PROJECT DOCUMENTATION

ACCEPTANCE CRITERIA

Project: Weather Prediction Web App to Optimise Solar Power Plants

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PRINCE2

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Client: Mr. Charlie Karunaratne

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1 Acceptance Criteria History

1.1 Document Location

This document is only valid on the day it was printed.
The source of the document will be found in.

1.2 Revision History

Date of this revision:
Date of Next revision:

Revision date	Previous revision date	Summary of Changes	Changes marked
06/02/2024		First issue	

1.3 Approvals

This document requires the following approvals.
Signed approval forms are filed in the Management/Specialist/Quality section of the project files.

Name	Signature	Title	Date of Issue	Version
Dr. Yasas Jayaweera		Project board		1.0
K D Sachin Akash		Project manager		1.0
Mr. Charlie Karunaratne		Client		1.0

1.4 Distribution

This document has been distributed to:

Name	Title	Date of Issue	Version
K D Sachin Akash	Project manager	02/08/2024	1.0
S I Subasinghe	Startup manager	02/08/2024	1.0
M T Suriyaarachchige	Risk manager	02/08/2024	1.0
M F M Rashidh	Quality manager	02/08/2024	1.0
K M T R Rodrigo	Scheduling Manager	02/08/2024	1.0

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3 Purpose

This document establishes clear and measurable acceptance criteria for the final product, guiding development and testing teams to ensure all necessary functionalities meet desired standards.

Target Dates;

- **SPRINT 1: End Date: 9/2/24**
  Requirement Gathering
  Identifying project goals and objectives
  Planning the project

- **SPRINT 2: End Date: 23/2/24**
  Front-End Development
  Sprint planning and backlog grooming
  Designing UI
  Implementing UI
  Testing UI

- **SPRINT 3: End Date: 8/3/24**
  Database Development
  Sprint planning and backlog grooming
  Drawing ER diagram
  Designing database
  Implementing database
  Testing database

- **SPRINT 4: End Date: 22/3/24**
  Backend Development
  Sprint planning and backlog grooming
  Development of AI model
  Connecting API endpoints
  Testing the backend

- **SPRINT 5: End Date: 4/4/24**
  Testing and Documentation
  Sprint planning and backlog grooming
  Unit testing
  Integration Testing
  User documentation

- Launch date: **4/4/24**

4 Major Functions

The below listed are the major functions that provides a structured framework for development and ensure that all the crucial aspects of VolfPack Energy (Pvt) Ltd Web App. are addressed within the given timeline,

1. User registration and Account management:
   Scenario 01: Successful user registration
   Given the user on the registration page
   When the user enters valid registration details and submit the form
   Then the user should receive a confirmation email and an account should be created.

   Scenario 02: Failed user registration
   Given the user is on the registration page
   When the user enters an invalid email/password and submit the registration form
   Then the user should see an error message indicating an invading email format/password mismatch and the account should not be created.

   Scenario 03: Successful user login (Includes Admin)
   Given the user is on the login page
   When the user enters a valid login credentials and click the login button
   Then user should be redirected to account dashboard

   Scenario 04: Unsuccessful user login (Includes Admin)
   Given the user is on the login page
   When the user enters an invalid login credentials and click the login button
   Then the user should see an error message and remain on the login page.

2. Admin functionalities:
   Scenario 01: Successful profile update
   Given the admin logged into the account
   When the admin navigates to the user status settings page and enable/disable features and saves it
   Then the user profile should be updated successfully.

   Scenario 02: Unsuccessful profile update -
   Given the admin is logged into the account,
   when the admin navigates to the user status settings page and trys to make changes, but due to some technical issue or invalid input,
   the changes cannot be saved successfully, then an error message should be displayed to the admin indicating the failure to update the user profile.

4. Input and Output Data

   Scenario 01: The user Inputs the data required for the prediction.
   The data is sent to the API,
   The API Makes the necessary predictions and send the data back to the system where the two graphs are plotted.

   Scenario 02: The user Inputs the data required for the prediction.
   The data is sent to the API,
   The API Makes the necessary predictions but theres an error inbetween the api and the data entered or while receiving the predictions. therefore the error is narrowed down and an error message is displayed.

5. Weather predictions Graph

   Scenario 01: It Displaying the predictions in an interactive format which
   when clicked it zooms in to the specific place where its zoomed in additionally when following the curve of the graph it finds he value on the x and y axis and displays it next to the cursor

6. Power Prediction Graph

   Scenario 01: It Displaying the calculated power values with the predictions in an interactive format which when clicked it zooms in to the specific place where its zoomed in additionally when following the curve of the graph it finds he value on the x and y axis and displays it next to the cursor

5 Appearance

Key considerations for the appearance of the web app are listed as follows,

- Visualizations are designed for easy comprehension, ensuring clarity.
- Every element is interactive, enhancing user engagement and functionality.
- Information is presented in a manner that is immediately clear and understandable.
- Animations are seamlessly integrated, providing a smooth user experience.
- States and labels effectively communicate the data being presented, aiding understanding.

