



## 4. REQUIREMENT ANALYSIS

### 4.1 Functional requirement

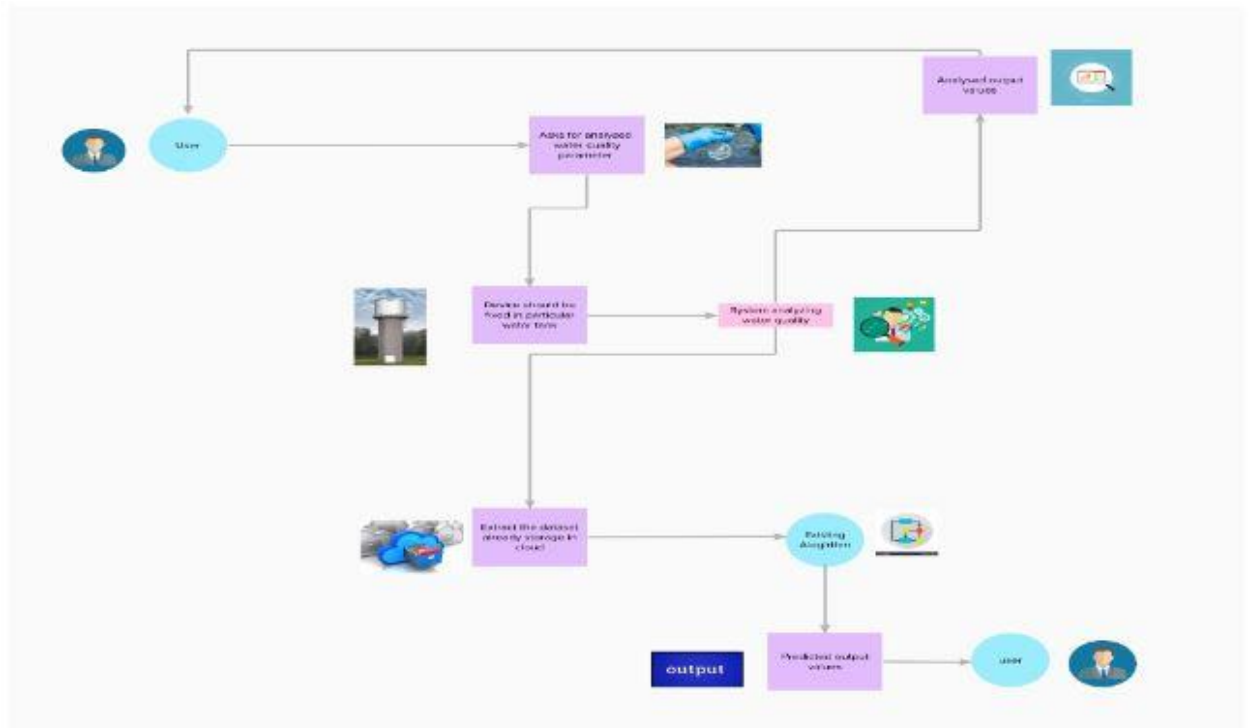
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	To every family we will provide a form when a new user account is created
FR-2	User Confirmation	The system send an approval message after the user account is activated
FR-3	Authorization level	We provide secure water quality monitoring system approved by TNPCB(Tamilnadu pollution control board)
FR-4	Transaction processing system	analyse ,send a message about real time water quality and reusable method via online,
FR-5	Reporting	1.Analysis the real time water quality and send the message to the users. 2.The real time water quality report is collected and the dataset is using to predict the water in upcoming days
FR-6	business rules	1.Any one of the family member fill the appropriate form and provide the current usable mobile number 2.After receiving the verification message user send the confirmation message 3.We will providing our service continuously 4. If any problem occurs register the complaint in our website ,we will provide a immediate solution

