

Hello Łukasz and team.

ENERGY-ESTIMATOR proposed solution.

Edge Cases due to unreliable protocol:

1) Lost messages

Case	Solution proposed in my code
Dim Lost	We can detect this only if current DIM plus the value in the message are out of the interval [0,1]. In this case a dim message must have been lost. I have simply assured that if it the sums go out of this interval the code pulls it into the interval again. Possible solution: A double transmission and acknowledge messages could be implemented but only with access to the light system.

I assumed the TurnOff messages were always received at the beginning and ending of the transmission as it was said on the exercise guide. I assumed also that EOF were always at start and beginning and weren't lost.

2) Duplicate messages - Verification of equal timestamps. This means it is a duplicate message.

3) Out of order messages - Made a list, sorted it and only after it calculates the consumption.

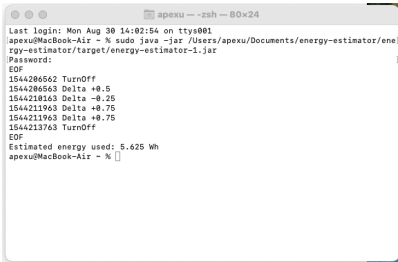
Note: I used VS Code for this project.

How to use:

My maven project outputs the Jar executable file to ~/energy-estimator/target and usually the name is energy-estimator-1.jar.

If you want an updated jar file you only have to run the Maven command 'mvn package' in the terminal, while on the folder ~/energy-estimator (where the pom.xml is).

Then just run "java -jar energy-estimator-1.jar" and he waits your input.
The program can be tested by copying and pasting the set of commands by the smart light in the command line and clicking Enter. You can also enter them one by one but we have to be sure we enter them correctly, i.e. without any extra spaces.



```
Last login: Mon Aug 30 14:02:54 on ttys001
apexu@MacBook-Air ~ % sudo java -jar /Users/apexu/Documents/energy-estimator/energy-estimator-1.jar
Password:
EOF
1544286562 TurnOff
1544286563 Delta +0.5
1544218163 Delta -0.25
1544211963 Delta +0.75
1544211963 Delta +0.75
1544213763 TurnOff
EOF
Estimated energy used: 5.625 Wh
apexu@MacBook-Air ~ %
```

Any doubts you can reach me at hglebre@gmail.com .
Thank you.
Best regards.
Hugo Lebre.