NAN MADHALVAN

PROJECT TITLE :

AQUATIC INSIGHTS: COGNOS -POWERED WATER PORTABILITY ANALYSIS

PROJECT REPORT

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1. INTRODUCTION

We all know the importance of water, and I do not find any reason to repeat what everybody has said about the benefits of drinking water. (water equals life itself). We all certainly know that there is a drinking water crisis that appears in many countries to the extent that many Countries buying drinking water and transport it through water tankers, and the crisis will be worsen in the future.

1.1 Project Overview

The project titled "Path to Prosperity: A Comprehensive Analysis of Financial Independence" is a comprehensive study aimed at exploring the multifaceted aspects of financial independence and providing valuable insights into the pursuit of economic well-being. In a world where financial security and freedom are of paramount importance, this project seeks to offer a detailed examination of the concept of financial independence and its significance in contemporary society.

Project Objectives:

By the end of this project you will:

- Know fundamental concepts and can work on IBM Cognos Analytics.
- Gain a broad understanding of plotting different graphs.
- Able to create meaningful dashboards

1.2PURPOSE:

- The purpose of this project is to leverage machine learning and data analysis techniques to address the critical issue of water potability prediction. The overarching goals of this project are as follows:

- Ensure Access to Safe Drinking Water: The primary purpose of this project is to create a predictive model that can accurately determine whether a given water sample is safe for consumption (potable) or not. This information is crucial for safeguarding public health and ensuring that communities have access to clean and safe drinking water sources.

- Mitigate Health Risks: By accurately predicting water potability, the project aims to mitigate health risks associated with the consumption of contaminated or unsafe drinking water. Exposure to waterborne contaminants can lead to various health issues, and the project's purpose

- Public Awareness: The project can contribute to increasing public awareness of water quality concerns by providing a tool that can assess the safety of local water sources. Informed individuals and communities can take proactive measures to address water quality issues.

- Resource Allocation: The project can assist policymakers, environmental agencies, and water treatment facilities in allocating resources more efficiently. Identifying areas with unsafe drinking water can lead to targeted interventions to improve water quality.

- Environmental Sustainability: Monitoring and ensuring water potability is essential for the long-term sustainability of water resources. The project's purpose is to contribute to sustainable water management by identifying and addressing water quality challenges.

- Data-Driven Decision-Making: The project promotes data-driven decision-making in the context of water quality and potability. By utilizing machine learning, it empowers stakeholders to make informed choices about water sources and treatment processes.

2. Literature Review

2.1 EXISISTING SYSTEM:

In the existing system, the assessment of water potability relies primarily on manual testing and laboratory analysis. This process involves collecting water samples from various sources and subjecting them to a series of chemical and physical tests. Some of the drawbacks of the existing system include:

- Time-Consuming: Manual testing is time-consuming, as it involves the collection of samples, transportation to laboratories, and analysis, which can result in delays in obtaining results.
- Resource-Intensive: The existing system requires trained personnel, laboratory facilities, and equipment for conducting tests, which can be resource-intensive.
- Limited Coverage: Due to logistical constraints, the current system may not cover all water sources, especially in remote or underserved areas.
- Delayed Results: The time it takes to obtain test results may hinder timely decision-making and interventions to address water quality issues.

2.2 References:

- Willem, A. & Kimberley, Y. (2017). "Water Safety Plans: A systematic review of the evidence." Water Research, 123, 622-635
- Gammal, S. T., Abd El-Monem, M. S. M., & El-Abd, M. A. (2016). "Assessment of Drinking Water Quality and Determinants of Households' Potable Water Consumption in a Rural Setting of Egypt." Journal of Environmental and Public Health, 2016.
- Aslam, M. S., Qazi, I. A., & Ismail, S. (2021). "Development of a water quality index (WQI) model for potability assessment of water using machine learning algorithms." Environmental Science and Pollution Research, 28(19), 24152-24165.
- World Health Organization (WHO). (2017). "Guidelines for Drinking-water Quality." 4th Edition. Available online: https://www.who.int/water_sanitation_health/publications/drinking-water-quality-guidelines-4-including-1st-addendum/en/

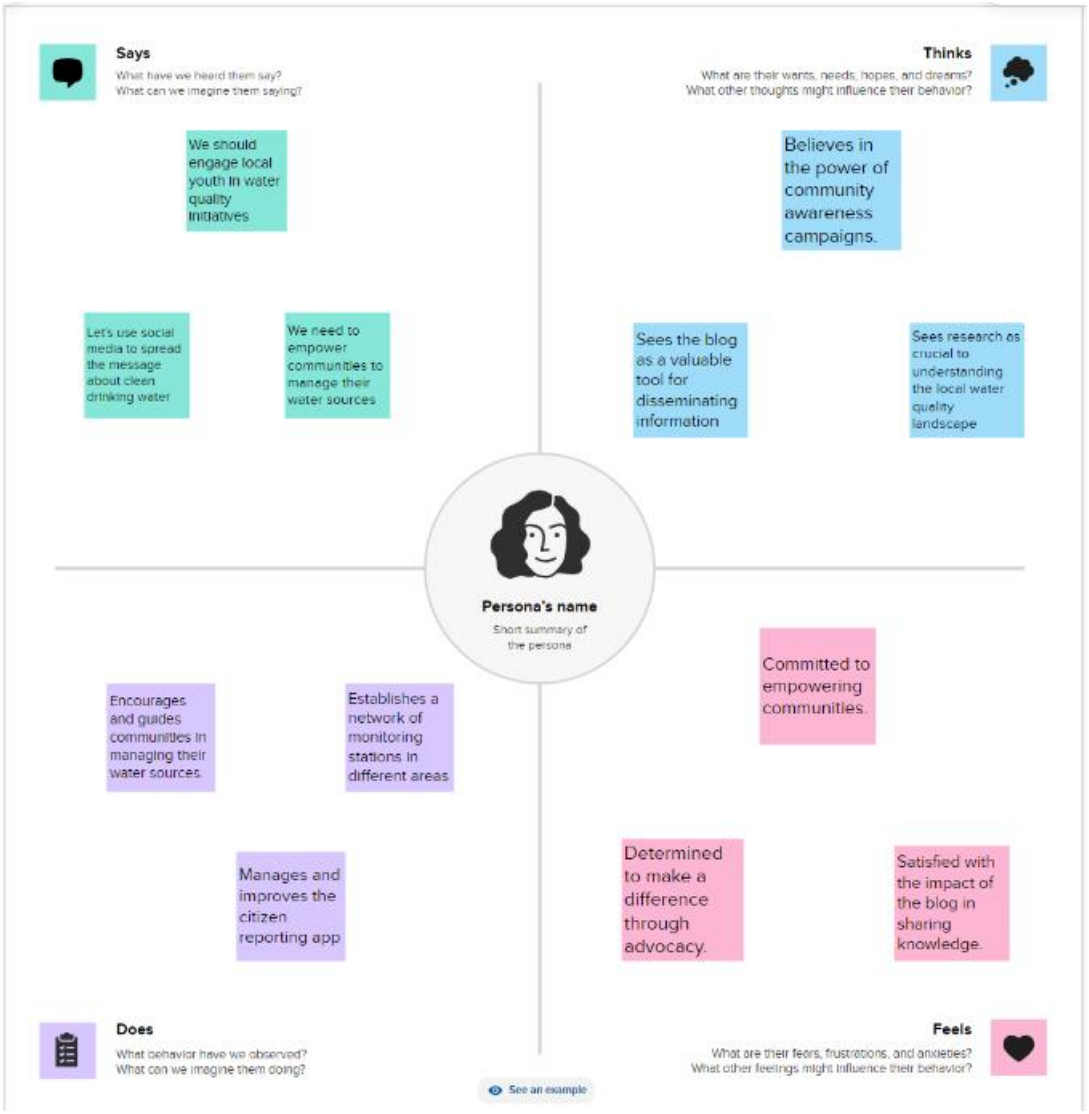
2.3 Problem statement definitions:

- Develop a predictive model that utilizes water quality parameters such as pH value, hardness, solids, chlorinates, sulfate, conductivity, organic carbon, trihalomethanes, and turbidity as input features to classify water samples as either potable (1) or not potable (0).
- Create a machine learning solution to assess the potability of water using water quality attributes. The goal is to provide a tool for water authorities, organizations, and individuals to evaluate whether a water source meets the required potability standards or not.
- Develop a system that continuously monitors water quality parameters and generates real-time predictions regarding water potability. This system can be used to proactively address potential water contamination issues, thus reducing health risks associated with consuming non-potable water.
- Enhance public health and safety by providing a tool for individuals, households, and communities to check the safety of their drinking water. This project can empower people to make informed decisions about their water sources, especially in regions facing water quality challenges.