### 4.2 Non-Functional requirements

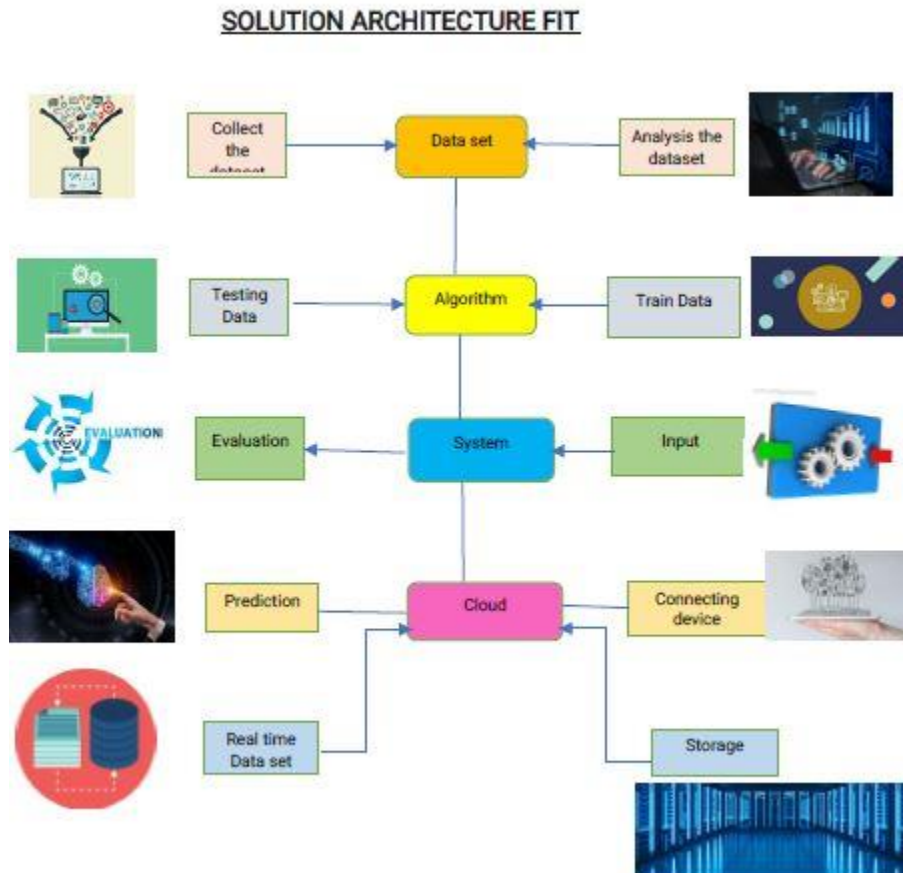
FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	Allows users to identify specific missing data elements available in the water quality portal data.
NFR-2	<b>Security</b>	To ensure that the access of safe drinking water for all people in a country
NFR-3	<b>Reliability</b>	Above 90% of the operations that are completed correctly.
NFR-4	<b>Performance</b>	System effectively compare the incoming water quality parameters with the required dataset
NFR-5	<b>Availability</b>	This system is available for every family or any part of the area people.
NFR-6	<b>Scalability</b>	High mineral levels are found in water as well as Water Quality Index (WQI) and Water Quality Classification (WQC) are accurately predicted.

## 5. PROJECT DESIGN

### 5.1 Data Flow Diagrams



## 5.2 Solution & Technical Architecture



## 5.3 User Stories



User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account/dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register through website	I can register and access the account with website	High	Sprint-1
		USN-4	As a user, I can register for the application through Gmail	I can register and access the gmail	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can successfully login into application	High	Sprint-1
	Dashboard	USN-6	As a user, I can access the dashboard	I can referred dashboard for certainty	Medium	Sprint-1
Customer (Ordinary people, Industry)	Analysis the water quality	USN-7	As a user, I can access the water quality analysis in all over india	I can predict the water quality earlier	High	Sprint-1
Customer Care Executive	Customer queries	USN-8	As a user, I can register the complaint in website	I can get immediate solution	High	Sprint-1
Administrator	Getting value	USN-9	when there is a issues in getting analysed value	through administrator getting predicted value	Low	Sprint-2

