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Lab#1
2/24/2021

1)Reporting:

I downloaded the CSV file for the top 200 spotify songs during the week of 05/28/2020 globally. There was a persistent issue of having a difficulty splitting the columns into a string array due to recurring commas in featured artists on song names. The csv file is encoded to prevent editing plays. There was honestly no way around this. I had to copy the contents to a text file and edit out the commas in the featured artists.

I wrote the code in java due to familiarity and past experience with reading and sorting files. I made an Artist class that is structured to hold the artist name and the amount of song plays. When the program is executed it reads the data.txt that was made from the original data.csv, skipping the first two lines then a while loop reads each line and splits it by the commas between number on list, song name, artist name, plays, and link to spotify. It makes a string array of five spots or rather [4] and saves the third[2] and fourth[3] elements of the array as the two variables for the artist class. Then the override for the toString method makes it print out the output in a structured manner.

The main method makes an array for the artist object then reads the file directly into the array and then outputs it. It also writes it to a file. It uses the show method to output the structured sorted list.

Code on next page and output on following pages


```

1 import java.io.File;
2 import java.io.FileNotFoundException;
3 import java.util.ArrayList;
4 import java.util.Scanner;
5
6 class Artist
7 {
8     //store artist info
9     String artistName;
10    int stream;
11    //constructor
12    public Artist(String na, int st)
13    {
14        artistName = na;
15        stream = st;
16    }
17
18    //return stream
19    public int getStrem()
20    {
21        return stream;
22    }
23
24    //override returning artist info
25    public String toString()
26    {
27        return "\n Artist Name: " + artistName + "\t Stream: " + stream;
28    }
29 }
30
31 public class spotifyproblem
32 {
33     //read file contents and store in array
34    static void readFile(ArrayList<Artist> artist)
35    {
36        Scanner sc = null;
37        try
38        {
39            //scanner
40            //had to copy the contents of the csv into a text file
41            //because its not possible to split the strings up
42            //due to ',' appearing in additional artists featured on the track
43            sc = new Scanner(new File("src/data.txt"));
44            sc.nextLine();
45            sc.nextLine();
46            while(sc.hasNext())
47            {
48                String data = sc.nextLine();
49                //split with comma
50                String[] record = data.split(",");
51                //use constructor to create object and add to list
52                artist.add(new Artist(record[2], Integer.parseInt(record[3])));
53            }
54            //close file
55            sc.close();
56        }
57        catch(FileNotFoundException e)
58        {
59            System.out.println("Error: File Not Found.");
60            e.printStackTrace();
61        }
62    }
63    //display arraylist
64    static void show(ArrayList<Artist> artist)
65    {
66        //count total streams
67        double total = 0;
68        for(int c = 0; c < artist.size(); c++)
69        {
70            //addup total streams
71            total += artist.get(c).getStrem();
72            System.out.print(artist.get(c));
73        }
74
75        //average streams
76        System.out.printf("\n\n Average Stream: %.2f", (total / artist.size()));
77    }
78    //main
79    public static void main(String []s)
80    {
81        ArrayList<Artist> artist = new ArrayList<Artist>();
82        readFile(artist);
83        show(artist);
84    }
85 }

