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Assignment 10.1: README file

The purpose of the Laptop class is to emulate a laptop, calculating the time it would take to fully charge the laptop, given the status as well as the current battery level of the laptop, which is the class object. It mimics a laptop using information input provided by the user of the program. This class takes in two data arguments as variables and calculates a third variable as well. The Laptop class includes 5 methods to do different things.

The first variable is self. This variable is included in any classes in python and represents the class as a whole.

Another data variable used in the Laptop class is battery. The battery variable is inputted and tells what the current battery level of the laptop is. It is used to calculate the total time it takes to charge the laptop.

Status is another data variable used in the Laptop class. The status variable tells whether the laptop is on or off. Any other input in this variable will raise an error. This variable also helps to calculate the total charging time.

Time is a class variable that is not inputted and is already set. It starts as zero and is changed through calculations using the other two implemented variables in the class. The time variable tells how long it takes for the laptop to reach full battery given the status and current charge.

The first method is an init method. This method is used primarily to initialize all of the variables that will be used throughout the rest of the class, as well as ensuring the battery input is valid.

The next method implemented is set_battery. This method is used to set the battery as an object of the class. It will raise an error if the inputted batter is less than zero. This method takes in the battery argument.

Another method implemented in the class is the get_battery method. This returns the battery level of the laptop.

Get_chargingtime is the next variable implemented in the class. This method uses both the status and battery variables to calculate the time it takes to fully charge a laptop. It prints an error if the laptop status is not either “on” or “off”.

The __str__ function is a magic method that is used to return the class objects as a string. This function includes all of the class variables and arranges them in a way that is easy to read and understand.

Demo Program Documentation

The demo program will calculate the time it takes to reach full charge given both the battery as well as the status as two class variables, using a laptop as the class object and multiple functions. It calls the get_chargingtime function within the main function in order to properly calculate the time. This program also asks for user input for both of the variables and will print an error message if either the status or the battery input’s are invalid. A user can run my demo program by running the file in their terminal and inputting the information requested after running it. The program will then print either an error message or a string message including the current battery, laptop status, and time it will take to reach full battery.