## 6. PROJECT PLANNING & SCHEDULING

### 6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Analysing the water quality	USN-1	The man who wants to save our health to do the necessary steps	2	High	L.Aarthi P.Prakashini
Sprint-2	Prevention of drinking polluted water	USN-2	The officer worried about the people health because unpurified water causes many health issues	2	High	P.Prakashini M.Aarthi
Sprint-3	Detect the water quality	USN-3	The socialist can collect the various water parameters to detect the water quality at various environment	2	High	M.Aarthi K.Meenakshi
Sprint-4	Using hardware kit, cloud and various sensors	USN-4	The government take more steps to implementing this hardware setup	2	Medium	K.Meenakshi M.Aarthi
Sprint-5	Training and testing the water quality detection	USN-4	The programmer build a model for water quality detection by train the dataset	2	High	P.Prakashini L.Aarthi
Sprint-6	Notification	USN-6	The model can detect the water quality this detected values is notify to the users	2	High	L.Aarthi K.Meenakshi

### 6.2 Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	4Days	24 Oct 2022	27 Oct 2022	20	27 Oct 2022
Sprint-2	20	4 Days	28 Oct 2022	01 Nov 2022	20	01 Nov 2022
Sprint-3	20	4 Days	02 Nov 2022	06 Nov 2022	20	06 Nov 2022
Sprint-4	20	4 Days	07 Nov 2022	10 Nov 2022	20	10 Nov 2022
Sprint-5	20	4 Days	11 Nov 2022	15 Nov 2022	20	15 Nov 2022
Sprint-6	20	4 Days	16 Nov 2022	19 Nov 2022	20	19 Nov 2022

### 6.3 Reports from JIRA

	T	NOV	DEC	AN '23
Sprints		EWQAP..		
> <a href="#">EWQAPUML-7 Analysis the water quality</a>				
> <a href="#">EWQAPUML-8 Prediction of drinking polluted water</a>				
> <a href="#">EWQAPUML-9 Detect the water quality</a>				
> <a href="#">EWQAPUML-10 Using hardware kit,cloud and vario...</a>				
> <a href="#">EWQAPUML-11 Training and testing the water quali...</a>				
> <a href="#">EWQAPUML-12 Notification</a>				

## 7. CODING & SOLUTIONING

### 7.1 Connection to html

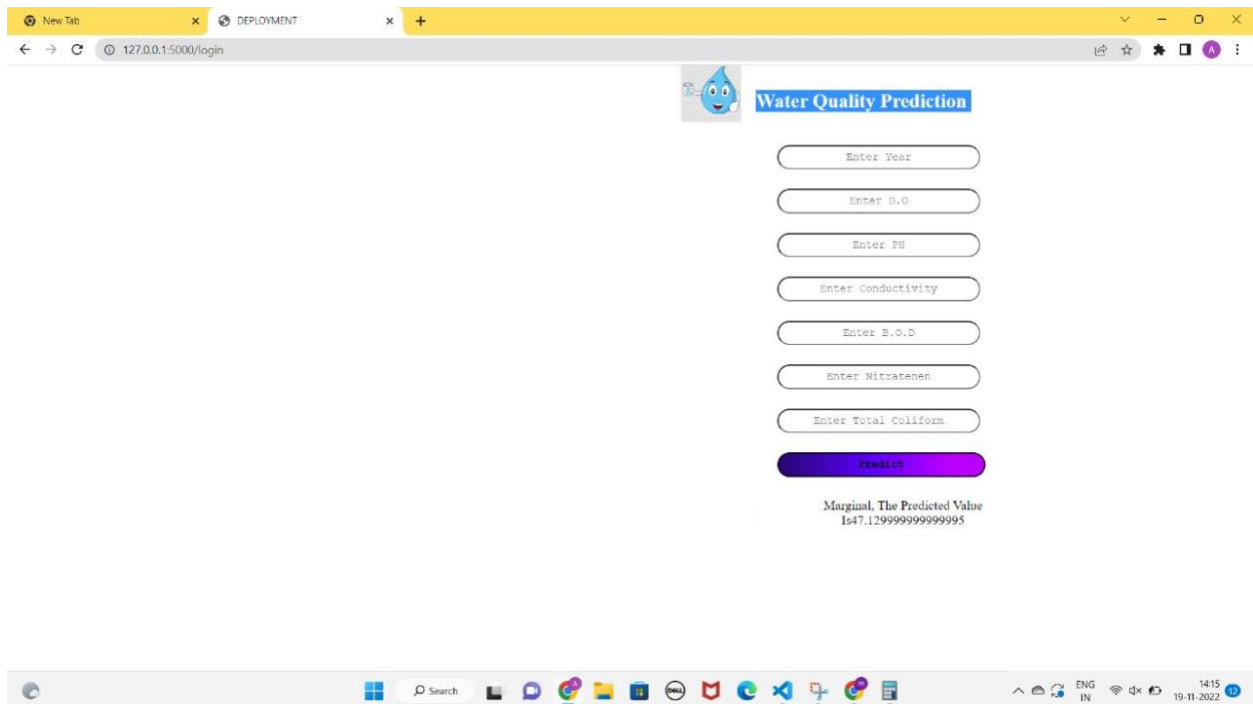
1. A user issues a request for a domain's root URL / to go to its index page
2. app.py maps the URL / to a Python function
3. The Python function finds a web template living in the templates/ folder.
4. A web template will look in the static/ folder for any images, CSSfiles it needs as  
it renders to HTML
5. Rendered HTML is sent back to app.py
6. app.py sends the HTML back to the browser

