Lab2 documentation

1. Resources

- Problem 1: I imported the CSV file from Spotify Charts. For the week of 08/27/2020 in the United States. I took off the header.
- Problem 2: I imported the CSV file from **https://www.visualcrossing.com/weather/weather-data-services** for the period between 09/10/2020 to 09/24/2020 in New York. I took off the header.
- Problem 3: I did a lot of research to be able to solve this problem, but the one that helped me the most was found:
  https://www.taniarascia.com/how-to-connect-to-an-api-with-javascript/

2. Prerequisites

In order to be able to use this program efficiently, the user must use a csv file (without the header) for the problem 1 and 2 that follows the chart:

- Problem 1:

Position	**Track name**	**artist**	**Streams**
…	….	…	….

The user must have two files (*input.csv* and *output.txt*) located in the same directory as the problem1.java file.

- Problem 2:

Name	Date time	Maximum Temperature	Minimum Temperature	Temperature	Wind Chill	Heat Index	Chance Precipitation (%)	Precipitation	Snow	Snow Depth	Wind Speed	Wind Gust	Visibility	Cloud Cover	Relative Humidity	Conditions	Sunset	Sunrise	Moon Phase

The user must have two files (*forecast_data.csv* and *output2.txt*) located in the same directory as the problem2.java file.

- Problem 3:
  The user must have the (*homepage.html and script11.js*) in the same folder and must ether use the API *key "fLZPdkHJpu4sA6Xs6c3tLJcJax9hQ1s3Lx7QiWjp"*(which I will remove one week after the due date of this assignment 09/13/2020) or create his own API key (for the NAZA APOD)

3. Implementation

Problem 1:
First, I wrote a function called Filter which takes a string (a line of the csv file) and then filter it (the line) to get the artist name and the streams of the current song then return the two information (artist name and streams). I used an arrayList to store the position of the commas which separate the columns (and ignore all other commas inside the line). Then I used those position to get the artist name and the streams (by using the substring method).

Second, I used a Hashmap(the variable "*storage*") to store the <artist name, stream of each of his songs>. Inside a while loop I read from the input file(*input.csv)* each line and use the function Filter to get only the information needed, then store them inside the variable *storage*. If the name of the artist already exists, the current number of streams is added to the list of the artist's streams Otherwise, I store the new name and add the streams of the artist's current song in the list.

Third, I wrote a function called sumValue that takes a list of streams and return the Total streams. I used it (the function) to print the total number of streams for each artist.
I used a for loop to iterate through the Hashmap and print the information (artist name, Total streams) inside the output file (*ouput.txt*).

Problem 1:
I used the same logic as the problem 1. But for the problem 2 the function Filter takes a line and return a double (the Temperature).
I created a function called convertionToCelsius which takes a double (temperature in Fahrenheit) And return a double (temperature in Celsius). By using the formula T(°C) = (T(°F) - 32) × 5/9.

Problem 3:
I opened a connection to the NAZA APOD API by creation a "`XMLHttpRequest()`" `object that I stored in a variable called` request. Then via the object(request), I used a GET request on the NAZA APOD API endpoint. At the end, I used some JavaScript codes to access the data return by the server and then print them(data) in the browser (through a HTML file).