Python writes HTML

FACT 1: Python is a great language for reading and writing data in files, but it is not so great with graphics or sharing output.

FACT 2: HTML browsers with CSS are great at graphics and sharing output on the WWW, but Javascript does not read and write files.

So ... let's use Python to read in a data file (Figure 1) and write out an HTML (Figure 2)!

Figure 1. Raw data in https://jsononlineeditor.org

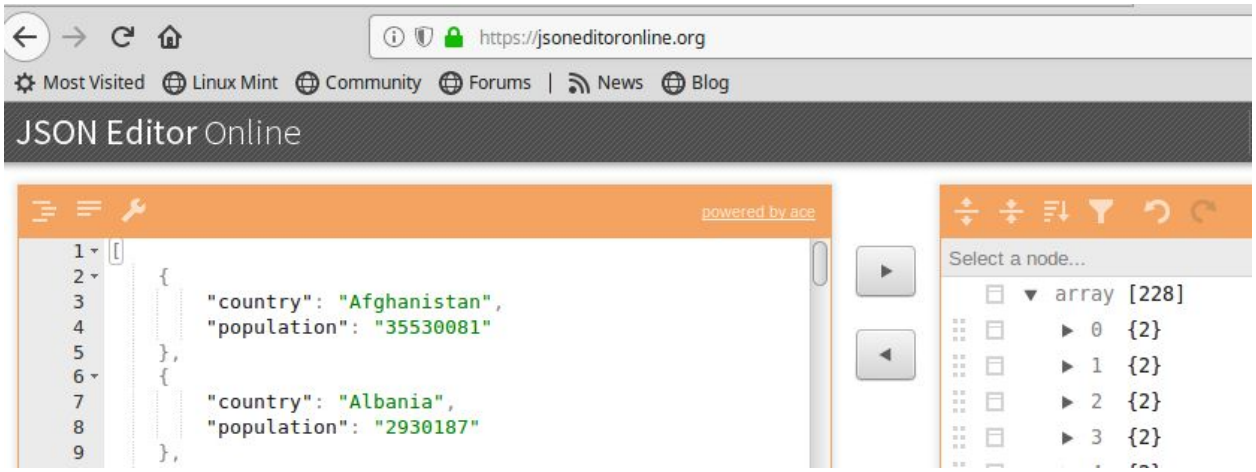
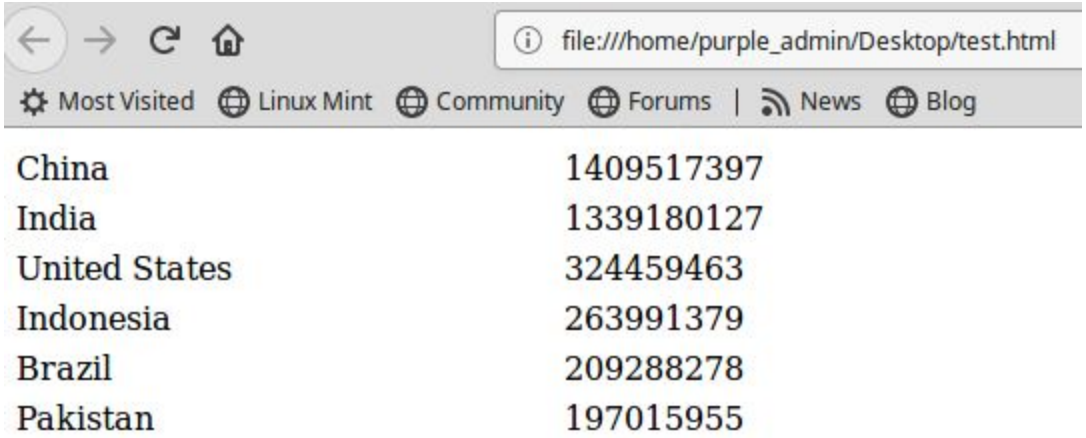


Figure 2. Processed (sorted) data in an HTML browser, ready to share with the world



Step 1: Open Idle and create a new File

Idle is a simple Integrated Development Environment (IDE) for Python that will help you be a more productive programmer.

Step 2: Download countries.json to your work folder

Step 3: Code the load!

To read JavaScript Object Notation (JSON) files in Python, use the very handy Python json module.

```
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import json

myfile = open("countries.json")
mydata = json.load(myfile)
myfile.close()
```

In the code above we import the **json** module, **open** countries.json into a variable called **myfile** and then **load** it as a json object in the variable called **mydata**. Once loaded, you can safely **close** myfile.

Step 4: Create the HTML file

Use the “w” or write in the open command to write a new file to your work folder.

```
*Untitled*
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import json

myfile = open("countries.json")
mydata = json.load(myfile)
myfile.close()

myhtml = open("test.html","w")
```

Step 5: Sort the data on the population attribute

The sorted command allows you to sort data and store it in a variable. In this case we overwrite the existing variable with the sorted data. Notice that we had to type cast population to an integer in order for the numeric sort to work as the population data are strings by default.