### 7.2 URL in the browser and backend connection

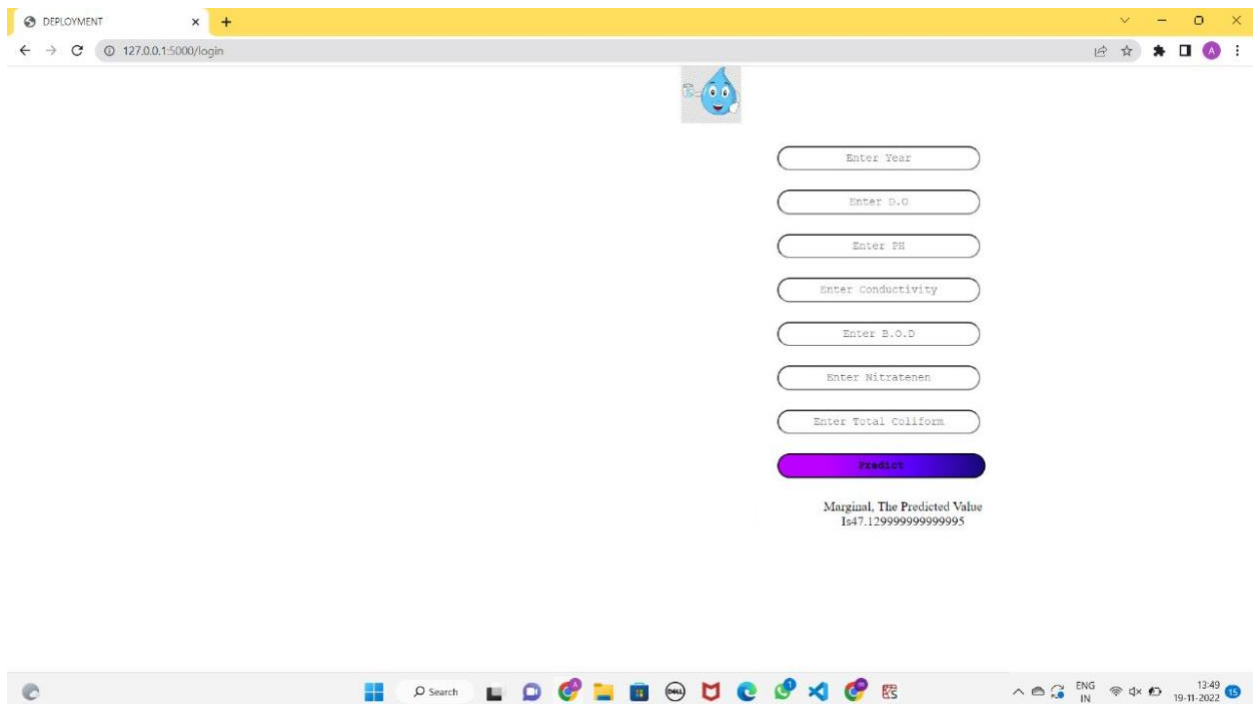
1. First, We imported the Flask class and a function render template.
2. Next, we created a new instance of the Flask class.

