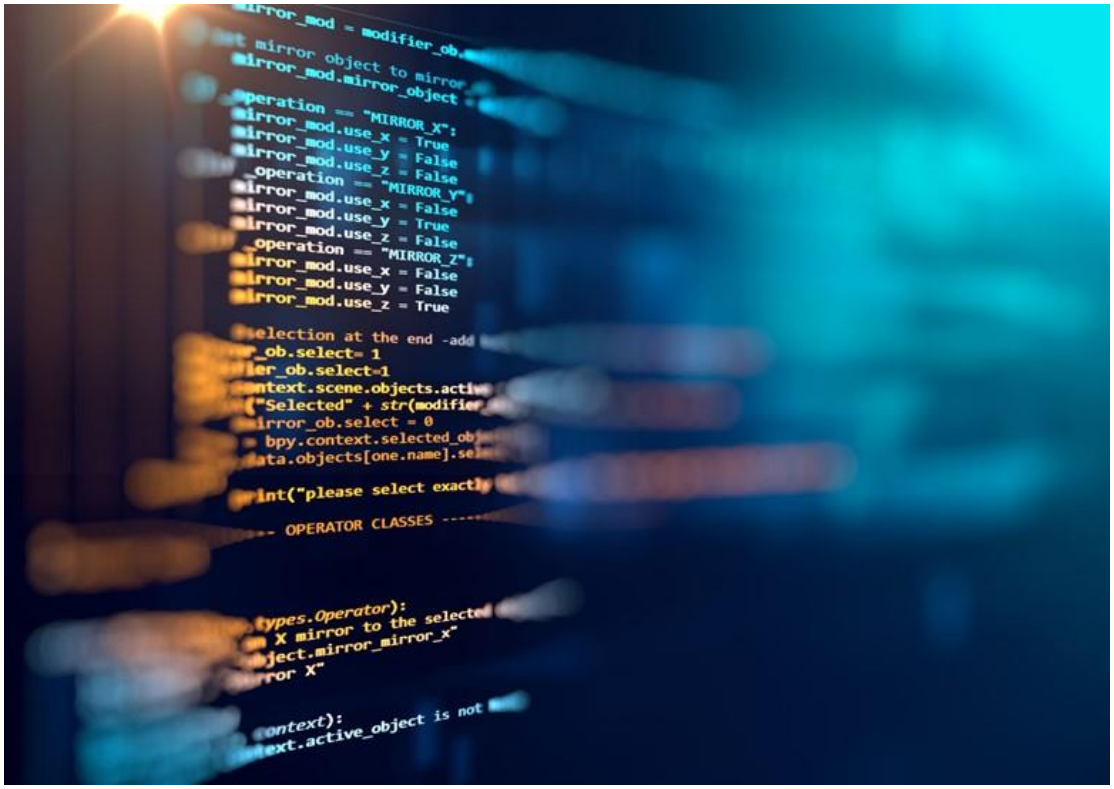
LBYCPA1-EQ3

Programming Logic and Design Laboratory



Final Project Proposal

Energy Consumption Calculator

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PROJECT DESCRIPTION

Due to the rising costs of electricity in the Philippines, understanding the household's energy consumption is crucial for those that want to efficiently use electricity to reduce their monthly expenses. This project aims to develop a simple Energy Consumption Calculator to help users estimate the power consumption of their household appliances and estimate their monthly electricity bills.

The cost of electricity can impact the household budget especially in the Philippines with it being at 11.9617 pesos per kWh last January and having energy intensive appliances being used inefficiently could make costs rise without users knowing. By providing an easy-to-use calculator users can make better decisions on their consumption, have better energy saving practices, and have better habits on efficient energy usage.

The calculator will be based in Python where the user can input details on their appliances like wattage, amount of use time, and its frequency. Then the program will compute the estimated energy use based on the rate that month.

The main objective of this program is to provide a user-friendly tool that helps users compute the consumption of their appliances and estimate their electricity consumption. This can also help users reduce their monthly electricity bills because by providing insights on the consumption of certain appliances or the use of their electricity in the previous month. With this calculator and habits created when efficiently using electricity users could become more aware of their use of electricity and create more optimized consumption patterns to reduce energy usage.

METHODOLOGY

System Overview Flowchart

- User Input – Name of Appliance, Wattage, Usage Duration, frequency of use.
- Processing – Energy Consumption (kWh) = (Power (W) * Hours Used) / 1000
- Electricity Bill Estimation – Consumption multiplied by local electricity rate.
- User Reports and Suggestions – Give user some insights on what could be optimized

Concepts Used

- File Handling – Users can see past data and export them to other applications.
- Simple GUI – The user will be able to navigate a simple user interface to allow easier consumption of data.
- Data Processing – Loops and conditional statements will be processing the user input
- Report Generation – The user will get a basic report to get a summary of their consumption within the week or month.

SCHEDULE OF ACTIVITIES *(Provide a timetable or Gantt chart of your deliverables. Indicate also the person in-charge and when the specific deliverables will be accomplished)*

Task	Person In-Charge	Timeline
Research on local electricity rates and mathematical computations	Juan Luis Arquesa	Week 9-10
UI/UX design and basic Python script	Juan Luis Arquesa	Week 10-11
Data Handling	Juan Luis Arquesa	Week 10-11
Testing and debugging	Juan Luis Arquesa	Weel 11-12
Final testing and adjustments, Project completion and documentation	Juan Luis Arquesa	12-13

REFERENCES

Estimating appliance and Home Electronic Energy use. Energy.gov. (n.d.). https://www.energy.gov/energysaver/estimating-appliance-and-home-electronic-energy-use

Mursid, S. P., & Budi Santoso, H. (2019). Analysis of the effectiveness of the utilization of power monitoring devices in reducing electric energy consumption. *Journal of Physics: Conference Series*, *1364*(1), 012055. https://doi.org/10.1088/1742-6596/1364/1/012055