```

OUTPUT

Artist Name: "Lady Gaga" Stream: 41627044
Artist Name: DaBaby Stream: 36899304
Artist Name: "The Weeknd" Stream: 36790462
Artist Name: "SAINT JHN" Stream: 31501096
Artist Name: Powfu Stream: 27032847
Artist Name: Drake Stream: 25887943
Artist Name: "THE SCOTTS" Stream: 24289864
Artist Name: "Dua Lipa" Stream: 22476417
Artist Name: "Ariana Grande" Stream: 21423623
Artist Name: 6ix9ine Stream: 21143946
Artist Name: "Tones And I" Stream: 20687583
Artist Name: "Lil Mosey" Stream: 19804629
Artist Name: "Surf Mesa" Stream: 19322430
Artist Name: "Roddy Ricch" Stream: 19087768
Artist Name: "Dua Lipa" Stream: 18888693
Artist Name: BENEE Stream: 18000520
Artist Name: "Justin Bieber" Stream: 15911389
Artist Name: "Trevor Daniel" Stream: 15272835
Artist Name: StaySolidRocky Stream: 15064252
Artist Name: Surfaces Stream: 14931455
Artist Name: "Megan Thee Stallion" Stream: 14746427
Artist Name: "Lewis Capaldi" Stream: 14707349
Artist Name: "Doja Cat" Stream: 14700722
Artist Name: "Harry Styles" Stream: 14147420
Artist Name: "Post Malone" Stream: 13829039
Artist Name: "Melanie Martinez" Stream: 13438336
Artist Name: "Jack Harlow" Stream: 13383276
Artist Name: "Travis Scott" Stream: 13342664
Artist Name: "Bad Bunny" Stream: 13283095
Artist Name: "Bad Bunny" Stream: 13236099
Artist Name: "Doja Cat" Stream: 12977601
Artist Name: "Doja Cat" Stream: 12897194
Artist Name: "Arizona Zervas" Stream: 12855093
Artist Name: Marshmello Stream: 12668175
Artist Name: "Travis Scott" Stream: 12561829
Artist Name: "KAROL G" Stream: 12438430
Artist Name: Topic Stream: 12330368

Artist Name: Future Stream: 12306604
Artist Name: "Travis Scott" Stream: 11995805
Artist Name: "Harry Styles" Stream: 11439997
Artist Name: "Lewis Capaldi" Stream: 11341806
Artist Name: "Don Toliver" Stream: 11023835
Artist Name: "Maroon 5" Stream: 10805684
Artist Name: "Black Eyed Peas" Stream: 10531095
Artist Name: "Billie Eilish" Stream: 10503854
Artist Name: "J Balvin" Stream: 10502955
Artist Name: "Shawn Mendes" Stream: 10388637
Artist Name: "JP Saxe" Stream: 10268115
Artist Name: "Juice WRLD" Stream: 10090084
Artist Name: Kygo Stream: 9747526
Artist Name: "The Weeknd" Stream: 9721257
Artist Name: Camilo Stream: 9588841
Artist Name: "Dua Lipa" Stream: 9250360
Artist Name: "Post Malone" Stream: 9152286
Artist Name: "Agust D" Stream: 8908179
Artist Name: "Megan Thee Stallion" Stream: 8811130
Artist Name: Regard Stream: 8781367
Artist Name: "NLE Choppa" Stream: 8766701
Artist Name: Feid Stream: 8699664
Artist Name: Drake Stream: 8590294
Artist Name: "Billie Eilish" Stream: 8577352
Artist Name: Eminem Stream: 8555084
Artist Name: DripReport Stream: 8518244
Artist Name: "Rauw Alejandro" Stream: 8298677
Artist Name: "Billie Eilish" Stream: 8108292
Artist Name: "Katy Perry" Stream: 8095616
Artist Name: "J Balvin" Stream: 7721331
Artist Name: "Juice WRLD" Stream: 7685799
Artist Name: Gunna Stream: 7570232
Artist Name: "Rauw Alejandro" Stream: 7544232
Artist Name: blackbear Stream: 7460578
Artist Name: MEDUZA Stream: 7422205
Artist Name: "Ava Max" Stream: 7420471
Artist Name: "Ed Sheeran" Stream: 7364691
Artist Name: "Bad Bunny" Stream: 7303228
Artist Name: "Lady Gaga" Stream: 7261606
Artist Name: "Bad Bunny" Stream: 7138727