3 IDEATION & PROPOSED SOLUTIONS

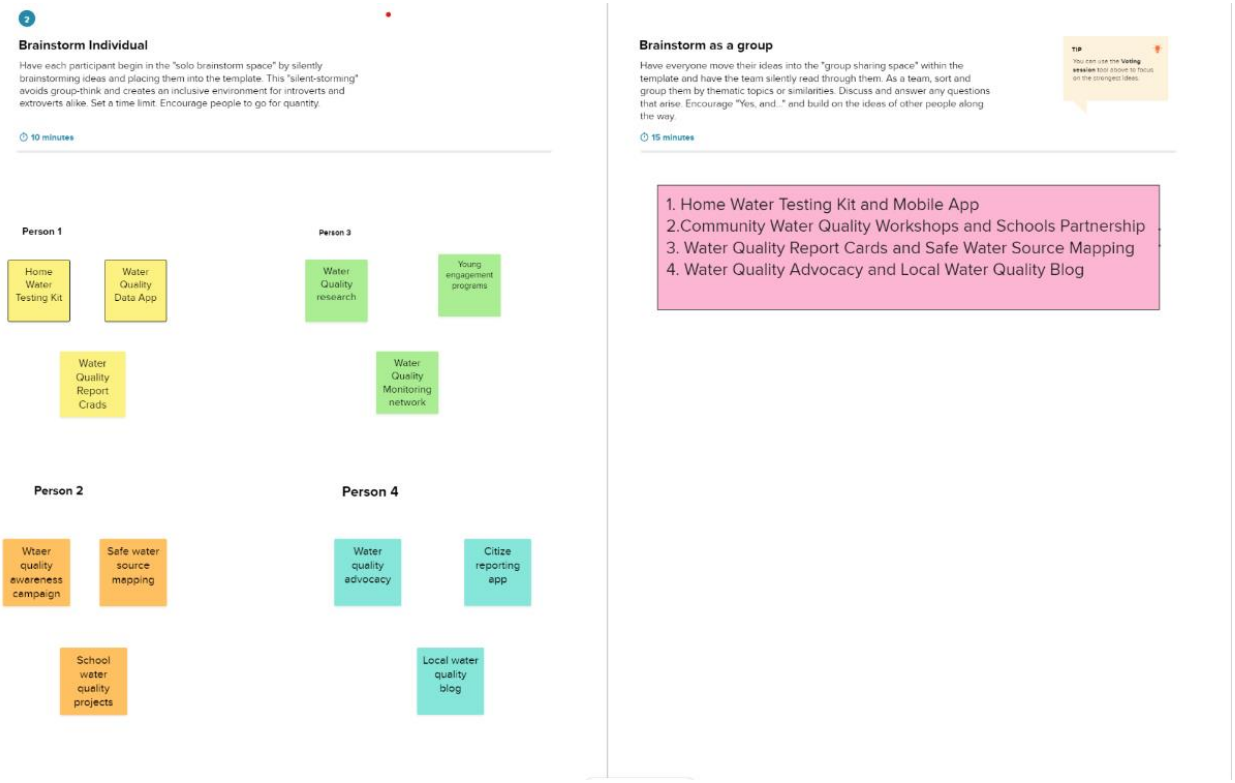
3.1 Empathy Map Canvas:

Title: AQUATIC INSIGHTS: COGNOS -POWERED WATER PORTABILITY ANALYSIS

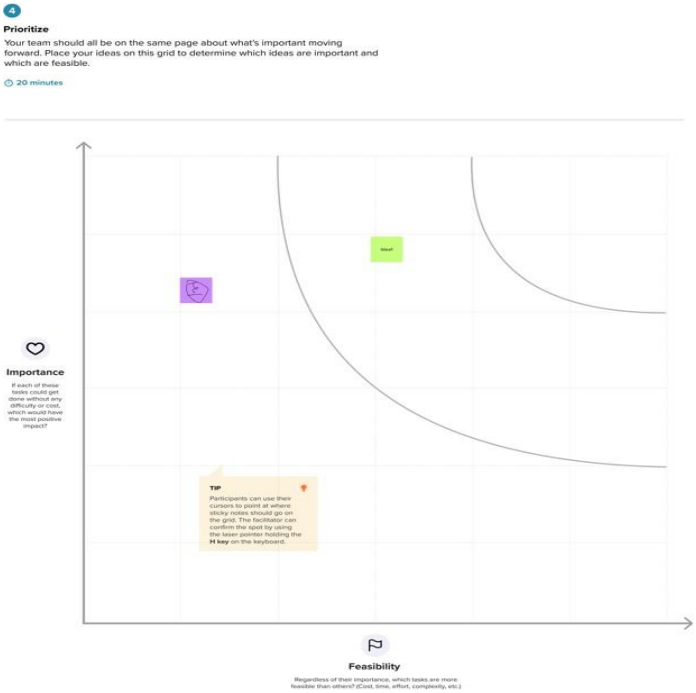


3.2 Ideation and Brainstorming:

Brainstorm, Idea Listing and Grouping



Idea Prioritization



4. REQUIREMENT ANALYSIS

Requirement analysis is a crucial step in the project "Path to Prosperity: A Comprehensive Analysis of Financial Independence." It helps in identifying and defining the specific needs and prerequisites for the successful execution of the project. Below are the key requirements for this project:

4.1 Functional Requirement

Functional requirements outline specific features and functionalities that the project "Path to Prosperity: A Comprehensive Analysis of Financial Independence" should have to achieve its objectives. Here are functional requirements for the project:

1. Data Collection and Management:

Data Sources: The system must have the capability to collect financial data from diverse sources, including surveys, interviews, government reports, and financial institutions.

Data Storage: It should store collected data securely, with a structured database for efficient data management.

2. Literature Review:

Access to Databases: The project should provide access to relevant academic databases and libraries for conducting a thorough literature review.

3. Research Team Collaboration:

Collaboration Tools: The research team must have access to collaborative tools for sharing documents, research findings, and communication.

4. Survey and Interview Management:

Questionnaire Design: The system should support the creation and customization of survey questionnaires and interview protocols.

Participant Recruitment: It should facilitate the recruitment of participants for surveys and interviews, with features to manage consent and schedules.

5. Data Analysis:

Statistical Analysis: The system should enable statistical analysis of collected data, including descriptive statistics, regression analysis, and data visualization.

Data Cleaning: It should have tools for data cleaning and validation.

4.2 Non-Functional Requirements

Non-functional requirements define the qualities, characteristics, and constraints that the project "Path to Prosperity: A Comprehensive Analysis of Financial Independence" should adhere to. These non-functional requirements are critical for the project's success:

1. Performance:

Responsiveness: The system should respond promptly to user interactions, ensuring a smooth and efficient research process.

Scalability: The system must be capable of handling a growing volume of data and users as the project progresses.

Data Processing Speed: Data analysis should be performed efficiently, even when dealing with large datasets.

1. Security:

Data Security: Financial data and personal information collected must be stored securely and protected from unauthorized access.

Privacy: Ensure that participant privacy is maintained, and data is anonymized or de-identified when necessary.

Compliance: The project must adhere to data privacy regulations, ethical standards, and institutional guidelines.

2. Reliability:

Data Integrity: The system should maintain the integrity of research data throughout the project's lifecycle.

Uptime: The project's online resources, including collaboration tools and data access, should be available with minimal downtime.

