BUSINESS REQUIREMENTS DOCUMENT

Project Name: Carbon Footprint Self -Tracker System

Team Members:

1. Ujwal H U
2. Sudharsan S

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1. INTRODUCTION

1.1 Purpose

The purpose of this Business Requirement Document (BRD) is to outline the requirements for developing a Carbon Footprint Self-Tracker System. This platform will empower users to monitor, manage, and reduce their carbon emissions through data tracking, insights, and personal goals. It will also enable administrators to provide guidance, manage data, and deliver common insights.

1.2 Scope

This project aims to develop a comprehensive platform that provides:

- User-friendly carbon footprint calculators for tracking emissions from various activities.
- Emissions tracking over time (weekly/monthly) for trend analysis and comparison.
- Goal setting for emission reduction, with rewards for achievements.
- Administrative tools for managing user data and setting emission factors.
- Visual insights and climate data to contextualize user emissions.

1.3 Business Objectives

- **Empower Users**: Enable users to monitor their carbon footprint and make informed lifestyle changes.
- **Support Carbon Reduction**: Encourage users to set and achieve carbon reduction goals.
- **Provide Insightful Data**: Offer visual insights into individual and global carbon emissions trends.
- **Ensure Data Integrity**: Provide accurate data through well-managed emission factors and reliable calculations.

1.4 Stakeholders

- **Users**: Individuals seeking to track and reduce their carbon emissions.
- **Admins**: Responsible for managing user data, setting emission constants, and providing insights.
- **System Components**: Handling data processing, storage, and visualization.
- **Third-party API Providers**: Providing external data, such as weather and emission factors.

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2. FUNCTIONAL REQUIREMENTS

2.1 User Information

- **Sign Up**: Users can register with email and set up a profile.
- **Sign In**: Users log in to access their data and settings.
- **Sign Out**: Users can securely log out from their accounts.

2.2 Carbon Footprint Calculator

- **Input Activity Data**: Users input data for various activities (e.g., transportation, energy use).
- **Calculate Emissions**: Calculate the carbon footprint for each activity based on the emission factors.
- **Store Emissions Data**: Save calculated emissions for later analysis and insights.

2.3 Carbon Footprint Tracker

- **Emissions Tracking**: Display users' overall emissions weekly or monthly.
- **Trend Analysis**: Provide graphs showing changes over time for emissions, supporting better insights.

2.4 User Goals

- **Set Goals**: Users can define emission reduction goals based on personal preferences.
- **Reward Achievement**: System rewards users for meeting reduction goals, with badges or incentives.

2.5 Admin Information

- **User Data Management**: Admins can view and manage user information.
- **Set Emission Factors**: Admins define constants and factors used in calculating emissions.

2.6 Global Insights

- **Total Emissions Access**: Admins can access cumulative user emissions data for platform-wide insights.
- **Common Insights**: Provide generalized tips and insights for all users to encourage emission reductions.

2.7 System Functionality

- **Authorization and Authentication**: Ensures user data protection and secure access.
- **Emissions Calculation and Storage**: Accurately calculates and stores user data.
- **Visualization**: Display data in graphs and charts for easy interpretation.
- **Goal Monitoring and Rewards**: Track progress towards goals and issue rewards on achievement.
- **Insights Generation**: Generate user insights based on data trends and external AI inputs.
- **Weather/Climate Data Integration**: Provide daily weather insights to contextualize energy consumption or transport needs.

3. NON-FUNCTIONAL REQUIREMENTS

3.1 Performance Requirements

- The platform should support multiple concurrent users with minimal performance impact.
- Emission calculation updates and graph displays should be processed within 2 seconds.

3.2 Usability Requirements

- The platform must have a responsive design for easy use on mobile, tablet, and desktop devices.
- Intuitive navigation should ensure ease of access to calculators, insights, and goal settings.

3.3 Data Integrity and Security

- User data should be securely stored, with encryption for sensitive information.
- Regular updates to emission factors must be maintained by admins to ensure calculation accuracy.

3.4 Reliability and Availability

- The system must maintain an uptime of at least 99% to ensure users have constant access.
- Backup procedures should be in place to safeguard user data.

4. ASSUMPTIONS AND CONSTRAINTS

4.1 Assumptions

- Users have access to basic information about their activities to input for emissions calculation.
- The platform will leverage reliable third-party APIs for weather and emission data.
- Users have internet access to use the platform effectively.

4.2 Constraints

- Limited budget and time constraints for development and deployment.
- Dependence on third-party providers for external data, which may affect reliability.
- Compliance with data protection standards to ensure user privacy and data security.

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5. RISKS AND MITIGATION

5.1 Risks

- **Data Inaccuracy**: Incorrect emission factors could lead to misleading insights.
- **User Drop-off**: If the platform is not engaging, users may abandon it.
- **Regulatory Compliance**: Adherence to data protection laws may affect data storage and usage.

5.2 Mitigation Strategies

- Regularly review and update emission factors with verified data sources.
- Implement user feedback to improve engagement and retention.
- Ensure compliance by incorporating security best practices and privacy protections.

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7. CONCLUSION

The Carbon Footprint Self-Tracker System platform is designed to provide a comprehensive tool for individuals seeking to understand, monitor, and reduce their carbon emissions. By offering real-time calculation, personalized insights, and goal-setting features, this platform aligns with the growing awareness of sustainability and environmental impact. Through reliable data, user-friendly interaction, and regular updates, the platform can enhance user engagement and promote sustainable practices.