Artist Name: "Bonez MC" Stream: 6977305
Artist Name: "Polo G" Stream: 6892795
Artist Name: "Black Eyed Peas" Stream: 6861241
Artist Name: "Bad Bunny" Stream: 6835850
Artist Name: "J Balvin" Stream: 6835370
Artist Name: Gunna Stream: 6642144
Artist Name: "Jhay Cortez" Stream: 6632034
Artist Name: Sech Stream: 6612629
Artist Name: "Sleepy Hallow" Stream: 6603374
Artist Name: "Ava Max" Stream: 6602426
Artist Name: "Myke Towers" Stream: 6599333
Artist Name: "Bad Bunny" Stream: 6595067
Artist Name: "The Weeknd" Stream: 6511008
Artist Name: "Ariana Grande" Stream: 6397939
Artist Name: Gunna Stream: 6384306
Artist Name: Mustard Stream: 6351307
Artist Name: "Bad Bunny" Stream: 6306506
Artist Name: "Billie Eilish" Stream: 6233298
Artist Name: "Nio Garcia" Stream: 6210717
Artist Name: "Justin Bieber" Stream: 6197361
Artist Name: "Dan + Shay" Stream: 6173293
Artist Name: "Imagine Dragons" Stream: 6075525
Artist Name: "Twenty One Pilots" Stream: 6055422
Artist Name: "Post Malone" Stream: 6037104
Artist Name: Khalid Stream: 5999890
Artist Name: "Ed Sheeran" Stream: 5977147
Artist Name: Future Stream: 5926663
Artist Name: "Sam Fischer" Stream: 5912188
Artist Name: "Robin Schulz" Stream: 5883094
Artist Name: "Lady Gaga" Stream: 5854477
Artist Name: XXXTENTACION Stream: 5843985
Artist Name: PARTYNEXTDOOR Stream: 5823405
Artist Name: "Sam Smith" Stream: 5762179
Artist Name: "Harry Styles" Stream: 5757248
Artist Name: XXXTENTACION Stream: 5722567
Artist Name: Dalex Stream: 5721147
Artist Name: "Doja Cat" Stream: 5685686
Artist Name: Marshmello Stream: 5676080
Artist Name: Queen Stream: 5649933
Artist Name: "Madison Beer" Stream: 5641974

Artist Name: "Rauw Alejandro" Stream: 5631844
Artist Name: "Roddy Ricch" Stream: 5618210
Artist Name: "Lil Tecca" Stream: 5618131
Artist Name: "Justin Quiles" Stream: 5558611
Artist Name: "Ed Sheeran" Stream: 5556656
Artist Name: "Capital Bra" Stream: 5552890
Artist Name: "Lady Gaga" Stream: 5518032
Artist Name: "Bad Bunny" Stream: 5516612
Artist Name: "Lil Uzi Vert" Stream: 5487510
Artist Name: Y2K Stream: 5417827
Artist Name: "J Balvin" Stream: 5392583
Artist Name: "D'Amelo Flow" Stream: 5364617
Artist Name: "Juice WRLD" Stream: 5334433
Artist Name: "James Arthur" Stream: 5332015
Artist Name: JACKBOYS Stream: 5319141
Artist Name: "Ed Sheeran" Stream: 5285817
Artist Name: NAV Stream: 5279906
Artist Name: "Bad Bunny" Stream: 5231700
Artist Name: "Juice WRLD" Stream: 5225786
Artist Name: "Lil Uzi Vert" Stream: 5220139
Artist Name: DaBaby Stream: 5209815
Artist Name: Gunna Stream: 5193309
Artist Name: Halsey Stream: 5190315
Artist Name: "Anuel AA" Stream: 5140073
Artist Name: "Apache 207" Stream: 5139801
Artist Name: "Post Malone" Stream: 5134161
Artist Name: "Bad Bunny" Stream: 5133197
Artist Name: Yandel Stream: 5132247
Artist Name: "Alex Rose" Stream: 5084564
Artist Name: "Ali Gatie" Stream: 5083069
Artist Name: "Noah Cyrus" Stream: 5027694
Artist Name: "Jonas Brothers" Stream: 5018592
Artist Name: "Jhay Cortez" Stream: 5009156
Artist Name: "Bad Bunny" Stream: 4987116
Artist Name: "Don Toliver" Stream: 4945908
Artist Name: "Lil Nas X" Stream: 4939163
Artist Name: "Ava Max" Stream: 4931003
Artist Name: "5 Seconds of Summer" Stream: 4913862
Artist Name: "Jonas Brothers" Stream: 4906299
Artist Name: "J Balvin" Stream: 4893662