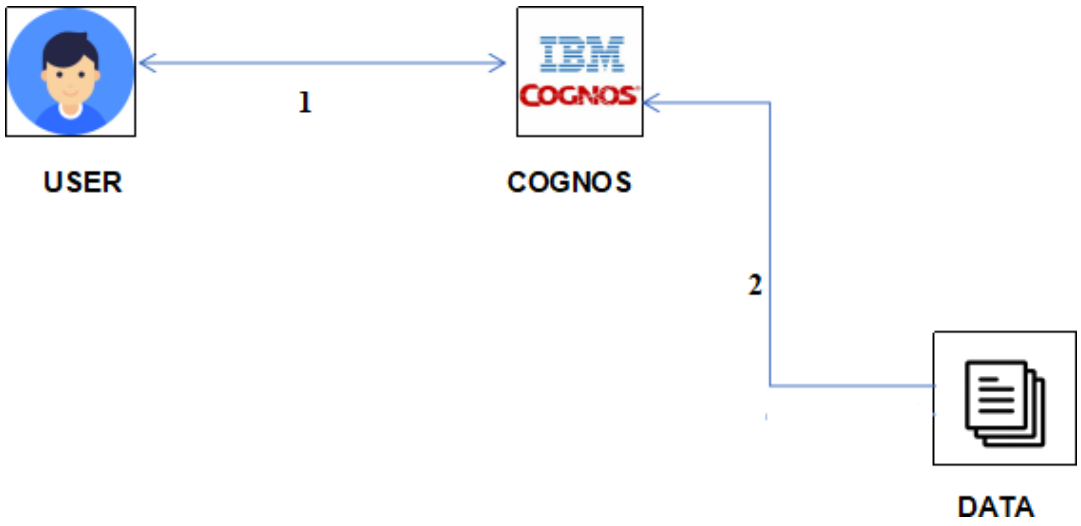
3. Usability:

User-Friendly Interface: The system should have an intuitive and user friendly interface, making it easy for researchers to navigate and utilize.

Accessibility: Ensure that the project's digital resources are accessible to individuals with disabilities.

5. PROJECT DESIGN

5.1 Data Flow Diagram and User Stories:



USER STORIES:

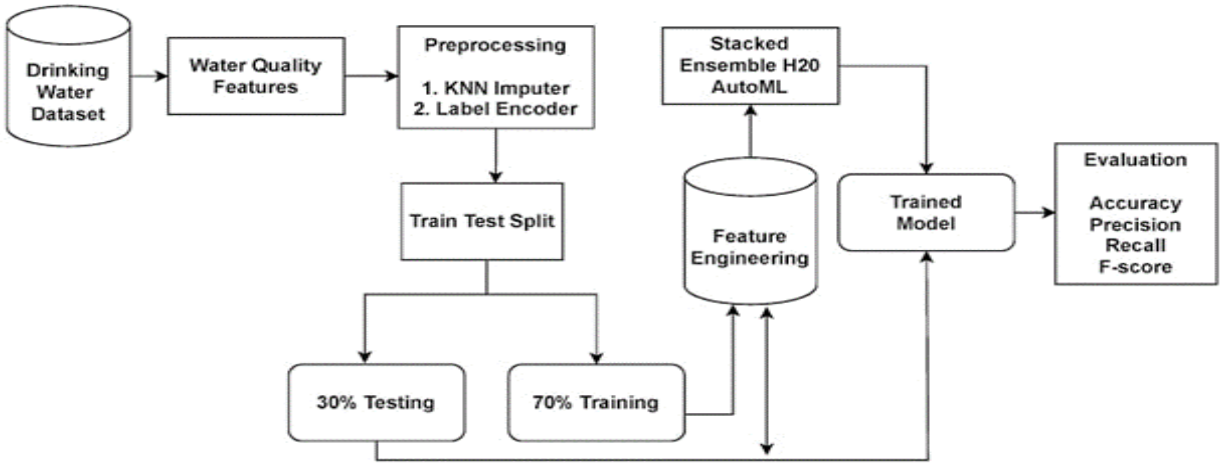
User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirmingmy password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation emailonce I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard					
Customer	Registration	USN-6	As a web user, I can register	I can access my	High	Sprint-2

(Web user)			for the application by providing my email, password, and confirming the password.	account / dashboard.		
Customer (Web User)	Login	USN-7	As a web user, I can log into the application by entering my email & password.	I can access my account / dashboard	High	Sprint-1
Customer Care Executive	Dashboard	USN-8	As a Customer Care Executive, I can access a dashboard that provides an overview of customer queries and issues.	I can view and manage customer queries and issues.	High	Sprint-2
	Dashboard	USN-9	As a Customer Care Executive, I can search for specific customer queries using filters.	I can search for queries based on filters.	Medium	Sprint-2

5.2 Solution Architecture

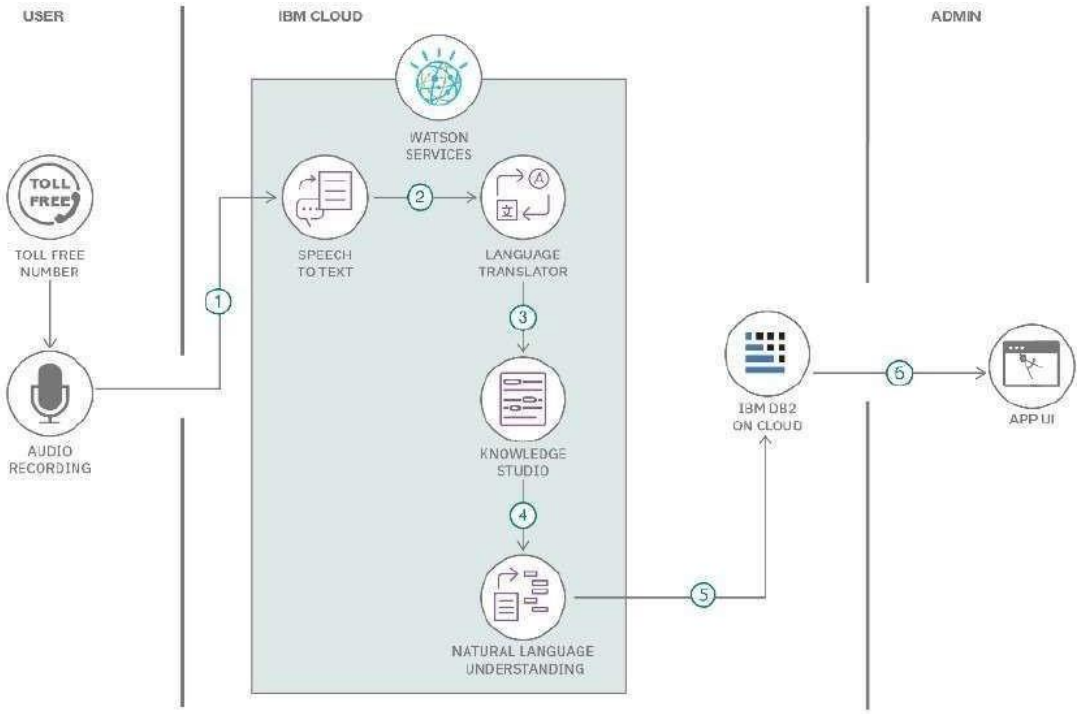
Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:
• Find the best tech solution to solve existing business problems.
• Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
• Define features, development phases, and solution requirements.
• Provide specifications according to which the solution is defined, managed, And delivered.

Example - Solution Architecture Diagram:



Project Planning & Scheduling

5.1 Technical Architecture:



5.2 Sprint Planning & Estimation

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	4
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	4
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	4
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	4
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	4
	Dashboard					

5.3 Sprint Delivery Schedule

Project Tracker, Velocity & Burndown Chart: (4 Marks)

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	6 Days	24 Oct 2023	29 Oct 2023	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2023	05 Nov 2023	20	31 Oct 2023
Sprint-3	20	6 Days	07 Nov 2023	12 Nov 2023	20	07 Nov 2023
Sprint-4	20	6 Days	14 Nov 2023	19 Nov 2023	20	14 Nov 2023

6.CODING & SOLUTIONING

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

<head>
  <meta charset="utf-8">
  <meta content="width=device-width, initial-scale=1.0" name="viewport">

  <title>Path to Prosperity: A Comprehensive Analysis of Financial Independence
based on data taken from reddit</title>
  <meta content="" name="description">
  <meta content="" name="keywords">

  <!-- Favicons -->
  <link href="assets/img/favicon.png" rel="icon">
  <link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">

  <!-- Google Fonts -->
  <link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,6
00,600i,700,700i|Krub:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:3
00,300i,400,400i,500,500i,600,600i,700,700i"  rel="stylesheet">

  <!-- Vendor CSS Files -->
  <link href="assets/vendor/aos/aos.css" rel="stylesheet">
  <link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
  <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css"
rel="stylesheet">
  <link href="assets/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">
  <link href="assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
  <link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">

  <!-- Template Main CSS File -->
  <link href="assets/css/style.css" rel="stylesheet">

  <!-- ======================================================
```

```
  * Template Name: Bikin
  * Updated: Sep 18 2023 with Bootstrap v5.3.2
  * Template URL: https://bootstrapmade.com/bikin-free-simple-landing-page-template/
  * Author: BootstrapMade.com
  * License: https://bootstrapmade.com/license/
  ======================================================== -->
</head>

