Homework Project 3

Due 12/9

This project requires you to complete an existing program included in the zip file. It demonstrates the use of java.util.Random to generate simulated data, the application of composite data structures, and the use of inheritance to minimize code duplication.

Goal

The included program simulates the collection of weather data for the month of December 2023 and saves that data to a CSV file. The variables measured each day are:

1. Temperature (already completed)
2. Pressure (already completed)
3. Humidity (already completed)
4. Wind Velocity (**for you to complete**)

Review the class diagram below and the code included with the assignment to familiarize yourself with the program. Then implement the **Speed** and **Direction** data structures to complete the **WindVelocity** class.

Class Diagram

WeatherLog

Stores daily weather records and saves the data to a CSV file.

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WeatherRecord

Stores measurements of temperature, wind velocity, etc. sampled on a given day.

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WindVelocity

Stores the measured wind Speed and Direction.

Date

Stores the year, month, and day a measurement was collected.

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Measurement

Stores a single float value -- a data point collected on a given day.

Temperature

Stores the day's average temperature in degrees Celsius.

Pressure

Stores the day's average pressure in millibars.

Speed

Stores the day's average wind speed in kilometers per hour.

Direction

Stores the day's average wind direction in degrees (1 - 360).

Humidity

Stores the day's average humidity in grams per kilogram.