Challenge Lab 07.01 Electric data

Read data from an API that does not require authorization.

Description:

This is the same as the week04 extra video. Getting the data from sem-o.com.
A student originally requested this. He was looking for the data from the "Balancing and Imbalance Market Cost View"
I did a quick video of how we got the data in week04. I now want to do this as a python script, and save the data in Excel.
Details of the API can be got here:
http://sem-o.com/documents/general-publications/SEMO-Website-Report-API.pdf

There two URLs that we will need to use in this lab:

1. To get a list of reports.
   https://reports.sem-o.com/api/v1/documents/static-reports
   According to the documentation you can pass parameters to this URL to narrow the result.
   I think that we should use the date parameter to get all the reports after a certain date.
   We may have to call this a few times to get the full list of documents that we want.
2. To get the individual report (we put the report id at the end of this)
   https://reports.sem-o.com/api/v1/documents/{reportID}

Suggested steps:

1. Look at the documentation.
2. Make one call to the 1st URL and output the result to a file,neatly.
3. Look at the file.
4. Mess around with the first URL to get a list of the reports/documents that we want. We are looking for "Balancing and Imbalance Market Cost View".
5. Put the list of report ids that we want into a python list and print that list out.
6. The list of reports may come in multiple pages. Print the number of pages.
7. Use a for loop to get each of the pages in turn, putting the report ids into the list.
8. Get the first report from the list (using the second URL).
9. Save that report into an excel file.
10. When that works use a for loop to get each of the reports putting the result into the excel file (increment the rows like we did in last weeks lab).

Extra: modify the script so it appends to the excel file.

11. Print out todays date in the format that the first URL takes: 2019-11-08
12. Put the date into a Dict object along with the last row that we saved to excel, save the Dict as a JSON object in a file.
13. Modify the script to read this data from the file and modify the search and where the results get stored in the Excel file.