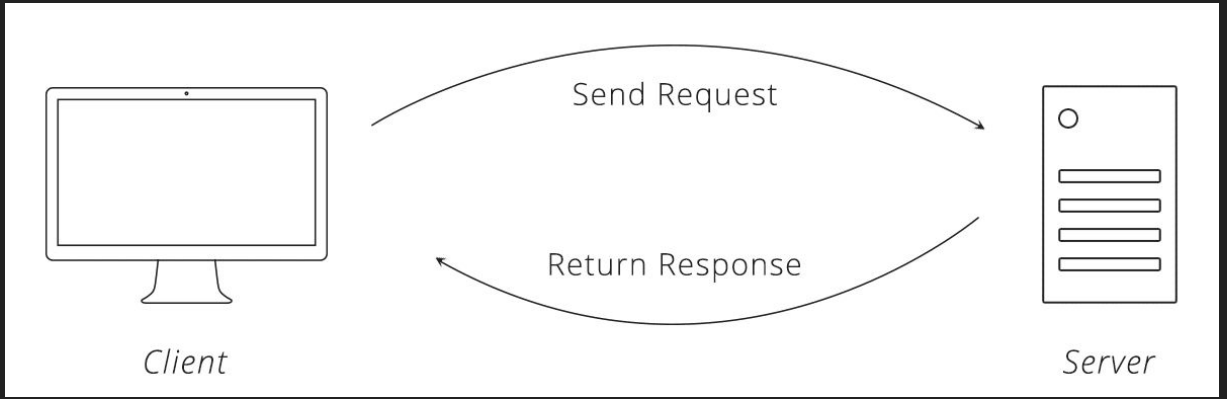
APIs

Useful APIs

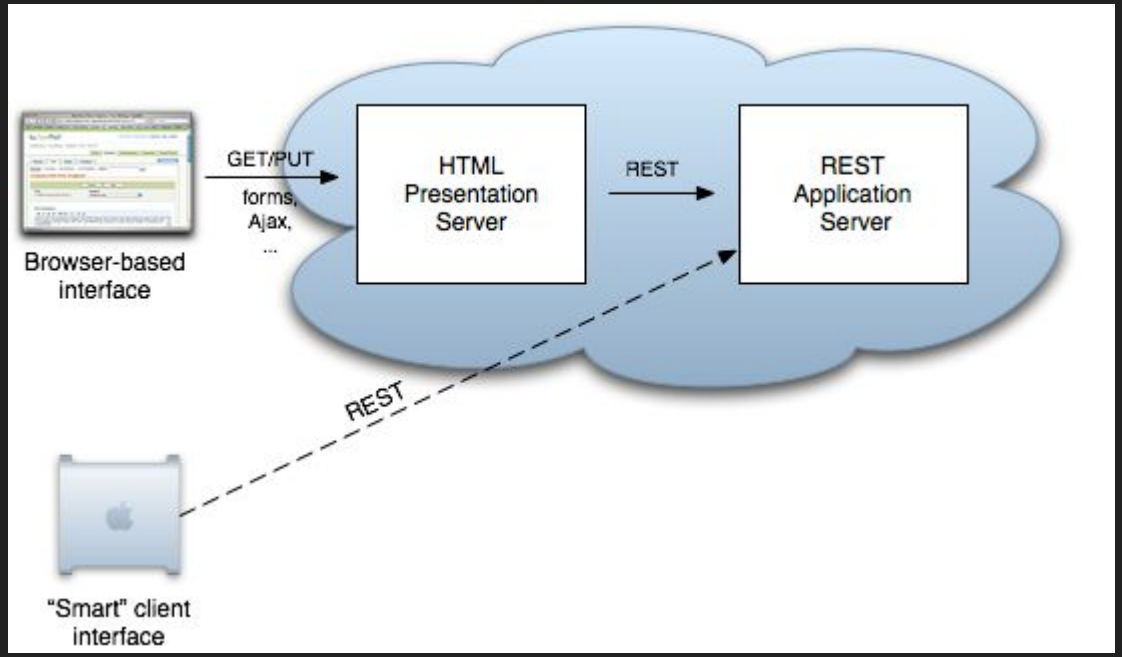
- Google APIs (for everything).
- Google Analytics.
- Twitter API.
- Facebook API.
- eBay API.

Introduction to HTTP

- Server
- Request
- Response



REST - Representational State Transfer



API - Application Program Interface

- How a program can interact with an application.
- Specifications for authentication and more.
- Principles of RESTful APIs.