6 Personnel Level Required to Use the Web App

The following listed personnel will be required to use and operate the web app,

- Administrator
    - Person who is responsible for Access controls such as; Which Level of Access Each user is Able Authorized.
- Project team
    - Responsible for offering comprehensive technical support for the website, encompassing issue troubleshooting, maintenance of server and database infrastructure and updating the features offered by the web app.
- Average User
    - User only has access to the features if admin allows the user to.

7 Performance Levels

Here are some key performance levels to ensure a smooth and satisfactory user experience:

- Page load time: The website aims for quick page load times, minimizing waiting times to load within 5 seconds.
- Responsiveness: The website will be responsive, adapting seamlessly to various screen sizes and resolutions, including computers, laptops, tablets, and mobile phones.
- Downtime: Ensuring the website is consistently available and accessible to users, with downtime minimized to 8% or lower.
- Seamless animations: Animations are designed to run smoothly, avoiding interruptions or slowdowns.

8 Capacity

Load testing and capacity planning are essential to ensure the website can effectively handle the anticipated volume of traffic and user predictions. Regular monitoring and ongoing optimization efforts are essential to sustain capacity as the web app evolves to meet changing user demands. Key aspects to consider when evaluating the capacity of this weather predictions web app include traffic handling and concurrent user support.

9 Accuracy

Accuracy is crucial for establishing trust with the customers and ensuring a positive user experience. Key areas where accuracy is essential are:

- Weather Prediction Data: Should as Accurate as possible and clearly show the hour and the prediction depending on the data submitted in the inputs.
- Power Output Prediction Data: Should display accurate power output for each given moment against time in the graph.
- Data Visualization: Should clearly indicate the Data to avoid misleading the customers with inaccurate information when the web app is used for demonstrations.

10 Availability

Considerations for the web app's capacity should include:

- 24/7 accessibility
- High uptime guarantee from hosting provider
- Redundancy and failover systems for automatic backup

11 Reliability

Reliability refers to consistent functionality without failures, measured by Mean Time to Repair (MTTR) and Mean Time Between Failures (MTBF). MTTR represents the average time to restore the website after a failure, while MTBF measures the average time between two failures, indicating website reliability and stability. Lower MTTR is preferred to minimize user impact. To ensure reliability, implement regular monitoring, automated alerting, backup and disaster recovery plans, and routine maintenance and updates to provide a stable user experience and maximize customer satisfaction.

12 Development Cost

Expenses	**Description**	**Basis**	**Unit**	**Rate**	**Total (LKR)**
Planning					
Meetings (Google meet)	Internet charges	Hourly	4	200	800
Development					
Designing UIs	Design UIs for the web application	Hourly	12	800	9600
Website implementation	Implement function according to the designed UIs	Hourly	45	800	36000
Database design & implementation	Design and develop the database and store user data secured	Hourly	12	700	8400
Testing					
QA testing	Check the quality of the application and bug fixing	Hourly	6	500	3000
Documentation					
Preparation of documentation	Prepare required documents for the project	All documents	N/A	N/A	5700
Total					**63,500**

Table 1: Budget

13 Running Costs

Setting up					
Domain	Domain name for the web application	Per year	1	5000	5000
Hosting	Hosting the web application and the database	Per year	1	16000	16000
Maintenance	N/A	Monthly	12	3000	36000
Total					**57,000**

Table 2: Running Cost

14 Security

Essential security measures for the web app include:

- Secure coding practices: Follow secure coding standards and conduct regular code audits.
- Strong authentication: Implement methods such as two-factor authentication.
- Regular software updates: Keep all software and plugins up to date for security patches.
- Secure hosting: Choose a reputable provider offering regular backups.

15 Ease of Use

To encourage users to explore and analyse data thoroughly, the web app should prioritize ease of use. Consider the following:

- Easy navigation: Design a structure that enables users to seamlessly explore the web app and its data.
- Responsive design: Ensure the website is optimized for various devices and screen sizes, allowing users to access and analyse data on any device.
- Clear data presentation: Provide comprehensive and clear descriptions, graphs, and visualizations to help users interpret data effectively.
- Streamlined input and output process: Simplify the input process to submit data smoothly, and ensure the output process produces efficiently.
- Reduce steps for predictions: Minimize the number of steps required for users to obtain predictions, creating a more seamless and efficient user experience.

16 Timings

When scheduling the timing of the web app, several factors, including VolfPack's requirements and operational capacity, must be considered. Key considerations include:

- 24/7 availability: Ideally, the web app should be accessible at all times to allow users to browse and obtain predictions conveniently.
- Maintenance and updates: It's vital to schedule maintenance during off-peak hours, such as Thursday midnights, to minimize disruptions. Additionally, prior notification to users, such as power plants, is recommended to mitigate any inconvenience caused by downtime.