**Carbon Footprint Tracker Design & Plan of Action**

**Purpose:** The purpose of this project is to empower individuals to understand and reduce their environmental impact by calculating CO2 emissions for every journey and relaying this info in a digestible format by way of a google maps extension.

**System Workflow**

1. User enters trip details and mode of transportation
2. Back-end fetches weather data
3. Backend calculates C02 emissions
4. Backend returns results to user by way of google maps extension

**Sequence Diagrams**

* **User Input 🡪 API 🡪Regression model 🡪Result Generation**
* **API Integration with weather data services**
* **Database Interaction for trip storage and retrieval**

**Data Modeling Entity Relationship Diagram**

* **Trip details (distance, \*speed limits, mode of transportation, vehicle type)**
* **Weather data (temperature, conditions etc)**

**Algorithm Design**

* **Input variables:**
  + **Mode of transportation**
  + **Distance**
  + **Vehicle type**
  + **Weather**
* **Output: CO2 Emissions in kg**
* **Processing Logic:** weights for each input variable

**API Design**

* Define how the backend exposes functionalities
* POST -> /calculate-co2
* GET -> /weather-data
* Define the inputs/outputs for each endpoint

**Deployment Plan**

* How will back end be hosted?
* Create a deployment diagram to show server setup, database placement, and external integrations