Sending HTTP Request

```
var xhr = new XMLHttpRequest();
xhr.open("GET", "https://www.codecademy.com/", false);
xhr.send();

console.log(xhr.status);
console.log(xhr.statusText);
```

Sending an HTTP Request

```
var theUrl = "https://www.codecademy.com";
var xhr = new XMLHttpRequest();
xhr.onreadystatechange = function() {
    console.log(xhr.status);
}
xhr.open("GET", theUrl, true);
xhr.send();
```

Sending an HTTP Request

```
function httpGetAsync(theUrl)
{
    var xhr = new XMLHttpRequest();
    xhr.onreadystatechange = function() {
        console.log(xmlHttp.status);
    }
    xmlHttp.open("GET", theUrl, true);
    xmlHttp.send(null);
}

httpGetAsync('https://www.codecademy.com');
```

Sending an HTTP Request

```
function httpGetAsync(theUrl, callback)
{
    var xhr = new XMLHttpRequest();
    xhr.onreadystatechange = function() {
        callback(xhr.status);
    }
    xhr.open("GET", theUrl, true);
    xhr.send(null);
}

httpGetAsync('https://www.codecademy.com/doesntexist', function(status){
    console.log(status);
});
```

HTTP Methods

- GET - Retrieves information from server
- POST - Sends information to specified source
- PUT - Updates existing information to specified source
- DELETE

HTTP Request

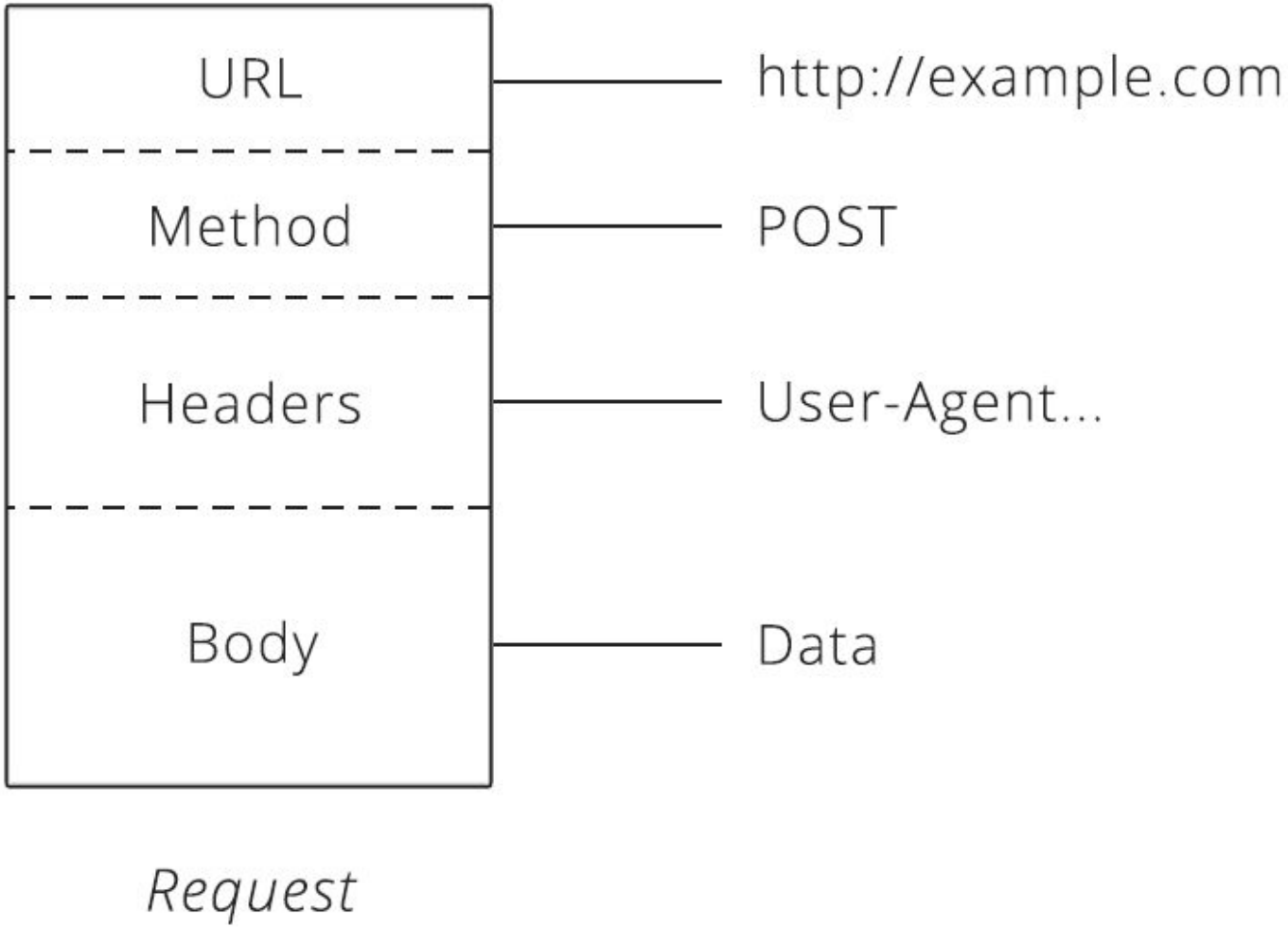
- Request: what kind of request it is

- Header: additional information like which client makes the request.