Artist Name: "Rauw Alejandro" Stream: 4880808
Artist Name: Sia Stream: 4861870
Artist Name: "Jonas Brothers" Stream: 4859255
Artist Name: "Tame Impala" Stream: 4853702
Artist Name: S1mba Stream: 4851878
Artist Name: Kina Stream: 4844975
Artist Name: "Lewis Capaldi" Stream: 4830711
Artist Name: "Selena Gomez" Stream: 4822183
Artist Name: "Post Malone" Stream: 4805428
Artist Name: IU Stream: 4764954
Artist Name: Halsey Stream: 4761908
Artist Name: "Chris Brown" Stream: 4742654
Artist Name: "Natalie Taylor" Stream: 4736466
Artist Name: "Alexander 23" Stream: 4722951
Artist Name: "Dean Lewis" Stream: 4711701
Artist Name: XXXTENTACION Stream: 4693885
Artist Name: "Rauw Alejandro" Stream: 4693548
Artist Name: Kygo Stream: 4662680
Artist Name: "Harry Styles" Stream: 4658350
Artist Name: 24kGoldn Stream: 4645541
Artist Name: Vicetone Stream: 4642284
Artist Name: Pashanim Stream: 4641118
Artist Name: Kygo Stream: 4636775
Artist Name: PUBLIC Stream: 4636601
Artist Name: "John Legend" Stream: 4621202
Artist Name: Drake Stream: 4620148
Artist Name: "Camila Cabello" Stream: 4617573
Artist Name: "Bad Bunny" Stream: 4577519
Artist Name: "The Weeknd" Stream: 4575080
Artist Name: "Ariana Grande" Stream: 4572855
Artist Name: "The Weeknd" Stream: 4559855
Artist Name: "Travis Scott" Stream: 4537762
Artist Name: Lauv Stream: 4515080
Artist Name: "Pop Smoke" Stream: 4482294
Artist Name: MEDUZA Stream: 4474003
Artist Name: "Tones And I" Stream: 4473968
Artist Name: "Post Malone" Stream: 4454018
Artist Name: "Sam Smith" Stream: 4451454
Artist Name: Arcangel Stream: 4440738
Artist Name: jxdn Stream: 4435538

Artist Name: "The Chainsmokers" Stream: 4432498

Artist Name: Sech Stream: 4419295

Artist Name: "Nicky Jam" Stream: 4407165

Average Stream: 8572082.06

If I knew of another language that could've helped me split the csv file despite the commas without removing the encoding and copying its content to a text file, that would have made this more seamless and much easier to use with many different spotify stats to quickly output calculated info. Unfortunately I was unable to find a way around the commas in the featured artists.