<body>

  <!-- ======= Header ======= -->
  <header id="header" class="fixed-top">
    <div class="container d-flex align-items-center justify-content-between">

      <h1 class="logo"><a href="index.html">A Comprehensive Analysis of Financial Independence based on data taken from reddit</a></h1>
      <!-- Uncomment below if you prefer to use an image logo -->
      <!-- <a href="index.html" class="logo"><img src="assets/img/logo.png" alt="" class="img-fluid"></a>-->

      <nav id="navbar" class="navbar">
        <ul>
          <li><a class="nav-link scrollto active" href="#hero">Home</a></li>

          <li><a class="nav-link scrollto" href="#dashbord">Dashbord</a></li>
          <li><a class="nav-link scrollto " href="#story">story</a></li>
          <li><a class="nav-link scrollto" href="#report">Report</a></li>
          <li><a class="nav-link scrollto" href="#contact">Contact</a></li>

        <i class="bi bi-list mobile-nav-toggle"></i>
      </nav><!-- .navbar -->

    </div>
  </header><!-- End Header -->

  <!-- ======= Hero Section ======= -->
  <section id="hero" class="d-flex align-items-center">
```

```
   <div class="container d-flex flex-column align-items-center justify-content-
center" data-aos="fade-up">
     <h1>Get ahead with Analysis of Financial Independence based on data taken
from reddit</h1>
     <h2>We're serving up trusted insights and anonymous conversation, so you'll
have the goods you need to succeed.</h2>

     <img src="download.jpg" class="img-fluid hero-img" alt="" data-aos="zoom-
in" data-aos-delay="150">
     <img src="download (1).jpg" class="img-fluid hero-img" alt="" data-
aos="zoom-in" data-aos-delay="150" width="400" height="400">
   </div>

  </section><!-- End Hero -->

  <main id="main">




   <!-- ======= Features Section ======= -->
   <section id="dashbord" class="features" data-aos="fade-up">
     <div class="container">

       <div class="section-title">
         <h3>Dashbord</h3>

       </div>

       <iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRe
f=.my_folders%2Fglass%2Bdoor%2Bjobs%2Fglass%2Bdoor%2Bjobs%2Bdashboa
rd&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar
=false&amp;shareMode=embedded&amp;action=view&amp;mode=dashboard
&amp;subView=model0000018b84e6794c_00000008" width="1350"
```

```
height="900" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>

    </div>
   </section><!-- End Features Section -->

   <!-- ======= Steps Section ======= -->
   <!-- End Steps Section -->

   <!-- ======= Services Section ======= -->
   <section id="story" class="services">
    <div class="container" data-aos="fade-up">

      <div class="section-title">
       <h2>Story</h2>

      </div>

      <iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=story&amp;pathRef=.my
_folders%2Fglass%2Bdoor%2Bjobs%2FStory%253A%2Bglass%2Bdoor%2Bjobs%
2Bstory&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_na
vbar=false&amp;shareMode=embedded&amp;action=view&amp;sceneId=-
1&amp;sceneTime=0" width="1350" height="900" frameborder="0"
gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>


    </div>
   </section><!-- End Services Section -->

   <!-- ======= Portfolio Section ======= -->
   <section id="report" class="portfolio">
    <div class="container" data-aos="fade-up">

      <div class="section-title">
       <h2>Report</h2>

      </div>
```

```
      <iframe
src="https://us1.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2Fglass%2Bdoor%2Bjobs%2Fglass%2Bdoor%2Bjobs%2Breport&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=run&amp;format=HTML&amp;prompt=false" width="1350" height="900" frameborder="0" gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>


    </div>
  </section><!-- End Portfolio Section -->

  <!-- ======= Testimonials Section ======= -->
  <!-- End Testimonials Section -->

  <!-- ======= Team Section ======= -->
  <section id="team" class="team">
    <div class="container" data-aos="fade-up">

      <div class="section-title">
        <h2>Team</h2>

      </div>

      <div class="row">

        <div class="col-xl-3 col-lg-4 col-md-6" data-aos="fade-up" data-aos-delay="100">
          <div class="member">
            <img src="assets/img/team/team-1.jpg" class="img-fluid" alt="">
            <div class="member-info">
              <div class="member-info-content">
                <h4>Thota Nikhil</h4>
                <span>Team Leader</span>
              </div>
              <div class="social">
                <a href=""><i class="bi bi-twitter"></i></a>
```

```
              <a href=""><i class="bi bi-facebook"></i></a>
              <a href=""><i class="bi bi-instagram"></i></a>
              <a href=""><i class="bi bi-linkedin"></i></a>
            </div>
          </div>
        </div>
      </div>

      <div class="col-xl-3 col-lg-4 col-md-6" data-aos="fade-up" data-aos-delay="200">
        <div class="member">
          <img src="assets/img/team/team-2.jpg" class="img-fluid" alt="">
          <div class="member-info">
            <div class="member-info-content">
              <h4>Yogeswaran.I</h4>
              <span>Team Member</span>
            </div>
            <div class="social">
              <a href=""><i class="bi bi-twitter"></i></a>
              <a href=""><i class="bi bi-facebook"></i></a>
              <a href=""><i class="bi bi-instagram"></i></a>
              <a href=""><i class="bi bi-linkedin"></i></a>
            </div>
          </div>
        </div>
      </div>



    </div>

  </div>
</section><!-- End Team Section -->



<!-- ======= Contact Section ======= -->
```

```
  <section id="contact" class="contact section-bg">
    <div class="container" data-aos="fade-up">

      <div class="section-title">
        <h2>Contact</h2>

      </div>

      <div class="row">

        <div class="col-lg-6">

          <div class="row">
            <div class="col-md-12">
              <div class="info-box">
                <i class="bx bx-map"></i>
                <h3>Our Address</h3>
                <p>Arjun College Of Technology,coimbatore</p>
              </div>
            </div>
            <div class="col-md-6">
              <div class="info-box mt-4">
                <i class="bx bx-envelope"></i>
                <h3>Email Us</h3>

<p>chunchumanoj2002@gmail.com<br>jagadeeshmani@gmail.com</p>
              </div>
            </div>
            <div class="col-md-6">
              <div class="info-box mt-4">
                <i class="bx bx-phone-call"></i>
                <h3>Call Us</h3>
                <p>+91 6300814835<br>+91 9392873364</p>
              </div>
            </div>
          </div>

        </div>
```

```
        <div class="col-lg-6 mt-4 mt-md-0">
          <form action="forms/contact.php" method="post" role="form"
class="php-email-form">
            <div class="row">
              <div class="col-md-6 form-group">
                <input type="text" name="name" class="form-control" id="name"
placeholder="Your Name" required>
              </div>
              <div class="col-md-6 form-group mt-3 mt-md-0">
                <input type="email" class="form-control" name="email" id="email"
placeholder="Your Email" required>
              </div>
            </div>
            <div class="form-group mt-3">
              <input type="text" class="form-control" name="subject" id="subject"
placeholder="Subject" required>
            </div>
            <div class="form-group mt-3">
              <textarea class="form-control" name="message" rows="5"
placeholder="Message" required></textarea>
            </div>
            <div class="my-3">
              <div class="loading">Loading</div>
              <div class="error-message"></div>
              <div class="sent-message">Your message has been sent. Thank
you!</div>
            </div>
            <div class="text-center"><button type="submit">Send
Message</button></div>
          </form>
        </div>

      </div>

    </div>
  </section><!-- End Contact Section -->
```

```
  </main><!-- End #main -->

  <!-- ======= Footer ======= -->
  <footer id="footer">

    <div class="footer-top">
      <div class="container">
        <div class="row">

          <div class="col-lg-3 col-md-6 footer-contact">
            <h3>Glassdoor Jobs</h3>
            <p>
              Arjun College Of Technology<br>
              Coimbatore<br>
              India <br><br>
              <strong>Phone:</strong> +91 6300814835<br>
              <strong>Email:</strong> chunchumanoj2002@gmail.com<br>
            </p>
          </div>

          <div class="col-lg-2 col-md-6 footer-links">
            <h4>Useful Links</h4>
            <ul>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Home</a></li>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Contact Us</a></li>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Dashbord</a></li>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Terms of
service</a></li>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Privacy
policy</a></li>
            </ul>
          </div>

          <div class="col-lg-3 col-md-6 footer-links">
            <h4>Our Services</h4>
            <ul>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Web
Design</a></li>
```

