

PMR: I used a previous program and built on it since it was good practice. This program was just built upon the others so it was easy. I need more practice with this program though.

Pseudocode- Challenge Program 8.12

* Establish arraylist for the data structure
* Print output to screen/format tables
* Initialize dataRecord method
* Create 5 different objects including
  + Annual estimate of gasoline used
  + Annual estimate of electricity used
  + Annual household waste produced
  + Annual household waste recycled
  + Replacement of incandescent bulbs
* Establish constructor method. Include:
  + Annual gasoline used
  + Average electricity bill and average electricity price
  + Number of people in home
  + Recycle paper, plastic, glass, or cans (Booleans)
  + Number of light bulbs replaced
* Calculate Emission Reduction
  + Emission Reduction = Number of Bulbs \* 1.37 \* 73

Print remaining results to screen

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\* Project title: 08.12 Challenge Program

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\* Purpose of Project: Calculate the C02 output by the number of gas used.

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\* @version 12/8/2019

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\* @author Anika Jallipalli

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public class CO2Footprint {

private int numBulbs, numPeople;

private double pricePerKWH;

private double monthlyBill;

private double grossWasteEmission, netWasteEmission, wasteReduction;

private double myGallonsUsed;

private boolean recyclePaper, recyclePlastic, recycleGlass, recycleCans;

public CO2Footprint(double gallons, double kwh, double bill, int people, boolean paper, boolean plastic, boolean glass, boolean cans, int bulb) {

myGallonsUsed = gallons;

pricePerKWH = kwh;

monthlyBill = bill;

numPeople = people;

recyclePaper = paper;

recyclePlastic = plastic;

recycleGlass = glass;

recycleCans = cans;

numBulbs = bulb;

}

public double calcBulbReduction() {

return ((double) numBulbs \* 1.37 \* 73);

}

public double getGallonUsed() {

return myGallonsUsed;

}

public double calcPoundsCO2FromGas() {

return myGallonsUsed \* 8.78E-3 \* 2000;

}

double calcElectricityCO2() {

return monthlyBill / pricePerKWH \* 1.37 \* 12;

}

public boolean getRecyclingPaper() {

return recyclePaper;

}

public boolean getRecyclingPlastic() {

return recyclePlastic;

}

public int getNumPeople() {

return numPeople;

}

public boolean getRecyclingCans() {

return recycleCans;

}

public boolean getRecyclingGlass() {

return recycleGlass;

}

public double calcGrossWasteEmission() {

return (numPeople \* 1018);

}

public double calcWasteReduction() {

wasteReduction = 0;

if(recyclePaper) {

wasteReduction += (numPeople \* 184);

}

else if(recyclePlastic) {

wasteReduction += (numPeople \* 25.6);

}

else if(recycleGlass) {

wasteReduction += (numPeople \* 46.6);

}

else if(recycleCans) {

wasteReduction += (numPeople \* 165.8);

}

return wasteReduction;

}

public double calcNetWasteEmission(){

calcGrossWasteEmission();

calcWasteReduction();

return netWasteEmission = calcGrossWasteEmission() + calcPoundsCO2FromGas() + calcElectricityCO2() - calcWasteReduction() - calcBulbReduction();

}

public double getGrossWasteEmission() {

return grossWasteEmission;

}

public double getWasteReduction() {

return wasteReduction;

}

public double getNetWasteEmission() {

return netWasteEmission;

}

}

***TESTER***

import java.util.ArrayList;

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public class CO2FootprintTester {

public static void main(String[] args) {

ArrayList<CO2Footprint> waste = new ArrayList<CO2Footprint>();

waste.add(new CO2Footprint(3225.60, 0.12611, 199.69, 4, true, true, true, false, 21));

waste.add(new CO2Footprint(6785.91, 0.12617, 301.25, 7, false, false, false, false, 6));

System.out.println("| Pounds of CO2 | Pounds of CO2 | |");

System.out.println("| Emitted From | Reduced From | |");

System.out.println("| Gas | Electricity | Waste | Recycling | New Bulbs | CO2 Footprint |");

CO2Footprint dataRecord;

for (CO2Footprint aWaste1 : waste) {

dataRecord = aWaste1;

dataRecord.calcGrossWasteEmission();

dataRecord.calcWasteReduction();

dataRecord.calcNetWasteEmission();

}

for (CO2Footprint aWaste : waste) {

dataRecord = aWaste;

System.out.printf("| %10.2f | %13.2f | %9.2f | %12.2f | %10.2f | %10.2f |\n", dataRecord.calcPoundsCO2FromGas(),

dataRecord.calcElectricityCO2(), dataRecord.calcGrossWasteEmission(),

dataRecord.calcWasteReduction(), dataRecord.calcBulbReduction(),

dataRecord.calcNetWasteEmission());

}

}

}