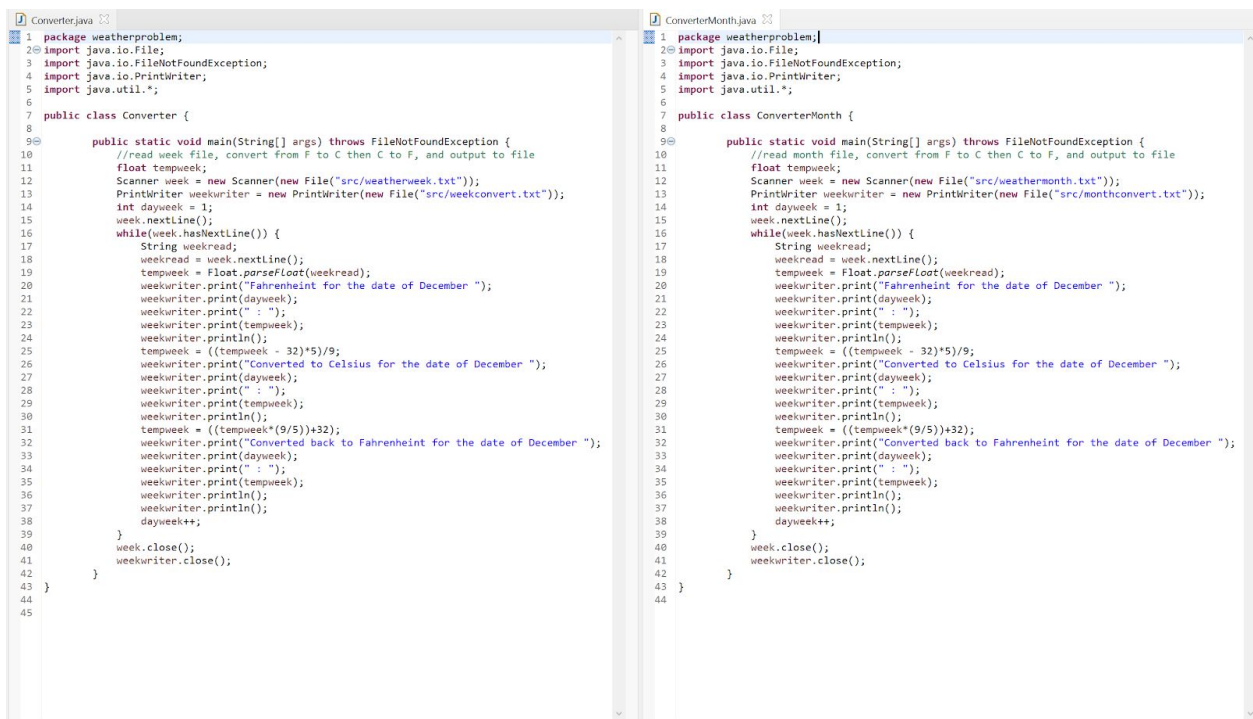
Next problem on following page.

2) Math calculations

I made two text files. The first line states the month and year (december 2020 in this case) and it is skipped. The weatherweek.txt has a week of temps while weathermonth.txt has all 31 days. I used Java for this as it seemed simple enough to read a file and convert it and write it to another file in a structured manner. I used a weather history website to get the highest temp for each day that month.

Converter.java processes the week data while ConverterMonth.java processes the month file. They both use a scanner to read the file in a while loop while using a printwriter to write the conversion output to a new file. This was simple to do but tedious to write out very primitively. An inputstream probably would've been better than using the scanner but the output is the same.