```
            <li><i class="bx bx-chevron-right"></i> <a href="#">Web
Development</a></li>
            <li><i class="bx bx-chevron-right"></i> <a href="#">Product
Management</a></li>
            <li><i class="bx bx-chevron-right"></i> <a href="#">Artificial
Intelligence</a></li>
            <li><i class="bx bx-chevron-right"></i> <a href="#">Data
Science</a></li>
          </ul>
        </div>

        <div class="col-lg-4 col-md-6 footer-newsletter">
          <h4>Join Our Newsletter</h4>

          <form action="" method="post">
            <input type="email" name="email"><input type="submit"
value="Subscribe">
          </form>
        </div>

      </div>
    </div>
  </div>

  <div class="container d-md-flex py-4">

    <div class="me-md-auto text-center text-md-start">
      <div class="copyright">
        &copy; Copyright <strong><span>Path to Prosperity: A Comprehensive
Analysis of Financial Independence based on data taken from
reddit</span></strong>. All Rights Reserved
      </div>
      <div class="credits">
        <!-- All the links in the footer should remain intact. -->
        <!-- You can delete the links only if you purchased the pro version. -->
        <!-- Licensing information: https://bootstrapmade.com/license/ -->
        <!-- Purchase the pro version with working PHP/AJAX contact form:
https://bootstrapmade.com/bikin-free-simple-landing-page-template/ -->
```

```
        Designed by <a href="https://bootstrapmade.com/">BootstrapMade</a>
      </div>
    </div>
    <div class="social-links text-center text-md-right pt-3 pt-md-0">
      <a href="#" class="twitter"><i class="bx bxl-twitter"></i></a>
      <a href="#" class="facebook"><i class="bx bxl-facebook"></i></a>
      <a href="#" class="instagram"><i class="bx bxl-instagram"></i></a>
      <a href="#" class="google-plus"><i class="bx bxl-skype"></i></a>
      <a href="#" class="linkedin"><i class="bx bxl-linkedin"></i></a>
    </div>
  </div>
 </footer><!-- End Footer -->

 <div id="preloader"></div>
 <a href="#" class="back-to-top d-flex align-items-center justify-content-
center"><i class="bi bi-arrow-up-short"></i></a>

 <!-- Vendor JS Files -->
 <script src="assets/vendor/aos/aos.js"></script>
 <script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
 <script src="assets/vendor/glightbox/js/glightbox.min.js"></script>
 <script  src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
 <script src="assets/vendor/swiper/swiper-bundle.min.js"></script>
 <script  src="assets/vendor/php-email-form/validate.js"></script>

 <!-- Template Main JS File -->
 <script src="assets/js/main.js"></script>

</body>

</html>

from flask import *

import ibm_db
import os
```

```
conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=3883e7e4-18f5-4afe-be8c-fa31c41761d2.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=31498;SECURITY=SSL;SSLServerCertificate=DigiCertGlobalRootCA.crt;UID=vnn69770;PWD=dKgLMEtsEtxRLHuT",'','')
print(conn)


app = Flask(_name_, template_folder='template')

@app.route('/')
def home():
    return render_template("index.html")




@app.route('/help')
def help():
    return render_template("help.html")

@app.route('/contact')
def contact():
    return render_template("contact.html")

@app.route('/login')
def login():
    return render_template("login.html")
@app.route('/index')
def index():
    return render_template("index.html")

@app.route('/register')
def register():
    return render_template("register.html")

@app.route('/result')
def result():
```

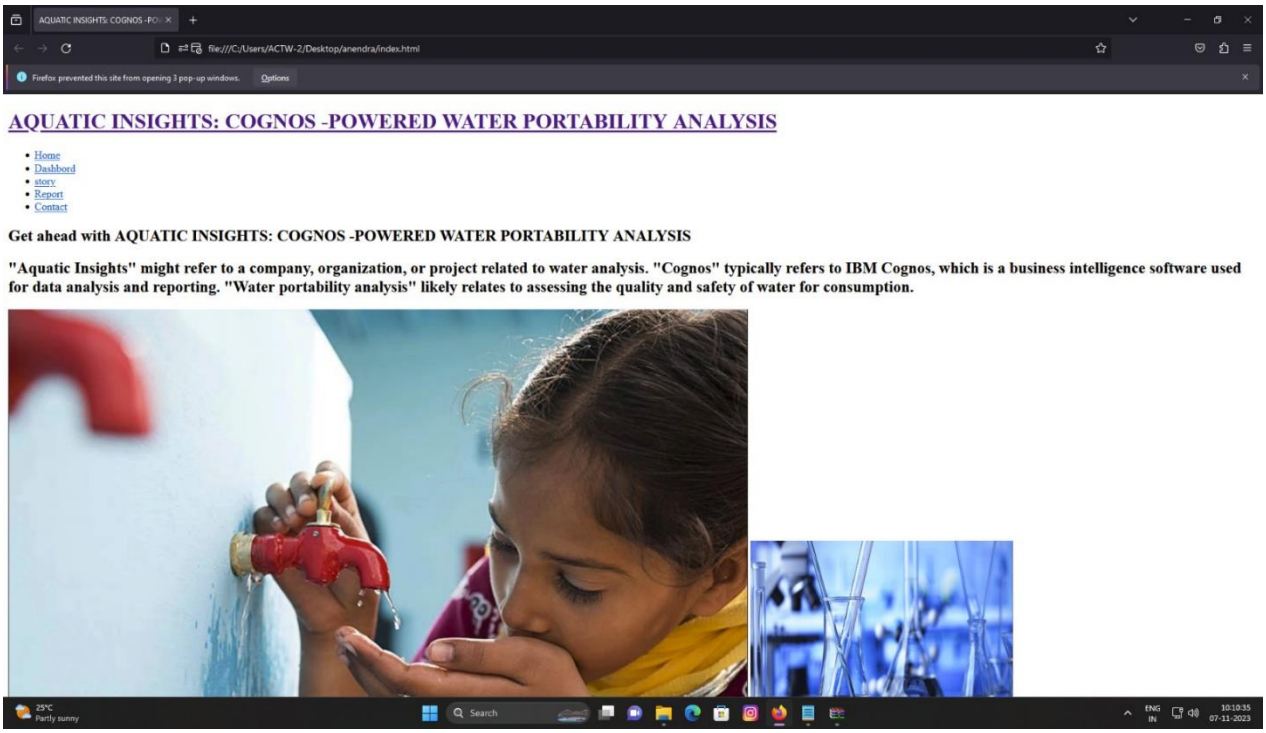
```
    return render_template("result.html")



@app.route('/guided')
def guided():
    return render_template("guided.html")

@app.route('/admin')
def admin():
    return render_template("admin.html")

@app.route('/register1',methods=['POST'])
def register1():
    x = [x for x in request.form.values()]
    print(x)
    NAME=x[0]
    EMAIL=x[1]
    PASSWORD=x[2]
    sql = "SELECT * FROM REGISTER WHERE EMAIL =?"
    stmt = ibm_db.prepare(conn, sql)
    ibm_db.bind_param(stmt,1,EMAIL)
    ibm_db.execute(stmt)
    account = ibm_db.fetch_assoc(stmt)
    print(account)
    if account:
        return render_template('login.html', pred="You are already a member,
please login using your details")
    else:
        insert_sql = "INSERT INTO  REGISTER VALUES (?, ?, ?)"
        prep_stmt = ibm_db.prepare(conn, insert_sql)
        ibm_db.bind_param(prep_stmt, 1, NAME)
        ibm_db.bind_param(prep_stmt, 2, EMAIL)
        ibm_db.bind_param(prep_stmt, 3, PASSWORD)
        ibm_db.execute(prep_stmt)
        return render_template('login.html', pred="Registration Successful, please
login using your details")
```

```
@app.route('/login1',methods=['POST'])
def login1():
   NAME = request.form['NAME']
   EMAIL = request.form['EMAIL']
   sql = "SELECT * FROM REGISTER WHERE NAME =? AND EMAIL=?"
   stmt = ibm_db.prepare(conn, sql)
   ibm_db.bind_param(stmt,1,NAME)
   ibm_db.bind_param(stmt,2,EMAIL)
   ibm_db.execute(stmt)
   account = ibm_db.fetch_assoc(stmt)
   print (account)
   print(NAME,EMAIL)
   if account:
         return render_template('admin.html', pred="Login successful")
   else:
      return render_template('login.html', pred="Login unsuccessful. Incorrect
username/password !")