3. We then mapped the URL `/` to the function `index()`. Now, when someone visits this URL, the function `index()` will execute.
4. The function `index()` uses the Flask function `render template()` to render the `index.html` template we just created from the `templates/` folder to the browser.
5. Finally, we use `run()` to run our app on a local server.
6. We'll set the debug flag to true, so we can view any applicable error messages if something goes wrong, and so that the local server automatically reloads after we've made changes to the code.
7. When we visited `http://127.0.0.1:5000/`, `app.py` had code in it, which mapped the URL `/` to the Python function `index()`.
8. `index()` found the web template `index.html` in the `templates/` folder, rendered it to HTML, and sent it back to the browser.

### **7.3 Index**



## 7.4 Result



## 7.5 output

Predict

Marginal, The Predicted Value  
Is47.129999999999995

## 9. TESTING

### 9.1 Test Cases

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result
LoginPage_TC_OO 1	Functional	Home Page	Location Test Case	Indicate the near by location	By using GPS	<a href="http://127.0.0.1:5000/">http://127.0.0.1:5000/</a>	Display the current location
LoginPage_TC_OO 2	UI	Home Page	Industrial Test Case	Know the record of particular industry.	By using Advertisement	<a href="http://127.0.0.1:5000/">http://127.0.0.1:5000/</a>	Detect the toxic chemical
LoginPage_TC_OO 3	Functional	Home page	Environment Test Case	Maintain the good environment	Provide more information about the surrounding of the river.	Username: chalam@gmail.com password: Testing123	Detect the nature of surrounded by the river
LoginPage_TC_OO 4	Functional	Login page	pH Test Cases	Accurate quality of water	By using pH sensor.	Username: chalam@gmail.com password: Testing123	Detect the water quality
LoginPage_TC_OO 4	Functional	Login page	Purity and Dirty Test Cases	Good water as well as bad water	By comparing the pH level for good water and bad water.	Username: chalam@gmail.com password: Testing123678686786876876	Identify which kind of water can be drunk
LoginPage_TC_OO 5	Functional	Login page	Agriculture Test Cases	Evergreen process	By using the different kind of strategy	Username: chalam password: Testing123678686786876876	Better growth in agriculture

### 9.2 User Acceptance Testing

## • Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [ProductName] project at the time of the release to User Acceptance Testing (UAT).

## • Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	15	4	3	4	27
Duplicate	1	0	2	0	3
External	1	2	0	1	4
Fixed	13	3	6	23	45
Not Reproduced	0	1	0	0	1
Skipped	0	1	0	1	2
Won't Fix	0	6	1	1	8
Totals	30	17	12	30	90

## • Test Case Analysis

This report shows the number of test cases that have passed, failed, and untested

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	39	0	0	39
Security	4	0	0	4
Outsource Shipping	3	0	0	3
Exception Reporting	8	0	0	8
Final Report Output	5	0	0	5
Version Control	3	0	0	3

## 10. RESULTS

### 10.1 Performance Metrics

#### Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No	Parameter	Values	Screenshot
1.	Metrics	<b>Model Evaluation:</b> MAE :  1.0140200501253205  MSE : 5.786707157894741  RMSE :  2.405557556554143  R2 score :  0.9684566685516488	<b>Model Evaluation</b>  <pre>[ ] from sklearn import metrics print('MAE:',metrics.mean_absolute_error(y_test,y_pred)) print('MSE:',metrics.mean_squared_error(y_test,y_pred)) print('RMSE:',np.sqrt(metrics.mean_squared_error(y_test,y_pred)))  MAE: 1.0140200501253205 MSE: 5.786707157894741 RMSE: 2.405557556554143  [ ] metrics.r2_score(y_test, y_pred)  0.9684566685516488</pre>

