# 4CS017 – Internet Software Architecture workshop sheet

## Making a REST API call in JavaScript

*What will you learn today?*

You will learn to access a third-party REST API using JavaScript to obtain personalized weather information.

## Part 1 – Getting live weather data from the Open Weather API

1. Create a free account on <https://openweathermap.org/> using your university email address and a password of your choice (I recommend your usual university password!). You will obtain a free **API key** which will need to be included in all requests sent to the API (we’ll do this in a bit!)
   * Note: you can generate more keys (or access your existing key(s) if you lose them) on your account page: <https://home.openweathermap.org/api_keys>
2. Study the documentation of the “Current weather data” API, here: <https://openweathermap.org/current>
   * Look at the format of the URL you will be calling.
     1. Look at the parameters you can pass **to** the API (e.g. the name of the city you want weather data for)
     2. Try pasting one of the example URLs (with **your** API key) in your web browser, change some of the parameter values (e.g. the city). What is displayed on the page?
   * Note the format of the [response](https://openweathermap.org/current#parameter), the data items returned, their format etc.
3. The exciting bit now… let’s make our first call to the API! Using a text editor such as Notepad++ (available on AppsAnywhere or [online](https://notepad-plus-plus.org/) for free), **create a new text file entitled first\_call.html**, with the following content:

<!doctype html>

<html lang="en">

<head>

<meta charset="utf-8">

<title>My weather app</title>

</head>

<body>

<h1>Weather in Wolverhampton</h1>

<p **id="myParagraph"**>Please wait...</p>

<script>

<!--Your JavaScript code goes here -->

</script>

</body>

</html>

1. Then **inside** the <script> block, add the following JavaScript code:

// Fetch Wolverhampton weather data from API

fetch('https://api.openweathermap.org/data/2.5/weather?q=Wolverhampton&appid=YOUR\_API\_KEY')

// Convert response string to json object

.then(response => response.json())

.then(response => {

// Display whole API response in browser console (take a look at it!)

console.log(response);

// Copy one element of response to our HTML paragraph

document.querySelector("#myParagraph").innerHTML = response.weather[0].description;

})

.catch(err => {

// Display errors in console

console.log(err);

});

**Important**: don’t forget to include your own API key! (see step 1 above).

1. Open/refresh the page above in your web browser… you should see your live weather information!
2. Observe the HTTP traffic in your browser console (please refer to last week’s workshop instructions). Can you see the HTTP request to the API? How long did it take?

## Part 2 – Going further

*“I have finished all the work above, what shall I do next?”*

* Try display other pieces of weather information (temperature, wind, etc.)
* Think about the **presentation** of your page:
  + Use a CSS framework such as Bootstrap to improve the looks and layout.
  + The API returns an “icon” field, to display a little picture (cloud, sun etc.) depending on the weather. Find out how to turn the value into a picture [here](https://openweathermap.org/weather-conditions).