

C02 emission calculator

A simple program that returns the amount of CO2-equivalent that will be caused when traveling between two cities using a given transportation method.

- Technology
- Installation
- Execution
- Example
- Test

Technology

These are the technologies used to develop the program:

- Node.js for program development
- commander.js module for node.js command line interface
- Jasmine for unit test

Installation

These are the prerequisite to setup the program:

- Node.js v12+
- npm v6+

Setup instructions: (Steps with reference to Windows OS)

- Download the co2EmissionCalculator.zip file and unzip it
- open the command prompt with the co2EmissionCalculator folder path (make sure you are in the right path where you have the co2-calculator.js file)
- execute `npm install`
- installation successful if no issues in this process

Execution

Program can be executed with the below command in the command prompt of the same folder path.

```
>node co2-calculator.js --start Berlin --end Munich --transportation-method bus
```

or

```
>node co2-calculator.js --start=Berlin --end=Munich --transportation-method= bus
```

- Named parameters can be mentioned in any order
- Either use a space () or equal sign (=) between key and value are allowed
- The program has a strong validation mechanism which will validate for empty named parameters and some common invalid characters
- The program will return **Your trip caused 0kg of CO2-equivalent.** if the start and end location are same
- The program will return **{{non-listed-vehicle }}transportation-method is not supported** if the transportation-method is not in the list below
 - small-diesel-car
 - small-petrol-car
 - small-plugin-hybrid-car

- small-electric-car
- medium-diesel-car"
- medium-petrol-car
- medium-plugin-hybrid-car
- medium-electric-car
- large-diesel-car
- large-petrol-car
- large-plugin-hybrid-car
- large-electric-car
- bus
- train

Example

These are some of the examples and results of the execution of the program

```
>node co2-calculator.js --start Berlin --end Munich --transportation-method bus
>Your trip caused 15.81kg of CO2-equivalent.
```

(Note: successfully executes and returns the CO2-equivalent for the travel between Berlin and Munich)

```
>node co2-calculator.js --start --end Munich --transportation-method bus
>required option '--end <end>' not specified
```

(Note: --start = "--end", so the program will not have a --end argument)

```
>node co2-calculator.js --start Berlin! --end Munich --transportation-method bus
>error: start location has invalid charecters in pattern /[\/\.:*?@#$$%!\{\}(),.+-"<>|]/
```

(Note: --start value 'Berlin!' which has a special character "!"

Testing

You can run the test suite using the below command in the command prompt of the same folder path.

```
>npm test
```

- The above command will run the spec files in the spec folder
- All functions in the program are unit tested

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