2.	Tune the Model	<b>Validation Method :</b>  <b>Testing Accuracy</b>  0.9684566685516488	<b>Model Evaluation</b>  <pre>[ ] from sklearn import metrics print('MAE:',metrics.mean_absolute_error(y_test,y_pred)) print('MSE:',metrics.mean_squared_error(y_test,y_pred)) print('RMSE:',np.sqrt(metrics.mean_squared_error(y_test,y_  MAE: 1.0140200501253205 MSE: 5.786707157894741 RMSE: 2.405557556554143  [ ] metrics.r2_score(y_test, y_pred)  0.9684566685516488</pre>
----	----------------	---	---

## 11. ADVANTAGES

1. In this technique, our model predicts that the water is safe to drink or not using some parameters like Ph value, conductivity, hardness, etc. Access to safe drinking-water is essential to health, a basic human right and a component of effective policy for health protection.

2. During the last years, water quality has been threatened by various pollutants. Therefore, modeling and predicting water quality have become very important in controlling water pollution.

## **11. DISADVANTAGES**

1. The output of an algorithm after it has been trained on a historical dataset and applied to new data when forecasting the likelihood of a particular outcome.

2. Dataset collection is difficult, because more number of dataset is needed for training the model

## **12. CONCLUSION**

If we look at the current situation of water depletion, it is evident that we are in dire need of water\_prediction. Freshwater is a finite and limited resource on Earth and, increasingly, much of it is polluted, by both pathogenic microbes and chemical contaminants. the water quality index (WQI) is calculated using random forest regression algorithm. The web ui will be created in spyder using flask using python,html,style.css codes. when the user enter the values then the predicted value will be displayed. water quality predicting model have become very important in detect water quality

## **13. FUTURE SCOPE**

Machine learning models fail silently, which means they will make predictions even if the incoming data looks nothing like the data they were trained against. it allow businesses to make highly accurate guesses as to the likely outcomes of a question based on historical data these historical data is used to build a mathematical model that captures important trends.

## **14. APPENDIX**

### **Source Code**

#### **Style.css**

```
* {  
  
margin: 0;  
  
padding: 0;  
  
box-sizing: border-box;
```



```
}
```

```
body {  
  
    background: #0000;  
  
    background-repeat: no-repeat;  
  
    background-size: cover;  
  
}
```

```
/* styling the header */
```

```
.row1 img {  
  
    height: 70px;  
  
    position: relative;  
  
    left: 54vw;  
  
}
```

```
.row2 h1 {  
  
    position: absolute;  
  
    left: 60vw;  
  
    color: #ffff;  
  
    top: 30px;  
  
}
```

```
main div.column input {  
  
    display: block;  
  
    position: relative;  
  
    margin: 24px 26px;  
  
    left: 60vw;  
  
    border-radius: 35px;  
  
    width: 250px;  
  
    height: 30px;  
  
}
```

```
input[type="text"] {  
  
    text-align: center;  
  
    font-family: 'Courier New', Courier, monospace;  
  
}
```

```
main div.last input {  
  
    width: 256px;;  
  
    background: rgb(5, 3, 68);  
  
    background: linear-gradient(90deg, rgba(5, 3, 68, 1) 0%, rgba(0, 12, 36, 1) 0%, rgba(39, 9, 121, 1)  
0%, rgba(38, 8, 114, 1) 0%, rgba(94, 0, 255, 1) 45%, rgba(188, 0, 255, 1) 84%);  
  
    font-weight: 600;  
  
    font-family: 'Courier New', Courier, monospace;
```

```
}
```

```
main div.last input:hover {  
  
    background: rgb(188, 0, 255);  
  
    background: linear-gradient(90deg, rgba(188, 0, 255, 1) 23%, rgba(94, 0, 255, 1) 63%, rgba(22, 9,  
121, 1) 100%, rgba(5, 3, 68, 1) 100%, rgba(0, 12, 36, 1) 100%, rgba(38, 8, 114, 1) 100%);  
  
}
```

```
.bor {  
  
    text-align: center;  
  
    margin-left: 60vw;  
  
  
  
    color: white  
  
    font-size: 21px;  
  
    border: 2px solid rgb(251, 253, 255);  
  
    width: 358px;  
  
    padding-left: 4px;  
  
}
```

html code

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
  <meta charset="UTF-8">
```

