//CarbonFootprint interface

public interface CarbonFootprint {

public double getCarbonFootprint();

}

//Building class

public class Building implements CarbonFootprint {

double squarefeet;

boolean woodFlag;

boolean basementFlag;

boolean concreteFlag;

boolean steelFlag;

final int woodframe = 50;

final int basement = 20;

final int concrete = 47;

final int steel = 17;

public Building(double squarefeet, boolean woodFlag, boolean basementFlag,

boolean concreteFlag, boolean steelFlag) {

super();

this.squarefeet = squarefeet;

this.woodFlag = woodFlag;

this.basementFlag = basementFlag;

this.concreteFlag = concreteFlag;

this.steelFlag = steelFlag;

}

@Override

public double getCarbonFootprint() {

double carbonFootPrint = 0;

if (woodFlag) {

carbonFootPrint += woodframe;

}

if (basementFlag) {

carbonFootPrint += basement;

}

if (concreteFlag) {

carbonFootPrint += concrete;

}

if (steelFlag) {

carbonFootPrint += steel;

}

carbonFootPrint += carbonFootPrint \* squarefeet;

return carbonFootPrint;

}

@Override

public String toString() {

return "Building [squarefeet=" + squarefeet + ", woodFlag=" + woodFlag

+ ", basementFlag=" + basementFlag + ", concreteFlag="

+ concreteFlag + ", steelFlag=" + steelFlag + ", woodframe="

+ woodframe + ", basement=" + basement + ", concrete="

+ concrete + ", steel=" + steel + ", carbon foot print="

+ getCarbonFootprint() + "]";

}

}

//Car class

public class Car implements CarbonFootprint {

double gallons;

final int CO2Yields = 500;

public Car(double gallons) {

super();

this.gallons = gallons;

}

@Override

public double getCarbonFootprint() {

return gallons \* CO2Yields;

}

@Override

public String toString() {

return "Car [gallons=" + gallons + ", CO2Yields=" + CO2Yields

+ ", carbon foot print=" + getCarbonFootprint() + "]";

}

}

//Bicycle class

public class Bicycle implements CarbonFootprint {

@Override

public double getCarbonFootprint() {

return 0;

}

@Override

public String toString() {

return "Bicycle [carbon foot print=" + getCarbonFootprint() + "]";

}

}

//CarbonFootprintDriver class

public class CarbonFootprintDriver {

public static void main(String[] args) {

CarbonFootprint[] carbonFootprints = new CarbonFootprint[3];

carbonFootprints[0] = new Building(12000, true, true, true, false);

carbonFootprints[1] = new Car(2000);

carbonFootprints[2] = new Bicycle();

for (CarbonFootprint carbonFootprint : carbonFootprints) {

System.out.println(carbonFootprint.toString());

}

}

}