@app.route('/result1',methods = ["POST","GET"])
def result1():
   if request.method=="POST":
      f=request.files['image']
      basepath=os.path.dirname(_file_) #getting the current path i.e where
app.py is present
      #print("current path",basepath)
      filepath=os.path.join(basepath,'uploads',f.filename) #from anywhere in the
system we can give image but we want that image later  to process so we are
saving it to uploads folder for reusing
      #print("upload folder is",filepath)
      f.save(filepath)

      return render_template("result.html")

      return "Image uploaded successfully"
```

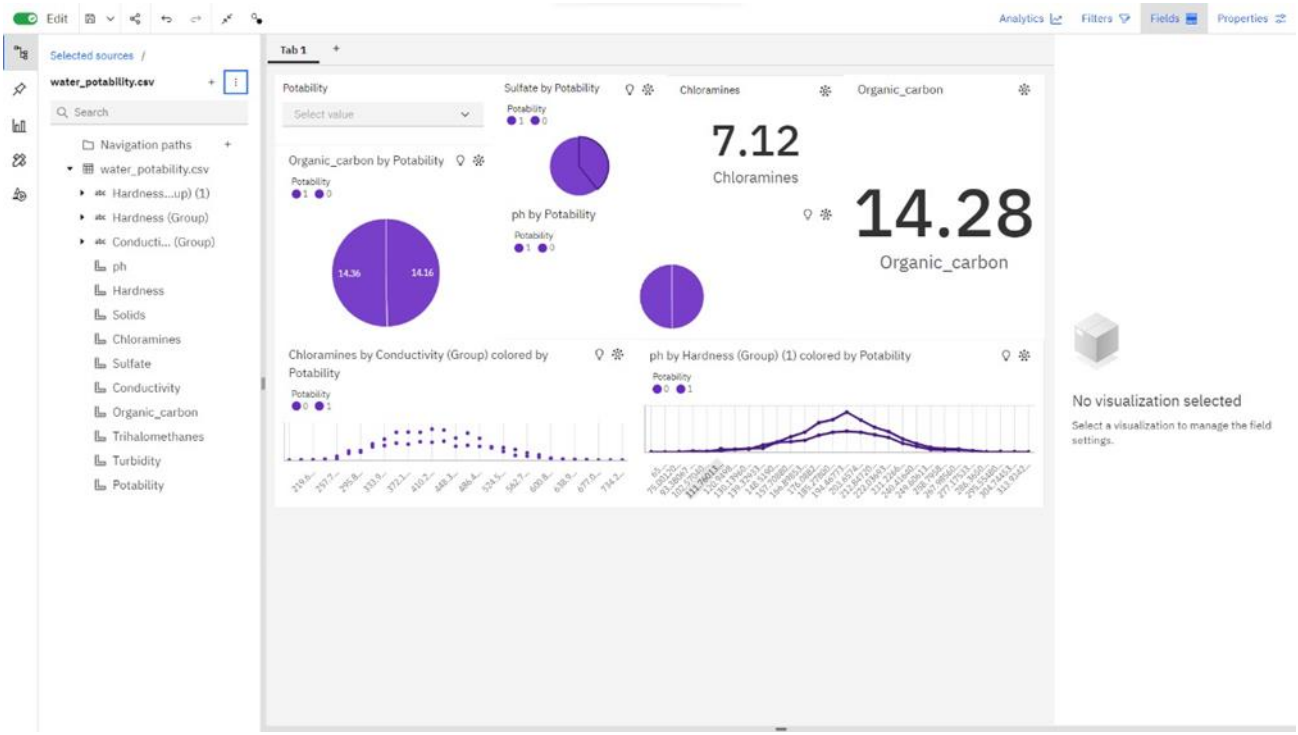
```
        COS_ENDPOINT = "https://s3.jp-tok.cloud-object-storage.appdomain.cloud"
        COS_API_KEY_ID =
"UKQDmU0zPDyzGzX_wYao20jqSVo0jNQY_ASt0XM4UxEY"
        COS_INSTANCE_CRN = "crn:v1:bluemix:public:cloud-object-
storage:global:a/8a03f1c86efe4897abd7cd5050702178:6cabfb46-eaaf-4755-
a0af-94411770b25d::"
        cos =
ibm_boto3.client("s3",ibm_api_key_id=COS_API_KEY_ID,ibm_service_instance_
id=COS_INSTANCE_CRN,
config=Config(signature_version="oauth"),endpoint_url=COS_ENDPOINT)
        cos.upload_file(Filename=
filepath,Bucket='nikhilimages',Key='cadsession.jpg')

