



Global Knowledge®

File IO

Estimated time for completion: 60 minutes

Overview:

This lab will let you practice working with many common file formats from Python including text, JSON, XML, and CSV files. The basic idea is you will work with JSON, XML, and CSV files to answer basic questions about the data contained within. While doing this, you will be logging the results to a text file.

These instructions assume you have **Python 3** installed. You can use any OS you choose (OS X, Windows, or Linux).

Goals:

- Work with JSON files
- Work with CSV files
- Work with XML files
- Work with text files

Part 1 – Add file logging

Open the `program.py` and `logger.py` files (or project if you are using PyCharm) in **File_IO/Before/file_io_before**. Notice that the **`program.py`** file depends upon the **`logger.py`** file. Run `program.py` and observe that it outputs a message warning that logging must be implemented.

Open the `logger.py` file and check out the TODOs. Add code to implement each of these and remove the warning(s). Note each message should add to the log file, not overwrite it.

Part 2 – Working with XML

Turn your attention to the `load_xml` method of the `Program.py` file. Use the `ElementTree` class from the `xml.etree` module. Create an instance and have it parse the file provided. Then use the `xpath` expression channel/item to find all items (blog posts). Once you have the blog posts, loop across them and print out their title and link.

Part 3 – Working with JSON

Turn your attention to the `load_json` method of the `Program.py` file. Follow the detailed TODO's in the code. You will be loading a file named `python-course.json`. At DevelopMentor we use MongoDB to power our website. MongoDB stores its records in JSON format rather than rows and columns. This file is essential straight out of our website's database.

Use the fact that a dictionary is returned from the `json` module to answer the questions:

- What is the *Name* of the course?
- How many Engagements are there (an taught session of the course)?

What is the City and StartDate of each?

Part 4 – Working with CSV

Finally, turn your attention to the `load_csv` method of the `Program.py` file. Follow the detailed TODO's in the code. You will be loading a file named `fx-seven-day.csv`. This is the currency exchange rates for a 7 day period. Note that these values are relative to Canadian dollars. Your job will be to answer the question:

What is the 7 day average for RUPEEs to USD?

Here is rough sketch of the steps needed to answer this:

1. Parse the CSV into a data structure you can leverage. A dictionary of key = three-letter-code, value = dictionary of row values is a good choice.
2. Find the average of the 7-day rate for Rupees to Canadian dollars.
3. Find the average of the 7-day rate for USD to Canadian dollars.
4. Compute Rupees / USD by dividing the two values above.