Criterion E: Evaluation

Meeting Criteria for Success

1. Program will monitor the powerwall and detect when a power outage occurs - *met. The program is able monitor the powerwall and detect changes in the grid status*
2. Program will then wait 5 minutes and if the power is still out it will run the load shedding function - *met. The program waits five minutes after detecting that the powerwall is disconnected from the grid. If the grid is still down the load is shed..*
3. Program will interface with the smart plugs and other smart devices and Windows and Linux computers. - *met. The program is able to interface with windows desktops, servers, tuya devices and kasa devices.*
4. Program will read a list to identify which devices and computers to shut down - *met. The program reads the deskp and server lsuts from text files. The smart device lists are retrieved using built in functions in the corresponding python libraries.*
5. Program will shut off all these devices deemed unnecessary - *met. The devices from the list are shutdown when the load shedding function is run.*
6. Program will continue to check if the power is out or not and if it is found to be on the program will turn the devices (from the list) it shut down back on - *met. The kasa and tuya devices are tuned back on. During development it became clear that bringing up the wirelessly connected computers was not possible using WakeOnLan. The client was advised to install those devices with smart switches and configure the computers to turn on automatically when power is restored. The client accepted the solution.*

Recommendation for Further Development

Improvements

* Client is concerned that passwords for windows desktops are stored in clear. A future version will explore ways to encrypt and decrypt passwords.
* The client’s storage server connects to two disk shelves that remain powered when the storage server goes down. They are powered by an uninterruptible power supply that can remotely cut power though a web interface. The task can be automated in the future. In the meantime the client was advised to control the disk shelves using a kasa plug
* The client has expressed interest in being able to exclude individual kasa and tuya devices from being shut down. In the future this functionality will be supported using a text file.
* The client has expressed interest in having a logfile to log the actions of the program. A future version will support this functionality. In the meantime the client was advised to run this program using the screen command with logging enabled.