GreenerTn API

Nawres Ayadi

ID:12363237
Group: Se (BA/IT)

January 21, 2024

Summary

Introduction And Motivation

Project Details

Conclusion

Introduction And Motivation

Introduction

GreenerTn API: A solution to calculate carbon emission of car users, allow them to view their average CO_2. emissions and receive notification about their average consumption and possible transportation alternatives.

Motivation

According to Dr. William Nordhaus, an environmental economist and Nobel prize winner for his work on the climate change issue, in his Nobel panel discussion and Lecture, he underlined the importance of **carbon tax** as a policy tool to address climate change. A carbon tax is a form of carbon pricing that puts a price on carbon emissions, aiming to internalize the external costs associated with climate change. Nordhaus argues that a carbon tax is an efficient and market-based mechanism to reduce greenhouse gas emissions and should be implemented by governments.

Project Details

Project Details

Car Owner Interface

Functional requirements:

* Securely account registration and login to the platform.

*Enter vehicle information and daily journey travelled in miles securely:

- Inserting car information, and journey for each car.

- Updating user data .

- Deleting their car/journey data from the platform's database.

*Receive suggestion and emission of CO_2. in kilograms included in a request by:

-Inserting journey travelled today in miles.

-getting the notification by the suggestion endpoint.

Project Details

GreenerTn Database

* The non-relational database we have allow each user to view his/her information securely .

* Adding, updating, and/or removing sources from the database based on the validity of user requests is permitted.

Project Details

GreenerTn Endpoints

POST Endpoints:

* Send users' information to the server to create users' accounts.
* Create car item as well as journey item.

GET Request Endpoints:

* Return the cars per user stored in the database .
* Return the list of cars and journeys grouped by ID of the user and of the vehicle.
* Return average carbon emission of a a specific car of a specific user based on their ID along with transportation alternatives

Project Details

PUT Endpoint:

* Update user's information.

DELETE Endpoints:

* Delete vehicles based on vehicle ID.
* Delete user based on his/her ID.

Conclusion

Conclusion

GreenerTn is a RESTful API based on a non-relational database, with its vehicle management and user operational process. The main idea of this API is to track carbon emissions of each user for the purpose of carbon tax implementation by the government. this API is scalable and in later versions we will be looking into reading the miles directly from the odometer, also implementing different CO_2 emissions formula for various cars with their different fuel burning rates and specifying transportation alternatives suggestions based the user's position and destination.

Thank you for listening