Code:



```
1 package weatherproblem;
2 import java.io.File;
3 import java.io.FileNotFoundException;
4 import java.io.PrintWriter;
5 import java.util.*;
6
7 public class Converter {
8
9     public static void main(String[] args) throws FileNotFoundException {
10         //read week file, convert from F to C then C to F, and output to file
11         float tempweek;
12         Scanner week = new Scanner(new File("src/weatherweek.txt"));
13         PrintWriter weekwriter = new PrintWriter(new File("src/weekconvert.txt"));
14         int dayweek = 1;
15         week.nextLine();
16         while(week.hasNextLine()) {
17             String weekread;
18             weekread = week.nextLine();
19             tempweek = Float.parseFloat(weekread);
20             weekwriter.print("Fahrenheit for the date of December ");
21             weekwriter.print(dayweek);
22             weekwriter.print(" : ");
23             weekwriter.print(tempweek);
24             weekwriter.println();
25             tempweek = ((tempweek - 32)*5)/9;
26             weekwriter.print("Converted to Celsius for the date of December ");
27             weekwriter.print(dayweek);
28             weekwriter.print(" : ");
29             weekwriter.print(tempweek);
30             weekwriter.println();
31             tempweek = ((tempweek*(9/5))+32);
32             weekwriter.print("Converted back to Fahrenheit for the date of December ");
33             weekwriter.print(dayweek);
34             weekwriter.print(" : ");
35             weekwriter.print(tempweek);
36             weekwriter.println();
37             weekwriter.println();
38             dayweek++;
39         }
40         week.close();
41         weekwriter.close();
42     }
43 }
44
45
```

```
1 package weatherproblem;
2 import java.io.File;
3 import java.io.FileNotFoundException;
4 import java.io.PrintWriter;
5 import java.util.*;
6
7 public class ConverterMonth {
8
9     public static void main(String[] args) throws FileNotFoundException {
10         //read month file, convert from F to C then C to F, and output to file
11         float tempweek;
12         Scanner week = new Scanner(new File("src/weathermonth.txt"));
13         PrintWriter weekwriter = new PrintWriter(new File("src/monthconvert.txt"));
14         int dayweek = 1;
15         week.nextLine();
16         while(week.hasNextLine()) {
17             String weekread;
18             weekread = week.nextLine();
19             tempweek = Float.parseFloat(weekread);
20             weekwriter.print("Fahrenheit for the date of December ");
21             weekwriter.print(dayweek);
22             weekwriter.print(" : ");
23             weekwriter.print(tempweek);
24             weekwriter.println();
25             tempweek = ((tempweek - 32)*5)/9;
26             weekwriter.print("Converted to Celsius for the date of December ");
27             weekwriter.print(dayweek);
28             weekwriter.print(" : ");
29             weekwriter.print(tempweek);
30             weekwriter.println();
31             tempweek = ((tempweek*(9/5))+32);
32             weekwriter.print("Converted back to Fahrenheit for the date of December ");
33             weekwriter.print(dayweek);
34             weekwriter.print(" : ");
35             weekwriter.print(tempweek);
36             weekwriter.println();
37             weekwriter.println();
38             dayweek++;
39         }
40         week.close();
41         weekwriter.close();
42     }
43 }
44
```

Weather txt files:

weatherweek.txt

>> 2

1 december 2020

2 58

3 44

4 50

5 51

6 47

7 41

8 41

weathermonth.txt

1 december 2020

2 58

3 44

4 50

5 51

6 47

7 41

8 41

9 39

10 38

11 49

12 57

13 52

14 61

15 45

16 40

17 32

18 33

19 33

20 32

21 38

22 46

23 45

24 44

25 60

26 62

27 32

28 39

29 52

30 40

31 42

32 47

Week output:

