

# Weather documentation

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## 1 Introduction

We were hired by the airport of Mexico city to give in real time at the moment we run the algorithm the weather on some cities given by them in a csv file. We should be able to manage three thousand requests. We will use a Web Service API called OpenWeather (<https://openweathermap.org>) to get in real time the data so we basically just have to read, process, send the data and get the answer. Because the API return us the data in JSON that was initially made for JavaScript we will use Javascript with the help of Node.js to facilitate the work.

### 1.1 Pseudocode

Start Suppose that we already have the file as it should be.

```
read(file.csv)
parse(csv to JSON) (Change the csv file to an easier and more manageable type)
Now we have the file on a good format we should be able to access to the data
while(name != null)
  x = OpenWeather.getData(name)
  print(x)
  name = name.next (We just print it and pass to the next city)
End
```

Now that we already see how it should work lets check the weak points. Notice that should check if we have the file, otherwise our program may die so we could add:

```
if( File.csv exist )
  (All the code from above)
else
  print(ERROR: No file);
```

Also we should check if the data given is the right one that we need so we should check that all the information is right and clear.

## 2 Developing

Here we will display and explain the code:

```
const fetch = require('node-fetch');
const csv=require('csvtojson');

//Here we will read the data from the file given
//@param none
//@return a json array with the parsed data from csv file
async function ReadData() {
    // Async / await usage
    const csvFilePath = './Resources/FlyDataset.csv';
    const jsonArray = await csv().fromFile(csvFilePath)
        .then(json => json);
    return jsonArray;
}

//Here we will get the json from the API the currently weather by Openweather us
//@param geographic coordinates
//@return json file
async function askDataApi ( lat , long ){
    return await fetch('https://api.openweathermap.org/data/2.5/weather?lat=${la
        .then(res => res.json())
}

//Here we will display one city information
function displayCity ( jsonFile ){
    var delayInMilliseconds = 2000; //2 second
    setTimeout(function() {
        console.log( 'City:${ jsonFile.name }'); //Working
        console.log( 'Main weather:${ jsonFile.weather[0].main }'); //Working
        console.log( 'Description:${ jsonFile.weather[0].description }');
        console.log( 'Temperature:${ jsonFile.main.temp }' );
        console.log( 'Max:${ jsonFile.main.temp_max }' ); //Working
        console.log( 'Min:${ jsonFile.main.temp_min }' ); //Working
        console.log( "\n*****");
    }, delayInMilliseconds);
}

//Here we will display all the data to the user
// If we dont have the data save we ask to the API for it , if we have it we just
async function processJson(){
    var jArray = await ReadData(); //The JSON array from reading the .csv file
```

```

const cache = new Map(); //This dictionary will be our cache
let originJson;
let destinationJson;
for(var i = 0; i < jsonArray.length; i++){
  //On this if-else we will check if we already have the information loaded
  //Origin
  let auxo = await cache.get( jsonArray[i].origin );
  if( auxo === undefined )
  {
    originJson = await askDataApi( jsonArray[i].origin_latitude , jsonArray[i].origin_longitude );
    cache.set( jsonArray[i].origin , originJson );
    auxo = originJson;
  }
  displayCity( auxo );
  let auxd = await cache.get( jsonArray[i].destination ); //The json file of the destination
  //Destination
  if( auxd === undefined )
  {
    originJson = await askDataApi( jsonArray[i].origin_latitude , jsonArray[i].origin_longitude );
    cache.set( jsonArray[i].origin , originJson );
    auxo = originJson;
  }
  displayCity( auxo );
  let auxd = await cache.get( jsonArray[i].destination ); //The json file of the destination
  //Destination
  if( auxd === undefined )
  {
    destinationJson = await askDataApi( jsonArray[i].destination_latitude , jsonArray[i].destination_longitude );
    cache.set( jsonArray[i].destination , destinationJson );
    auxd = destinationJson;
  }
  displayCity( auxd );
}
}

processJson();

```

### 3 To develop

This program wasn't so hard just like others I've worked but it was kind of a throuble to make it on javascript 'cause personally I can't understand the documentation so i had to ask a lot of friendly developers for some advice. Even though all of this it is a problem that may sound a little bit harder than what it is actually so I would take advantage of this and ask as a pay 90 dls and 25dls for maintenance

## References