Java SE Task, Week 7

Classes and Objects. Abstractions and interfaces.

Task 1

Create an abstract class **Battery.java** with parameters:

Abstract Methods:

+ double getPower(); // Returns power of battery in watts

+ double getLifeTime(); // Time to live in seconds

Create a class **ToshibaBattery.java** that extends **Battery.java** class:

- double voltage; // Voltage in volts

- double currency; // Currency in amperes

- double energy; // Total energy in joules

- double extraEnergy; // Extra energy in joules

Implement all abstract methods

Calculate power and lifetime by using voltage, currency and energy. Use formulas from physics.

Create a class **DuracellBattery.java** that extends **Battery.java** class:

- double voltage; // Voltage in volts

- double currency; // Currency in amperes

- double energy; // Total energy in joules

- double internalVoltage; // Internal voltage of battery in volts. (ε - epsilon)

Implement all abstract methods

Calculate power and lifetime by using voltage, currency and energy. Use formulas from physics.

Create a class **FlashLight.java** with parameters:

- Battery batteries[];

Constructors default and parameterized

Getters and Setters

+ double getTotalPower(); // This method returns total power of all batteries

+ double getTotalEnergy(); // This method returns total energy of all batteries

+ double getTotalLifeTime(); // This method returns lifetime of flashlight according to its batteries

You will calculate Total lifetime by dividing Total Energy into Total Power

In main class, create 5 objects of Toshiba batteries and 5 objects of Duracell batteries with different parameters.

Create 5 objects of Flash Lights with different parameters.

Print lifetimes of all flashlights.

Print data of flashlight with maximum lifetime value.