Assignment 4 - Data Serialization

Submission:

- Use the template file `hw4.py`
- Add your name in a comment at the top

Part 1 - CSV to JSON

- Write a function named`total_runtime(album_file_path)`
- The file at `album_file_path` will be a CSV file.
    - The data in the file will contain data about a music album.
        - It will have a header row
        - The remaining rows will each represent a track on the album.
    - See the example data below.
- Open the file and parse the data into a Python list called `tracks`.
    - Each item in the list will be a dictionary containing the song title and duration.
    - Use the `csv.DictReader` class
    - remember that the reader is an interator
        - To turn its data to a list you need to use a list comprehension
        - Ex: stuff = [thing for thing in reader]
- Calculate the total track time.
    - Hint: you may wish to use the datetime.timedelta() function.
- Create a new dictionary called `album`.
    - Assign the total track time to a key named`duration` in the `album` dictionary.
    - Assign the list of tracks to a `tracks` key in the`album` dictionary.
    - Parse out the artist and album name from the file name:
        - The file will be in a folder with the name of the artist.
            - Ex: dir1/dir2/beatles/rubber_soul.csv
        - Use`os.path.split(album_file_path)`to get a `(folder_path, filename)`tuple.
        - Use `os.path.split(folder_path)`again to get the a `(upper_path, artist_folder)` tuple.
        - Once you have the filename:
            - Remove the file extension (.json).
            - Replace the underscores with spaces.
            - Capitalize the words.
            - Assign the album name to a `title` key in the `album` dictionary.
        - Once you have the folder name:
            - Replace underscores with spaces.
            - Capitalize it.
            - Assign it to an `artist` key in the`album` dictionary.
- Serialize the data in a new JSON file.
    - This new file will have the same name as the one you read from, but append "_v2" to the name.
    - Do not append "_v2" to the file extension, append it to the name.
        - Ex: `black_album.csv` -->`black_album_v2.json`
        - NOT: `black_album.csv` -->`black_album.json_v2`

Example

- Input file path: "music/queens_of_the_atone_age/like_clockwork.csv"

```
title,duration
Keep Your Eyes Peeled,5:04
I Sat by the Ocean,3:55
The Vampyre of Time and Memory,3:34
```

```
If I Had a Tail,4:55
My God Is the Sun,3:55
Kalopsia,4:38
Fairweather Friends,3:43
Smooth Sailing,4:51
I Appear Missing,6:01
...Like Clockwork,5:24
```

- Output file path: "music/queens_of_the_stone_age/like_clockwork_v2.json"

```
{
  "duration": "46:00",
  "title": "Like Clockwork",
  "artist": "Queens Of The Stone Age",
  "tracks": [
    {"duration": "5:04",
     "title": "Keep Your Eyes Peeled"},
    {"duration": "3:55",
     "title": "I Sat by the Ocean"},
    {"duration": "3:34",
     "title": "The Vampyre of Time and Memory"},
    {"duration": "4:55",
     "title": "If I Had a Tail"},
    {"duration": "3:55",
     "title": "My God Is the Sun"},
    {"duration": "4:38",
     "title": "Kalopsia"},
    {"duration": "3:43",
     "title": "Fairweather Friends"},
    {"duration": "4:51",
     "title": "Smooth Sailing"},
    {"duration": "6:01",
     "title": "I Appear Missing"},
    {"duration": "5:24",
     "title": "...Like Clockwork"}
  ]
}
```

Part 2

I'll take it easy on you. There is no Part 2.

Look out for some extra credit assignments that involve working with MARC, EAD XML, and Excel files.