```
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
```

```
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
  <title>DEPLOYMENT</title>
```

```
  <link rel="stylesheet" href="../static/css/style.css">
```

```
</head>
```

```
<body>
```

```
  <header>
```

```
    <nav>
```

```
      <div class="row">
```

```
        <div class="row1">
```

```
          
```

```
        </div>
```

```
      <div class="row2">
```

```
        <h1>Water Quality Prediction</h1>
```

```
      </div>
```

```
    </div>
```

```
  </nav>
```

</header>

<main>

<div class="column">

<form action="/login" method="post">

<label for=""></label>

<input type="text" name="year" id="" placeholder="Enter Year">

<label for=""></label>

<input type="text" name="do" id="" placeholder="Enter D.O">

<label for=""></label>

<input type="text" name="ph" id="" placeholder="Enter PH">

<label for=""></label>

<input type="text" name="co" id="" placeholder="Enter Conductivity">

<label for=""></label>

<input type="text" name="bod" id="" placeholder="Enter B.O.D">

<label for=""></label>

<input type="text" name="na" id="" placeholder="Enter Nitratenen">

<label for=""></label>

<input type="text" name="tc" id="" placeholder="Enter Total Coliform">

<label for=""></label>

<div class="last">

<input type="submit" value="Predict">

</div>

<div class="bor">

{{showcase}}

</div>

</form>

</div>

</main>

</div>

</body>

</html>

app.py

import numpy as np

from flask import

Flask,render\_template,request

import pickle

app= Flask(\_\_name\_\_)

file=open('wqi.pkl','rb')

random\_Forest=pickle.load(file)

file.close()

app=Flask(\_\_name\_\_, template\_folder='template')

# Save model

```

with open('wqi.pkl', 'rb') as model:

    pickle.load(model)

@app.route('/')

def home() :

    return render_template("index.html")

@app.route('/login',methods = ['GET','POST'])

def login() :

    year = request.form["year"]

    do = request.form["do"]

    ph = request.form["ph"]

    co = request.form["co"]

    bod = request.form["bod"]

    tc = request.form["tc"]

    na = request.form["na"]

    total = [float(year),float(do),float(ph),float(co),float(bod),float(na),float(tc)]

    res=random_Forest.predict([total])[0]

    y_pred = res

    if(y_pred >= 95 and y_pred<=100):

        return render_template("index.html",showcase = 'Excellent, The Predicted Value Is'+ str(y_pred))

    elif(y_pred >= 89 and y_pred<=94):

        return render_template("index.html",showcase = 'Very Good, The Predicted Value Is'+

str(y_pred))

    elif(y_pred >= 80 and y_pred<=88):

        return render_template("index.html",showcase = 'Good, The Predicted Value Is'+ str(y_pred))

```

```
elif(y_pred >= 65 and y_pred<=79):

    return render_template("index.html",showcase = 'Fair, The Predicted Value Is'+ str(y_pred))

elif(y_pred >= 45 and y_pred<=64):

    return render_template("index.html",showcase = 'Marginal, The Predicted Value Is'+ str(y_pred))

else:

    return render_template("index.html",showcase = 'Poor, The Predicted Value Is'+ str(y_pred))

if __name__ == '__main__':

    app.run(debug=False,port=5000)
```

### GitHub & Project Demo Link

[https://drive.google.com/file/d/1ceDPBP4zZ3ObLyyy5uTSFU4dS6CL58Wn/view?usp=share\\_link](https://drive.google.com/file/d/1ceDPBP4zZ3ObLyyy5uTSFU4dS6CL58Wn/view?usp=share_link)