



# WATER QUALITY PREDICTOR

## Team Members

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## Background

To predict the water quality of a specific body of water for recreational use and potability. A water quality index will be used to determine the level of quality.

## Motivation

We all love recreation activities in and around water. We always wonder where we should go, and which locations have the safest water for recreational activities, as well as which locations have potable water.

In this project we will develop a tool which will show locations around Lake Sammamish in Washington State, and display which are safe for recreational and potability use. It will be an interactive tool which takes user input for geolocation and recommends the locations which are fit for potability and recreational uses. The location will be displayed using marker layer map and pop-up markers, information about weather and water quality.

**\*\***Water quality is impacted with the release of pollutants due to various anthropogenic activities in its catchment area. The United States Environmental Protection Agency (USEPA) has certain criteria to determine the water quality for recreational and potability use, to protect people from microorganisms and water pollutants in water bodies (e.g., lakes, rivers, beaches). The use of contaminated water for drinking, swimming and other recreational water can make people ill.

## Questions to answer

- Question 1: Is the water safe for recreational activities (e.g. swimming, boating, water skiing, etc.)?
- Question 2: Is this water safe to drink?
- Question 3: What is the water temperature?

## Tools/Modules to use

- Python
- Pandas
- Matplotlib
- NumPy
- SciPy
- Scikit-learn

## Data sets to use

List all possible databases you'll use

- <https://green2.kingcounty.gov/lakes/Query.aspx>

## Tasks Breakdown

Ritu: GitHub, Modeling

Erica: Modeling, Database Manager

Ling: Modeling, Dashboard

Nicole: Presentation, Modeling

## Tasks and timeline

	Date	Task	Notes
<b><u>Seg-0.2</u></b>	<b>10/17/22</b>		
<b><u>Seg-0.3</u></b>	<b>10/18/22</b>		
<b><u>Seg-0.4</u></b>	<b>10/19/22</b>		<u>Normal Class</u>
<b><u>Seg-0.5</u></b>	<b>10/20/22</b>		
<b><u>Seg-0.6</u></b>	<b>10/21/22</b>		
<b><u>Seg-0.7</u></b>	<b>10/22/22</b>		
<b><u>Seg-1.1</u></b>	<b>10/23/22</b>	<ul style="list-style-type: none"><li>• <u>Group Roster and Project Idea Proposal Due</u></li></ul>	<ul style="list-style-type: none"><li>• Nicole</li></ul>

<b><u>Seg-1.2</u></b>	<b>10/24/22</b>	<ul style="list-style-type: none"> <li>• Create git hub for team</li> <li>• Collect data and clean</li> </ul>	<ul style="list-style-type: none"> <li>• Ritu</li> <li>• All</li> </ul>
<b><u>Seg-1.3</u></b>	<b>10/25/22</b>		
<b><u>Seg-1.4</u></b>	<b>10/26/22</b>	<ul style="list-style-type: none"> <li>• Start on database</li> <li>• Exploratory analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Erica</li> <li>• All</li> </ul>
<b><u>Seg-1.5</u></b>	<b>10/27/22</b>	<ul style="list-style-type: none"> <li>• Team status meeting</li> </ul>	<ul style="list-style-type: none"> <li>• All</li> </ul>
<b><u>Seg-1.6</u></b>	<b>10/28/22</b>		
<b><u>Seg-1.7</u></b>	<b>10/29/22</b>	<ul style="list-style-type: none"> <li>• Start drafting presentation</li> <li>• Git Hub content for exploratory analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Nicole</li> <li>• Ritu</li> </ul>
<b><u>Seg-2.1</u></b>	<b>10/30/22</b>		
<b><u>Seg-2.2</u></b>	<b>11/01/22</b>	<ul style="list-style-type: none"> <li>• Start Machine Learning</li> </ul>	<ul style="list-style-type: none"> <li>• All (different methods)</li> </ul>
<b><u>Seg-2.3</u></b>	<b>11/02/22</b>		
<b><u>Seg-2.4</u></b>	<b>11/03/22</b>		
<b><u>Seg-2.5</u></b>	<b>11/04/22</b>		
<b><u>Seg-2.6</u></b>	<b>11/05/22</b>		
<b><u>Seg-2.7</u></b>	<b>11/06/22</b>		
<b><u>Seg-3.1</u></b>	<b>11/07/22</b>		<b><u>1st Segment Due</u></b>
<b><u>Seg-3.2</u></b>	<b>11/08/22</b>	<ul style="list-style-type: none"> <li>• Complete database</li> <li>• Start dashboard</li> </ul>	<ul style="list-style-type: none"> <li>• Erica</li> <li>• Ling</li> </ul>
<b><u>Seg-3.3</u></b>	<b>11/09/22</b>		
<b><u>Seg-3.4</u></b>	<b>11/10/22</b>		
<b><u>Seg-3.5</u></b>	<b>11/11/22</b>		

<b><u>Seg-3.6</u></b>	<b>11/12/22</b>		
<b><u>Seg-3.7</u></b>	<b>11/13/22</b>	<ul style="list-style-type: none"> <li>• Complete Machine Learning</li> <li>• 2nd draft presentation</li> </ul>	<ul style="list-style-type: none"> <li>• All (different methods)</li> <li>• Nicole</li> </ul>
<b><u>Seg-4.1</u></b>	<b>11/14/22</b>	<b>Finalize the project</b>	<b><u>2nd Segment Due</u></b>
<b><u>Seg-4.2</u></b>	<b>11/15/22</b>	<ul style="list-style-type: none"> <li>• Complete Presentation</li> <li>• Git Hub branch merge</li> <li>• Models complete</li> <li>• Dashboard complete</li> </ul>	<ul style="list-style-type: none"> <li>• Nicole</li> <li>• Ritu</li> <li>• Ritu/Erica</li> <li>• Ling</li> </ul>
<b><u>Seg-4.3</u></b>	<b>11/16/22</b>	<b>Mock Presentation</b>	
<b><u>Seg-4.4</u></b>	<b>11/17/22</b>		
<b><u>Seg-4.5</u></b>	<b>11/18/22</b>		
<b><u>Seg-4.6</u></b>	<b>11/19/22</b>		
<b><u>Seg-4.7</u></b>	<b>11/20/22</b>		<b><u>3rd Segment Due</u></b>
<b><u>Seg-5.1</u></b>	<b>11/21/22</b>	<b>PROJECT PRESENTATION</b>	<b><u>4th Segment and Self Assessment Due</u></b>
<b><u>Seg-5.2</u></b>	<b>11/22/22</b>		
<b><u>Seg-5.3</u></b>	<b>11/23/22</b>	<b>PROJECT PRESENTATION</b>	<b><u>4th Segment and Self Assessment Due</u></b>
<b><u>Seg-5.4</u></b>			
<b><u>Seg-5.5</u></b>			
<b><u>Seg-5.6</u></b>			
<b><u>Seg-5.7</u></b>			<b><u>All submissions Due</u></b>

## Presentation

- Background: Ritu
- Summary: Ritu
- Data: Erica
- Method(s): Ling
- Results: Nicole