Fahrenheit for the date of December 1 : 58.0

Converted to Celsius for the date of December 1 : 14.444445

Converted back to Fahrenheit for the date of December 1 : 46.444443

Fahrenheit for the date of December 2 : 44.0

Converted to Celsius for the date of December 2 : 6.6666665

Converted back to Fahrenheit for the date of December 2 : 38.666668

Fahrenheit for the date of December 3 : 50.0

Converted to Celsius for the date of December 3 : 10.0

Converted back to Fahrenheit for the date of December 3 : 42.0

Fahrenheit for the date of December 4 : 51.0

Converted to Celsius for the date of December 4 : 10.555555

Converted back to Fahrenheit for the date of December 4 : 42.555557

Fahrenheit for the date of December 5 : 47.0

Converted to Celsius for the date of December 5 : 8.333333

Converted back to Fahrenheit for the date of December 5 : 40.333332

Fahrenheit for the date of December 6 : 41.0

Converted to Celsius for the date of December 6 : 5.0

Converted back to Fahrenheit for the date of December 6 : 37.0

Fahrenheit for the date of December 7 : 41.0

Converted to Celsius for the date of December 7 : 5.0

Converted back to Fahrenheit for the date of December 7 : 37.0

MONTH OUTPUT

Fahrenheit for the date of December 1 : 58.0

Converted to Celsius for the date of December 1 : 14.444445

Converted back to Fahrenheit for the date of December 1 : 46.444443

Fahrenheit for the date of December 2 : 44.0

Converted to Celsius for the date of December 2 : 6.6666665

Converted back to Fahrenheit for the date of December 2 : 38.666668

Fahrenheit for the date of December 3 : 50.0

Converted to Celsius for the date of December 3 : 10.0

Converted back to Fahrenheit for the date of December 3 : 42.0

Fahrenheit for the date of December 4 : 51.0

Converted to Celsius for the date of December 4 : 10.555555

Converted back to Fahrenheit for the date of December 4 : 42.555557

Fahrenheit for the date of December 5 : 47.0

Converted to Celsius for the date of December 5 : 8.333333

Converted back to Fahrenheit for the date of December 5 : 40.333332

Fahrenheit for the date of December 6 : 41.0

Converted to Celsius for the date of December 6 : 5.0

Converted back to Fahrenheit for the date of December 6 : 37.0

Fahrenheit for the date of December 7 : 41.0

Converted to Celsius for the date of December 7 : 5.0

Converted back to Fahrenheit for the date of December 7 : 37.0

Fahrenheit for the date of December 8 : 39.0

Converted to Celsius for the date of December 8 : 3.8888888

Converted back to Fahrenheit for the date of December 8 : 35.88889

Fahrenheit for the date of December 9 : 38.0

Converted to Celsius for the date of December 9 : 3.3333333

Converted back to Fahrenheit for the date of December 9 : 35.333332

Fahrenheit for the date of December 10 : 49.0

Converted to Celsius for the date of December 10 : 9.444445

Converted back to Fahrenheit for the date of December 10 : 41.444443

Fahrenheit for the date of December 11 : 57.0
Converted to Celsius for the date of December 11 : 13.888889
Converted back to Fahrenheit for the date of December 11 : 45.88889

Fahrenheit for the date of December 12 : 52.0
Converted to Celsius for the date of December 12 : 11.111111
Converted back to Fahrenheit for the date of December 12 : 43.11111

Fahrenheit for the date of December 13 : 61.0
Converted to Celsius for the date of December 13 : 16.11111
Converted back to Fahrenheit for the date of December 13 : 48.11111

Fahrenheit for the date of December 14 : 45.0
Converted to Celsius for the date of December 14 : 7.222223
Converted back to Fahrenheit for the date of December 14 : 39.22222

Fahrenheit for the date of December 15 : 40.0
Converted to Celsius for the date of December 15 : 4.444447
Converted back to Fahrenheit for the date of December 15 : 36.444443

Fahrenheit for the date of December 16 : 32.0
Converted to Celsius for the date of December 16 : 0.0
Converted back to Fahrenheit for the date of December 16 : 32.0

Fahrenheit for the date of December 17 : 33.0
Converted to Celsius for the date of December 17 : 0.555556
Converted back to Fahrenheit for the date of December 17 : 32.555557

Fahrenheit for the date of December 18 : 33.0
Converted to Celsius for the date of December 18 : 0.555556
Converted back to Fahrenheit for the date of December 18 : 32.555557

Fahrenheit for the date of December 19 : 32.0
Converted to Celsius for the date of December 19 : 0.0
Converted back to Fahrenheit for the date of December 19 : 32.0

Fahrenheit for the date of December 20 : 38.0
Converted to Celsius for the date of December 20 : 3.333333
Converted back to Fahrenheit for the date of December 20 : 35.333332

Fahrenheit for the date of December 21 : 46.0
Converted to Celsius for the date of December 21 : 7.7777777
Converted back to Fahrenheit for the date of December 21 : 39.77778

Fahrenheit for the date of December 22 : 45.0
Converted to Celsius for the date of December 22 : 7.2222223
Converted back to Fahrenheit for the date of December 22 : 39.22222

Fahrenheit for the date of December 23 : 44.0
Converted to Celsius for the date of December 23 : 6.6666665
Converted back to Fahrenheit for the date of December 23 : 38.666668