    return rendertemplate("result.html")
  if _name_ == "_main_":
    app.run(debug = True,port = 2000,host ='0.0.0.0')
```

7. Performance Testing

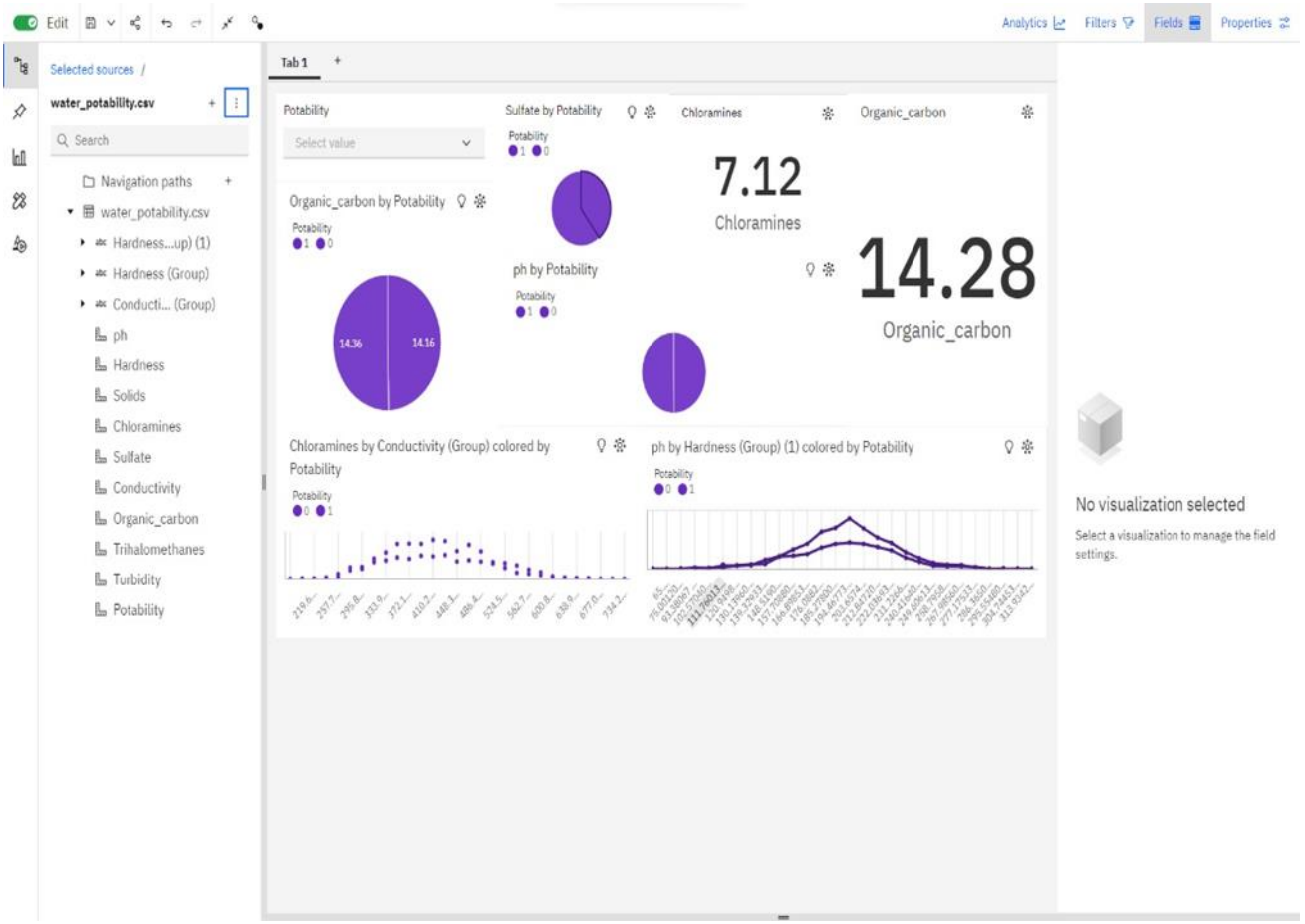
7.1 Performance Metrics:



DASHBOARD:

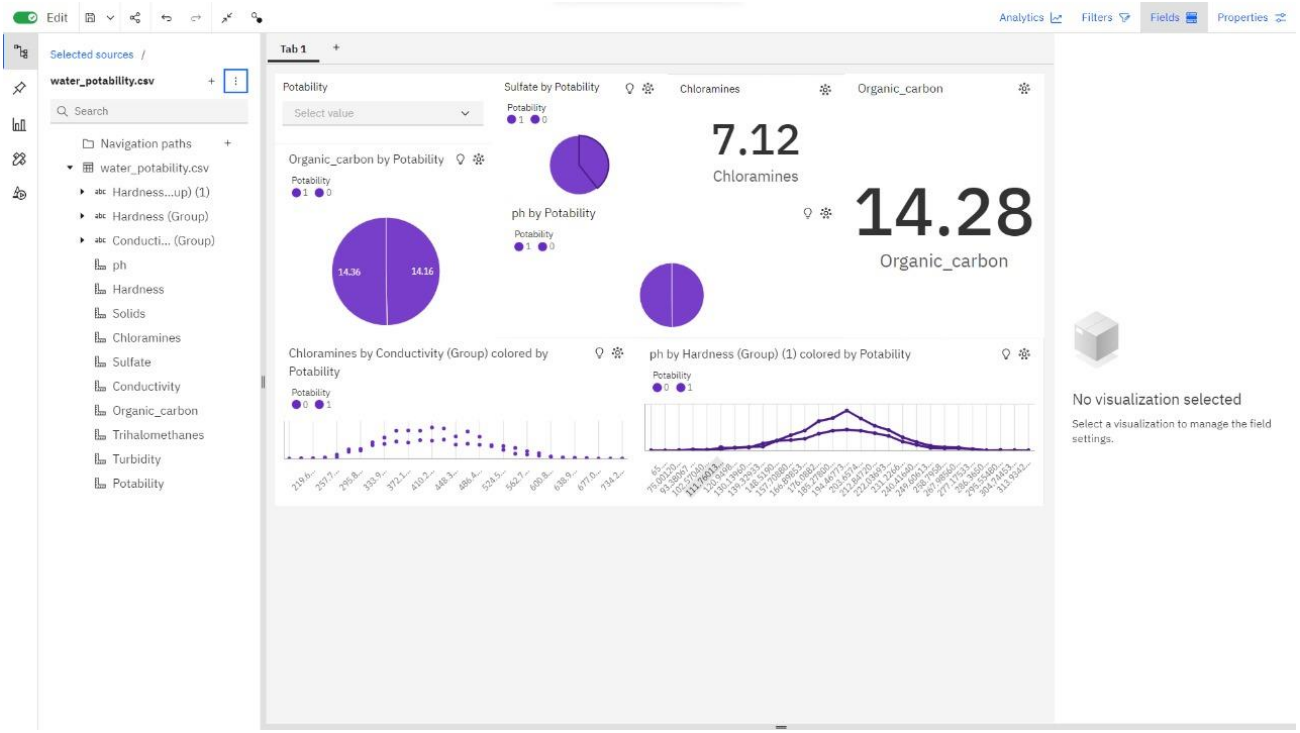


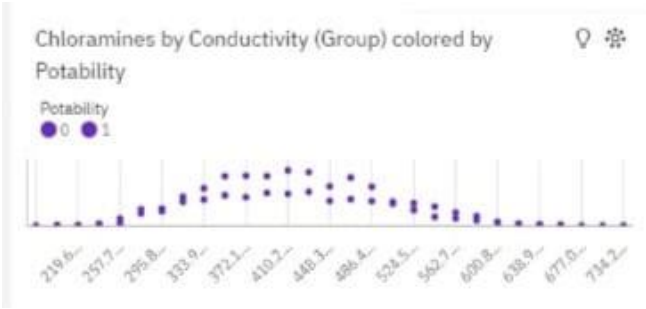
STORY:

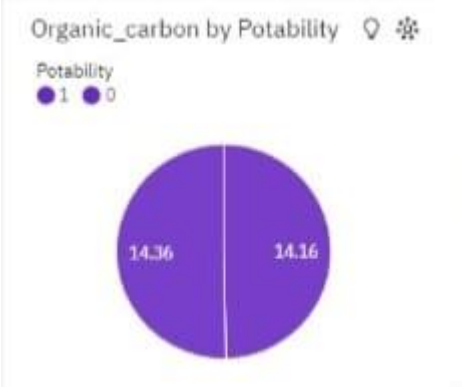

Edit
Analytics
Filters
Fields
Properties
Selected sources /
water_potability.csv
Search
Navigation paths
water_potability.csv
Hardness...up) (1)
Hardness (Group)
Conducti... (Group)
ph
Hardness
Solids
Chloramines
Sulfate
Conductivity
Organic_carbon
Trihalomethanes
Turbidity
Potability
Tab 1
Potability
Select value
Sulfate by Potability
Chloramines
7.12
Chloramines
Organic_carbon
14.28
Organic_carbon
Organic_carbon by Potability
14.36
14.16
ph by Potability
Chloramines by Conductivity (Group) colored by Potability
ph by Hardness (Group) (1) colored by Potability
No visualization selected
Select a visualization to manage the field settings.

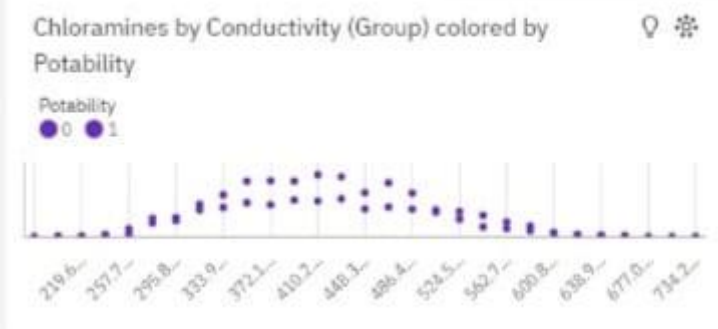
8. Results

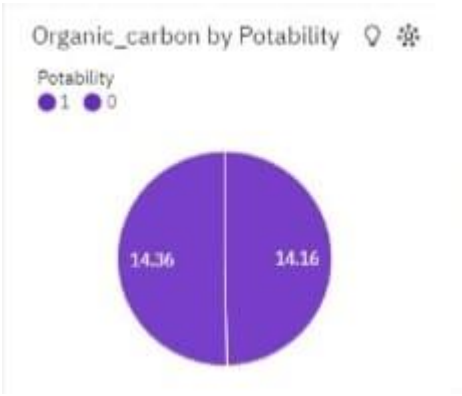
8.1 Output Screenshots:







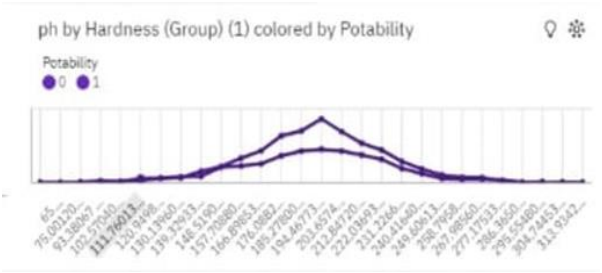


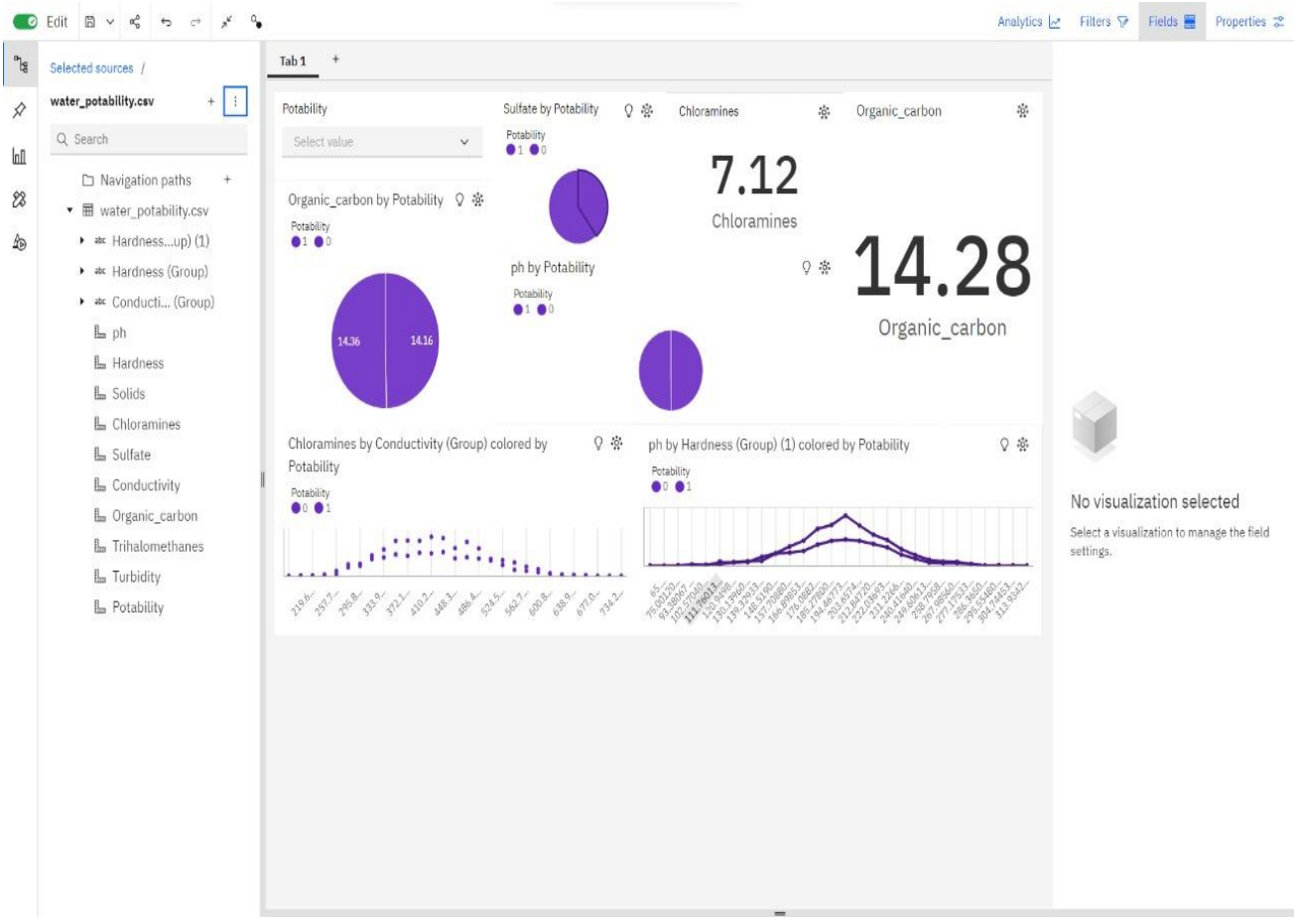

Organic_carbon by Potability
Potability
1
0
14.36
14.16


Chloramines
7.12
Chloramines


Organic_carbon


14.28
Organic_carbon


ph by Hardness (Group) (1) colored by Potability
Potability
0
1


Edit
Analytics
Filters
Fields
Properties
Selected sources
water_potability.csv
Search
Navigation paths
water_potability.csv
Hardness...up) (1)
Hardness (Group)
Conducti... (Group)
ph
Hardness
Solids
Chloramines
Sulfate
Conductivity
Organic_carbon
Trihalomethanes
Turbidity
Potability
Tab 1
Potability
Select value
Sulfate by Potability
Chloramines
Organic_carbon
7.12
Chloramines
14.28
Organic_carbon
Organic_carbon by Potability
14.36
14.16
ph by Potability
Chloramines by Conductivity (Group) colored by Potability
ph by Hardness (Group) (1) colored by Potability
No visualization selected
Select a visualization to manage the field settings.

9. Advantages & Disadvantages

Advantages:

Increased Financial Literacy: The project can significantly increase financial literacy, empowering individuals with knowledge and skills to make informed financial decisions and work toward financial independence.

- Practical Guidance: Providing tools, resources, and guidance through platforms, such as interactive toolkits and financial apps, can make it easier for individuals to implement financial strategies.

- Engagement and Motivation: Challenges, games, and competitions can boost engagement and motivation, encouraging participants to actively pursue financial independence.

- Diverse Learning Channels: Utilizing podcasts, workshops, and communities allows for a variety of learning channels, catering to different preferences and learning styles.

- Personalization: AI-powered chatbots and personalized roadmaps can offer tailored advice, increasing the relevance and effectiveness of financial guidance.

Disadvantages:

- Digital Divide: Online platforms and mobile apps may exclude individuals who lack access to the internet or digital devices, potentially exacerbating disparities in financial literacy.

- Data Privacy Concerns: Collecting and storing financial data for research purposes must adhere to strict data privacy regulations, which can be complex and resource-intensive.

- Quality Control: Maintaining the accuracy and reliability of the content, especially when user-generated content is involved, can be challenging and resource-intensive.

- Monetary Costs: Developing and maintaining digital platforms and resources can be costly, which may limit their availability and effectiveness.

- Information Overload: A proliferation of resources and tools can overwhelm users, making it difficult for them to identify and focus on the most relevant information.

10. Conclusion

In conclusion, this “AQUATIC INSIGHTS: COGNOS -POWERED WATER PORTABILITY ANALYSIS”
project focuses on the critical issue of water potability prediction, aiming to provide a solution to ensure access to safe and clean drinking water. The dataset comprising water quality parameters such as pH value, hardness, solids, chlorine levels, sulfate content, conductivity, organic carbon, trihalomethanes, and turbidity serves as the foundation for our analysis and prediction efforts.

