**8.12 Challenge Program Class Diagram / Pseudocode**

**CO2FromElectricity**

<<Instance Variables>>

* boolean myPaper, myPlastic, myGlass, myCans;
* double myGallonsUsed, myElectricityBill, myElectricityPrice;
* int myNumPeople, myNumLightbulbsReplaced;
* double myPoundsOfCO2FromGas, myPoundsOfCO2FromElectricity, myPoundsOfCO2FromWaste, myWasteReduction, myLightbulbEmissionReduction, myTotalCO2Footprint;

<<Constructor>>

+ CO2Footprint(boolean paper, boolean plastic, boolean glass, boolean cans, double annualGallonsUsed, double electricityBill, double electricityPrice, int numPeople, int numLightbulbsReplaced)

<<Methods>>

+ double calcPoundsOfCO2FromGas();

+ double calcPoundsOfCO2FromElectricity();

+ double calcPoundsOfCO2FromWaste();

+ double calcWasteReduction();

+ double calcLightbulbEmissionReduction();

+ double calcTotalCO2Footprint();

+ double getPoundsOfCO2FromGas();

+ double getPoundsOfCO2FromElectricity();

+ double getPoundsOfCO2FromWaste();

+ double getWasteReduction();

+ double getLightbulbEmissionReduction();

+ double getTotalCO2Footprint();

**Pseudocode and Extra Information:**

Annual Pounds of CO2 Emitted from Gas = 1330.55

* myGallonsUsed \* 8.78E-3 \* 2204.62

Annual Pounds of CO2 Emitted from Electricity = 2789.3

* public double calcLightbulbEmissionReduction()

{

return myElectricityBill / myElectricityPrice \* 1.37 \* 12;

}

Annual Pounds of CO2 Emitted from Waste = 2036.00

* myPoundsOfCO2FromWaste = myNumPeople \* 1018;

Pounds of CO2 Reduced from Recycling = 750.80

* if(myPaper)

{

myWasteReduction += (184.0 \* myNumPeople);

}

if(myPlastic)

{

myWasteReduction += (25.6 \* myNumPeople);

}

if(myGlass)

{

myWasteReduction += (46.6 \* myNumPeople);

}

if(myCans)

{

myWasteReduction += (165.8 \* myNumPeople);

}

Pounds of CO2 Reduced from New Bulbs = Number of Bulbs \* 1.37 \* 73 = 10 \* 1.37 \* 73 = 1000.1

CO2 Footprint = Pounds of CO2 Emitted – Pounds of CO2 Reduced