Fahrenheit for the date of December 24 : 60.0
Converted to Celsius for the date of December 24 : 15.555555
Converted back to Fahrenheit for the date of December 24 : 47.555557

Fahrenheit for the date of December 25 : 62.0
Converted to Celsius for the date of December 25 : 16.666666
Converted back to Fahrenheit for the date of December 25 : 48.666664

Fahrenheit for the date of December 26 : 32.0
Converted to Celsius for the date of December 26 : 0.0
Converted back to Fahrenheit for the date of December 26 : 32.0

Fahrenheit for the date of December 27 : 39.0
Converted to Celsius for the date of December 27 : 3.8888888
Converted back to Fahrenheit for the date of December 27 : 35.88889

Fahrenheit for the date of December 28 : 52.0
Converted to Celsius for the date of December 28 : 11.111111
Converted back to Fahrenheit for the date of December 28 : 43.11111

Fahrenheit for the date of December 29 : 40.0
Converted to Celsius for the date of December 29 : 4.4444447
Converted back to Fahrenheit for the date of December 29 : 36.444443

Fahrenheit for the date of December 30 : 42.0
Converted to Celsius for the date of December 30 : 5.5555553
Converted back to Fahrenheit for the date of December 30 : 37.555557

Fahrenheint for the date of December 31 : 47.0

Converted to Celsius for the date of December 31 : 8.333333

Converted back to Fahrenheint for the date of December 31 : 40.333332

Next problem on following page.

Web Development

Make a request on an API endpoint (Nasa's pic of the day) and display contents.

I used javascript because of NodeJs' ability to easily send requests to API endpoints. I got a personal API key from <https://api.nasa.gov/#apod>. I also used JsFiddle, an online IDE for HTML, CSS, and JavaScript. With some simple html formatting and the request on the NASA API. It displays a webpage that has the contents. The date, followed by the image, followed by a block of informational text.

The image shows two screenshots of the JsFiddle online IDE. The top screenshot shows the initial state where the HTML and JavaScript code is entered, and the resulting webpage is displayed. The bottom screenshot shows the same code, but with the JavaScript code expanded to show the full implementation of the request and display logic.

HTML:

```
<html>NASA Astronomy Picture Of The Day</html>
<h2 id="title"></h2>
<h3 date="date"></h3>
<img id="pic" src="" alt="NASA Picture of The Day" width="100%">
<p id="explanation"></p>
```

JavaScript:

```
var req = new XMLHttpRequest();
var url = "https://api.nasa.gov/planetary/apod?api_key=";
var api_key = "586035CQy6K2VMDKpsUHRP1e7FHqJ1Aytybtk";

req.open("GET", url + api_key);
req.send();

req.addEventListener("load", function() {
  if (req.status === 200 && req.readyState === 4) {
    var response = JSON.parse(req.responseText);
    document.getElementById("title").textContent = response.title;
    document.getElementById("date").textContent = response.date;
    document.getElementById("pic").src = response.hdurl;
    document.getElementById("explanation").textContent = response.explanation;
  }
})
```

Resulting Webpage:

NASA Astronomy Picture Of The Day

Spiral Galaxy M66 from Hubble

Date: 2021-02-24

It's always nice to get a new view of an old friend. This stunning Hubble Space Telescope image of nearby spiral galaxy M66 is just that. A spiral galaxy with a small central bar, M66 is a member of the Leo Galaxy Triplet, a group of three galaxies about 30 million light years from us. The Leo Triplet is a popular target for relatively small telescopes, in part because M66 and its galactic companions M65 and NGC 3628 all appear separated by about the angular width of a full moon. The featured image of M66 was taken by Hubble to help investigate the connection between star formation and molecular gas clouds. Clearly visible are bright blue stars, pink ionized hydrogen clouds — sprinkled all along the outer spiral arms, and dark dust lanes in which more star formation could be hiding.

I'm not sure how this could have been easier, but it would've been harder without JsFiddle because then I would have to host my own node.js server to get the request info.