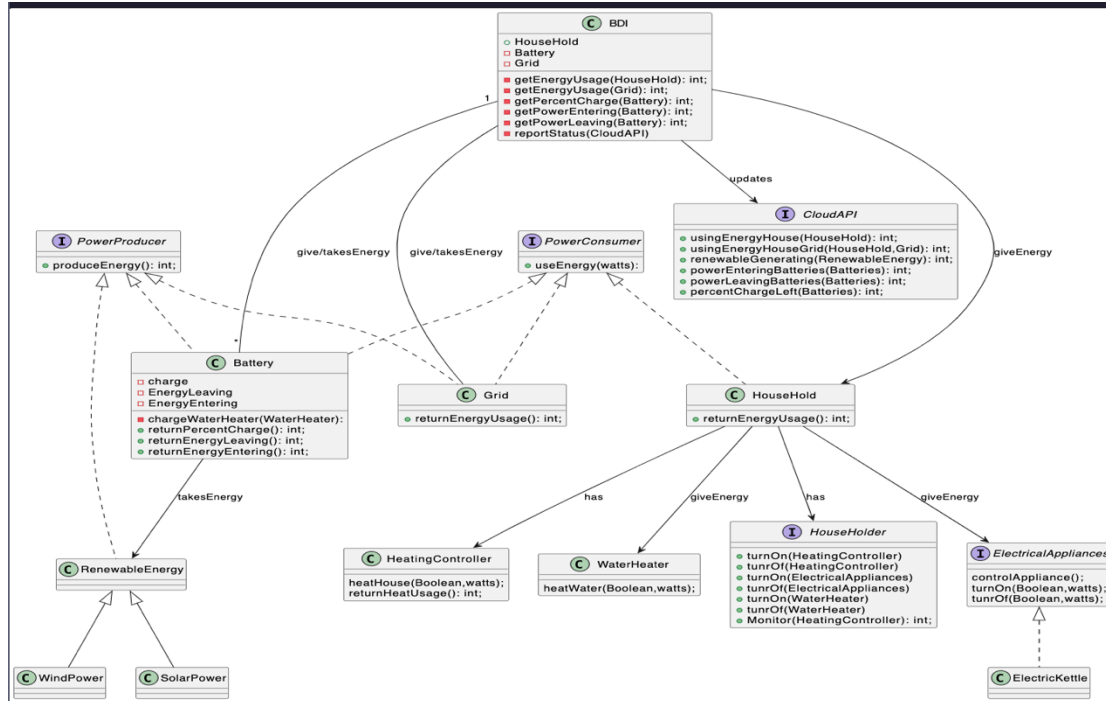Student ID : 38417596
SCC 204

1.)

2.)
One of the SOLID principles I have used is the Open Closed Principle. This is used with Electrical Appliances, Power Producer, Power Consumer. I chose this principle as I want my classes to be extensible, so I created interfaces to make my diagram more generic.
Another SOLID principle I have used is The Single Responsibility Principle. I have used this with the Household class as I have broken it down into Heating Controller and Water Heater. I have done this as I want to decouple my code.

3.)
The batteries can calculate the percent charge it has left
The energy is measured in watts and are whole numbers

4.)
The Four reports are energy the household is using via the grid, the power the household is using, the percentage charge of the batteries and how much power the Renewable energy sources are making. These are important as a user you want to know how much energy you are producing via Renewable energy sources. You also want to see the percent charge on the batteries so as the user you can see how the much the Renewable Energy charged the batteries when you aren't using power. The energy via the grid is useful as the user we can see how much of the total energy we are using are via the grid. Lastly as a user you want to see how much energy you are using in total as if the number is too high you now know to cut down.