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```
import json

myfile = open("countries.json")
mydata = json.load(myfile)
myfile.close()

myhtml = open("test.html","w")

mydata = sorted(mydata, key=lambda x: int(x['population']), reverse=True)
```

Step 6: Loop through data and write out each country / population pair

The **.write()** function allows you to write to a file object. In this case we are writing an HTML table with each table row <tr> being a different country and its population. Make sure to use the .close() function to close the file object, otherwise the write will not complete.

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```
import json

myfile = open("countries.json")
mydata = json.load(myfile)
myfile.close()

myhtml = open("test.html","w")

mydata = sorted(mydata, key=lambda x: int(x['population']), reverse=True)

myhtml.write("<table>")
for country in mydata:
    myhtml.write("<tr>")
    myhtml.write("<td>" + country["country"] + "</td>")
    myhtml.write("<td>" + str(country["population"]) + "</td>")
    myhtml.write("<tr>")
myhtml.write("</table>")
myhtml.close()
```

Step 7: Save the file to work, as countries.py and run the program

CONGRATULATIONS!

Enrichment 1# - Automatically open file

Wouldn't it be nice for your new HTML to pop open immediately after it is created? Try these 4 lines of code:

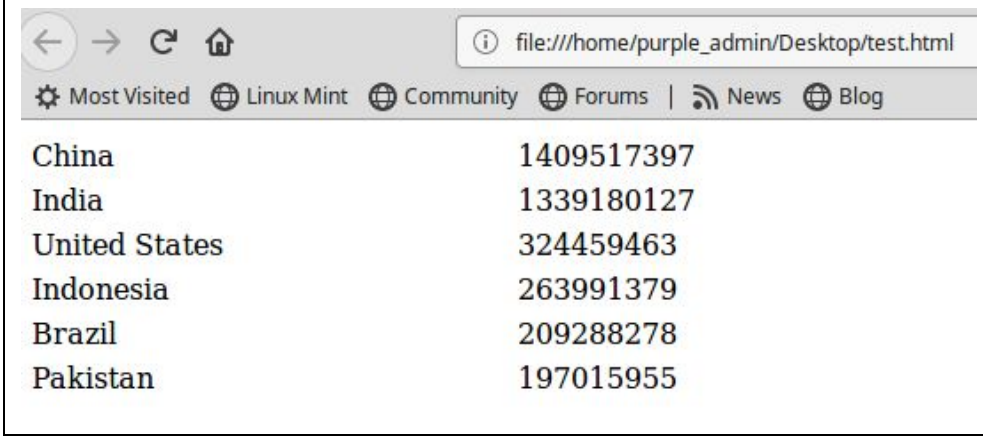
Code to add

`Import os`
`Import webbrowser`
`filename = 'file:///'+os.getcwd()+'/' + 'test.html'`
`webbrowser.open_new_tab(filename)`

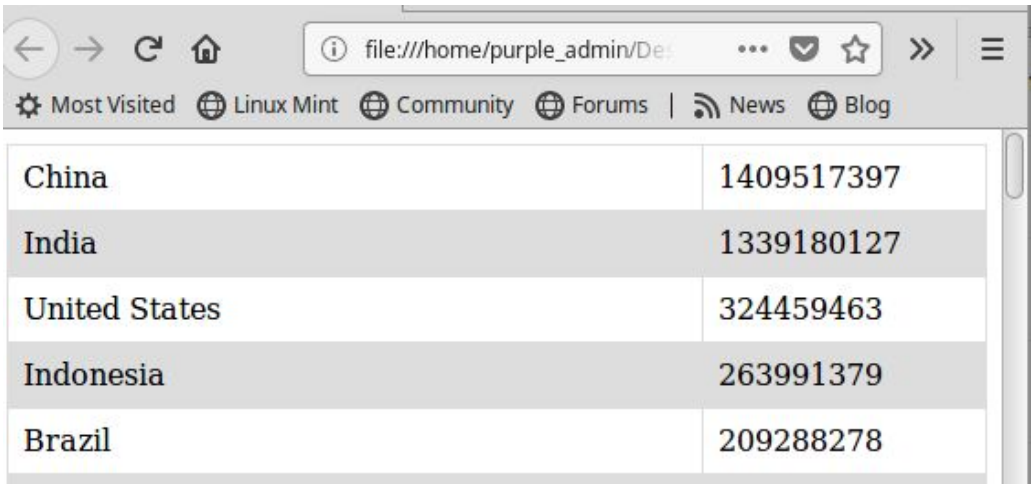
Usually it is a good idea to group your import statements together for good organization of your code. Finally, as code runs sequentially (one line after another), place the webbrowser code at the bottom of the file.

Enrichment 2# - Add CSS

I think we can agree that the table is quite ugly and plain as it is.



Why not add some custom CSS to make it more interesting, like the image below.



Five lines of code to add some CSS to the <table>, <td>, <th> and <tr> tags. Voila!

```
mydata = sorted(mydata,key=lambda x: int(x['population']), reverse=True)

# Write out CSS to file
myhtml.write("<style>")
myhtml.write("table { border-collapse: collapse; width: 100%; }")
myhtml.write("td, th { border: 1px solid #dddddd; text-align: left; padding: 8px;}")
myhtml.write("tr:nth-child(even) { background-color: #dddddd;}")
myhtml.write("</style>")

myhtml.write("<table>")
for country in mydata:
```