Through the development of machine learning models and data-driven insights, we have embarked on a mission to address the drinking water crisis and enhance the quality of life for communities affected by water quality issues. Our project's significance lies in several key aspects.

1. Predictive Modeling: We have successfully constructed machine learning models capable of classifying water samples as either potable or non-potable, offering an efficient means to assess water quality.

2. Data-Driven Insights: By analyzing the dataset, we have gained valuable insights into the water quality parameters that most strongly influence water potability. This knowledge can inform targeted interventions and resource allocation.

3. Water Crisis Mitigation: Our project contributes to the larger goal of mitigating the drinking water crisis, as it equips policymakers, governmental bodies, and organizations with the tools to identify areas at risk of non-potable water and optimize resource allocation.

4. Water Treatment Assessment: We've explored the effectiveness of various water treatment methods, shedding light on how they impact water potability. This knowledge can inform improvements in water treatment processes.

5. Societal Impact: Ultimately, our work goes beyond machine learning models and data analysis. It addresses a fundamental human right—the right to clean and safe drinking water, as recognized by the United Nations. By working towards safer drinking water, we contribute to better public health and wellbeing.

11. Future Scopes

1. Real-time Monitoring and Alerts: Develop a real-time water quality monitoring system that can continuously assess water quality parameters and provide alerts when there are deviations from potability standards. This could involve the use of IoT sensors and data streaming for immediate intervention.

2. Geospatial Analysis: Incorporate geospatial data and geographic information systems (GIS) to identify geographical patterns and hotspots of non-potable water sources. This can help in targeted resource allocation and policy decisions.

3. Hybrid Models: Experiment with hybrid models that combine machine learning algorithms with domain-specific knowledge and expert systems to improve prediction accuracy and interpretability.

4. Data Augmentation: Expand the dataset by incorporating data from different regions and sources. A more diverse dataset can lead to better models and a broader understanding of potability factors.

5. Public Engagement and Reporting: Develop user-friendly interfaces and mobile applications to involve the public in reporting water quality issues and contribute data for the model. Encourage citizen science initiatives.

6. Long-term Trend Analysis: Explore the long-term trends in water quality and potability to anticipate the impact of climate change, industrial activities, and population growth on water resources.

7. Predictive Maintenance for Water Treatment Plants: Use predictive modeling to optimize maintenance schedules for water treatment plants, ensuring they operate efficiently and maintain water potability standards.

8. Integration with Water Treatment Processes: Collaborate with water treatment facilities to integrate your predictive model with their processes. This can help in optimizing chemical dosing and treatment methods to ensure potable water.

12. APPENDIX

An appendix is typically used to include supplementary or supporting information that complements the main body of a document, such as a research report or project plan. In the case of the project "A Aquatic Insights: Cognos - Powered Water Portability Analysis," here's a sample outline of what you might include in the appendix section:

Appendix A: Survey Questionnaires

Detailed copies of the survey questionnaires used for data collection.

Appendix B: Interview Protocols

Transcripts or outlines of interview protocols used in qualitative data collection.

Appendix C: Data Analysis Tools

Descriptions of the software and tools used for data analysis and statistical calculations.

Appendix D: Research Ethics Documentation

Copies of documents related to research ethics approval, including institutional review board (IRB) approvals and informed consent forms.

Appendix E: Financial Data Sources

Information about the sources of financial data used in the research, including details on data providers, access methods, and data documentation.