

Carbon Footprint Calculator

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Introduction

- In a Carbon Footprint Calculator we calculate various factors contributing to global warming in the terms of their CO2 equivalent measured in Tons.
- So, to calculate an individual's carbon footprint we need to investigate various factors in his/her life to find out what ultimately contributes to the global warming.
- We decided to gather these factors and make an easy to use program that would do the work for you and directly give you your Total Carbon Footprint.



Problem Statement

Write a program to calculate Carbon Footprint for an individual and display it.



Algorithm

1. Start.
2. Make a Header file of .h extension and write the formulas for all the factors i.e. LPG, Electricity, Trash, Private Vehicle, Bus, Train, Plane, Hotel all in separate functions and return the corresponding value.
3. In the main program #include the Header file you made.
4. Make classes for Household factors and Personal factors, make getters and setters for each factor.
5. Also make functions which return the value of CO2 Emissions in their corresponding classes.
6. Make a class called Total and add the total Household and Personal Emissions in it.



Algorithm

7. In main function create objects of all three classes Household, Personal and Total.
8. Take input for all the factors and Name and family members using setters.
9. In the household class divide the total emissions by number of family members to account for individual emissions.
10. Display all the individual emissions from each factor.
11. Display the Total CO2 footprint in Tons of CO2.
12. End.



Concepts Used

- User-defined Header files
- Classes
- Functions
- OOPs concept



Screenshot of Output

```
"C:\College Books\SE Sem 3\Skill Lab\Carbon Footprint\Carbon_footprint.exe"
WELCOME TO OUR CARBON FOOTPRINT CALCULATOR
Enter your name: Edgeworth
WELCOME!

Let's start with Household Emissions

Enter number of family members: 2
Enter amount of Electricity consumed PER MONTH in Units: 400
Enter amount of LPG used PER MONTH in SCM (Standard Cubic Meters): 25
Enter amount of Trash thrown out DAILY in kg: 3

Now heading to Travel Emissions

Enter distance travelled in Private Vehicle MONTHLY in km: 900
Enter distance travelled in Bus MONTHLY in km: 150
Enter distance travelled in Train MONTHLY in km: 500
Enter distance travelled in Plane ANNUALLY in km: 10000
Enter number of nights stayed in hotel Annually: 30

Your Entered Details are

Entered Name is: Edgeworth
Number of Family Members: 2
Amount of Electricity consumed in a Month in Units: 400
Amount of LPG consumed in a Month in SCM: 25
Amount of Trash thrown out in a Day in Kg: 3
```

```
Select "C:\College Books\SE Sem 3\Skill Lab\Carbon Footprint\Carbon_footprint.exe"
Entered Name is: Edgeworth
Number of Family Members: 2
Amount of Electricity consumed in a Month in Units: 400
Amount of LPG consumed in a Month in SCM: 25
Amount of Trash thrown out in a Day in Kg: 3
Distance Travelled by Personal Vehicle Monthly is: 900
Distance Travelled by Bus Monthly is: 150
Distance Travelled by Train Monthly is: 500
Distance Travelled by Plane Monthly is: 10000
Nights stayed in Hotel Annually: 30

Your CO2 Emissions for Individual Factors are

For Electricity: 4968 kg/yr
For LPG: 187500 kg/yr
For Trash: 344.925 kg/yr
For Personal Vehicle: 1512 kg/yr
For Bus: 23.4 kg/yr
For Train: 180 kg/yr
For Plane: 1700 kg/yr
For Hotel: 885.9 kg/yr

Finally...

Total Carbon Footprint is: 100.708 Tons of CO2

Process returned 0 (0x0)   execution time : 78.562 s
Press any key to continue.
```



Problems Faced During Execution

1. Returning double from an int function in header.
2. Accessing Private members of classes.
3. Not getting correct value because variable was not typecasted.
4. Using variable name same as function names in the user-defined header and getting error.



Each Member's Contribution

1. Dhanashree Wadaye – Gathering Data and Making of Header file.
2. Shantanu Wanivadekar – Writing Code for logic and all classes.
3. Rishikesh Vishwakarma – Writing code for int main().

