TEAM NUMBER: 4
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TEAM NAME: DAFAL
Project Title: Carbon Footprint Calculator and Recommender Project

Introduction:

Most of the activities that we do today contribute to either a healthy climate or an unhealthy climate. Most persons do not know how to calculate their carbon footprint or understand what activities they need to engage in to reduce climate pollution. For our project, we propose the development of a carbon footprint calculator that can measure one's carbon footprint. It should be simple and easily customizable.
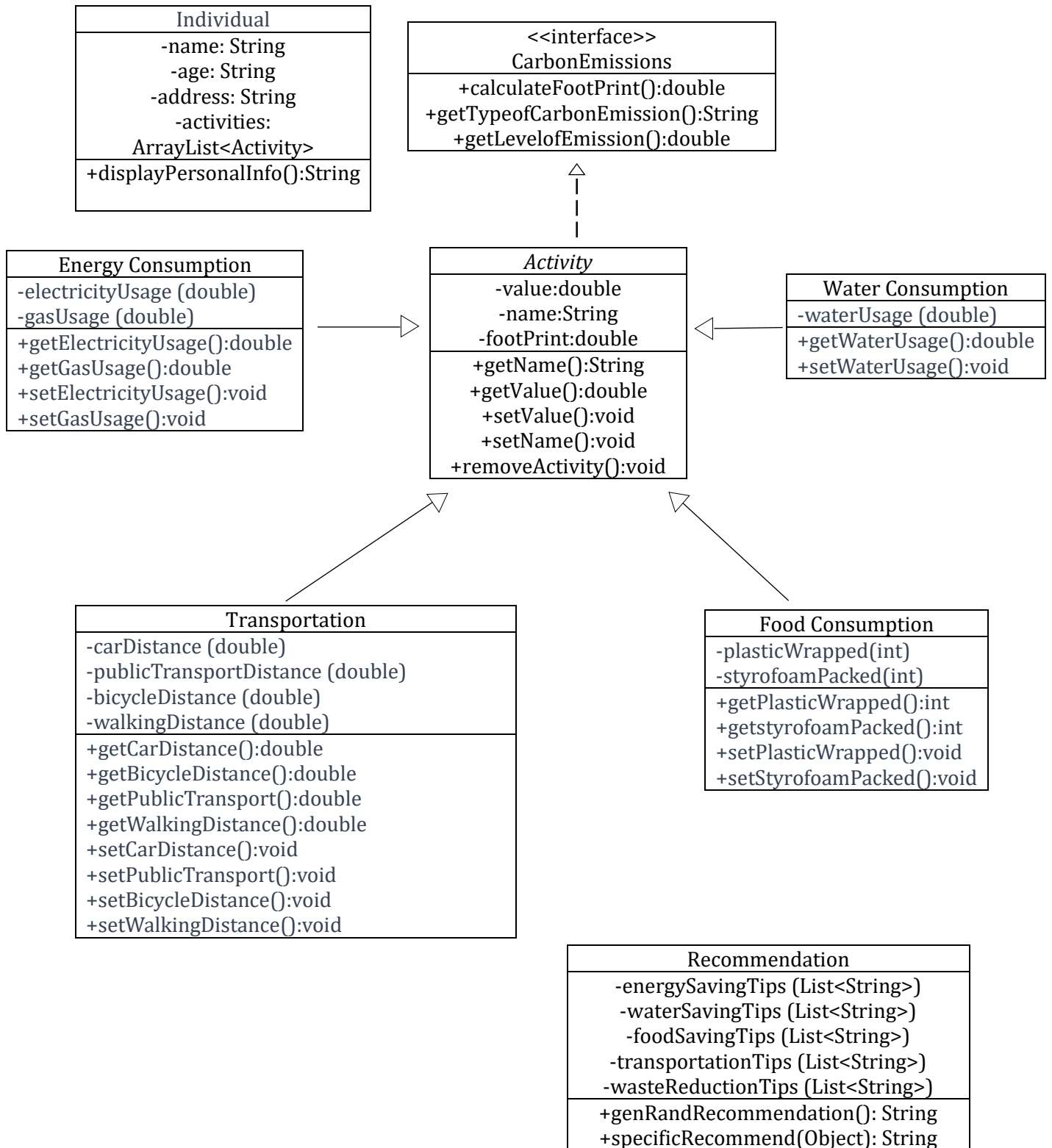
According to the Oxford Advanced Learner's Dictionary (n.d.), carbon footprint is, "a measure of the amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community." In recent times, carbon footprints have been used as an indicator of the impact of the lifestyle of a citizen of a country on carbon emissions (Pandey et al., 2011).

Dafal's carbon footprint Java project seeks to calculate the carbon footprint of an individual based on their activities and consumption of resources. The project is being designed to take inputs such as energy consumption, water consumption, daily personal activities, transportation, and food consumption that contribute to carbon emissions.

In its development, we will be using object-oriented programming concepts learnt throughout the duration of the course to create classes and methods to handle the calculations. These concepts include inheritance, implementation and polymorphism. The application takes in user input and using their inputs calculates the amount of footprint they have and displays it to them.

Our project will be giving users recommendations based on the calculated inputs and tips on minimizing their consumption of energy. On the interface we seek to display quotes on climate change to ensure that the user is aware of the impact they will be having on the environment if they adhere to our recommendations.

UML DIAGRAMS

Individual
- name: String
- age: String
- address: String
- activities: ArrayList<Activity>

+displayPersonalInfo():String

<<interface>>
CarbonEmissions
+calculateFootPrint():double
+getTypeofCarbonEmission():String
+getLevelofEmission():double

Energy Consumption
-electricityUsage (double)
-gasUsage (double)

+getElectricityUsage():double
+getGasUsage():double
+setElectricityUsage():void
+setGasUsage():void

Activity
-value:double
-name:String
-footPrint:double

+getName():String
+getValue():double
+setValue():void
+setName():void
+removeActivity():void

Water Consumption
-waterUsage (double)

+getWaterUsage():double
+setWaterUsage():void

Transportation
-carDistance (double)
-publicTransportDistance (double)
-bicycleDistance (double)
-walkingDistance (double)

+getCarDistance():double
+getBicycleDistance():double
+getPublicTransport():double
+getWalkingDistance():double
+setCarDistance():void
+setPublicTransport():void
+setBicycleDistance():void
+setWalkingDistance():void

Food Consumption
-plasticWrapped(int)
-styrofoamPacked(int)

+getPlasticWrapped():int
+getstyrofoamPacked():int
+setPlasticWrapped():void
+setStyrofoamPacked():void

Recommendation
-energySavingTips (List<String>)
-waterSavingTips (List<String>)
-foodSavingTips (List<String>)
-transportationTips (List<String>)
-wasteReductionTips (List<String>)

+genRandRecommendation(): String
+specificRecommend(Object): String

References

Pandey, D., Agrawal, M., & Pandey, J. G. (2011). Carbon footprint: current methods of estimation.

Environmental Monitoring and Assessment, *178*(1–4), 135–160.

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