- Body

```
POST /google/blog HTTP/1.1
Host: www.google.com
Content-Type: text/html; charset=UTF-8

Name=Omar&Age=19
```


URL
http://example.com
Method
POST
Headers
User-Agent...
Body
Data
Request

API Authentication

- API keys are normally needed

https://developers.google.com/maps/documentation/javascript/get-api-key

HTTP Response

1xx

2xx

3xx

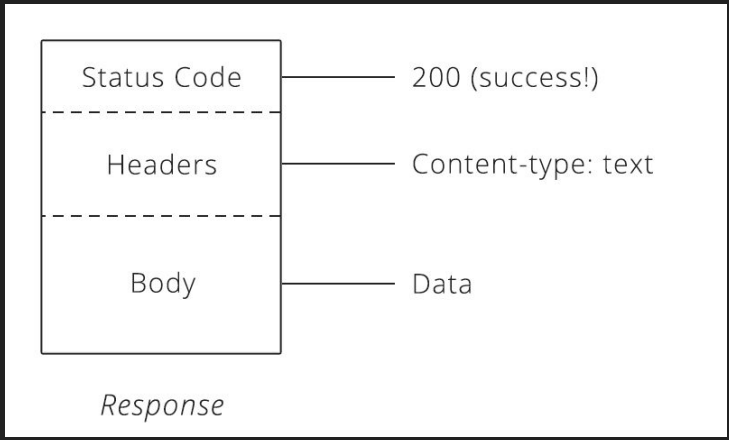
4xx

5xx

404 web error

HTTP Response

- Response: HTTP Status code
- Header: Further info
- Body



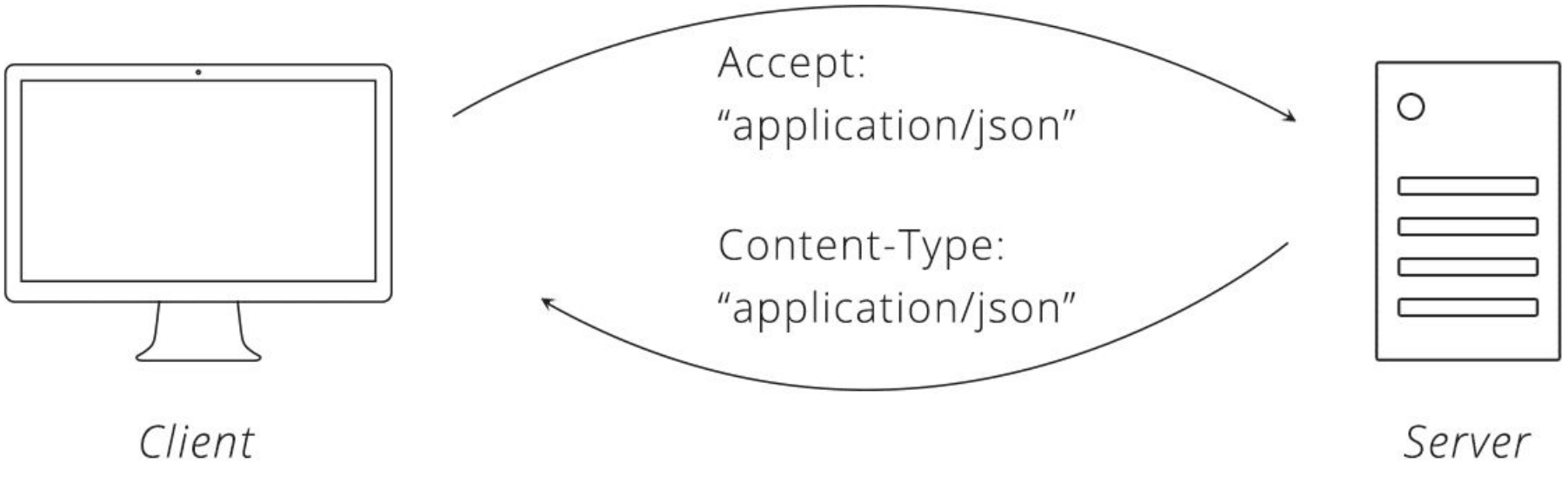

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset=UTF-8

<?xml version="1.0" encoding="utf-8"?>
<string xmlns="https://www.codecademy.com/">Accepted</string>
```

XML

```xml
<user>
    <name>Osansevier</name>
    <age>19</age>
    <carreer>Developer</carreer>
</user>
```

Content-type



Parsing XML

```
xhr.setRequestHeader('Content-Type', 'text/xml');
xhr.send();

xmlDocument = xhr.responseXML;
console.log(xmlDocument.childNodes['0'].textContent);
```

JSON

```
{ "courses" : [
        {
            "name" : "Web Development",
            "hours" : 300
        },
        {
            "name" : "Cooking",
            "hours" : 3023
        }
    ]
}
```

String to JSON

```
var demo = '{"pets": { "name": "Jeffrey", "species": "Giraffe"}}';

var json = JSON.parse(demo);
console.log(json);
```

XML vs JSON

- Read documentation

- Each one has its own advantages

OAuth 2

- User
- Client
- Server

Geolocation

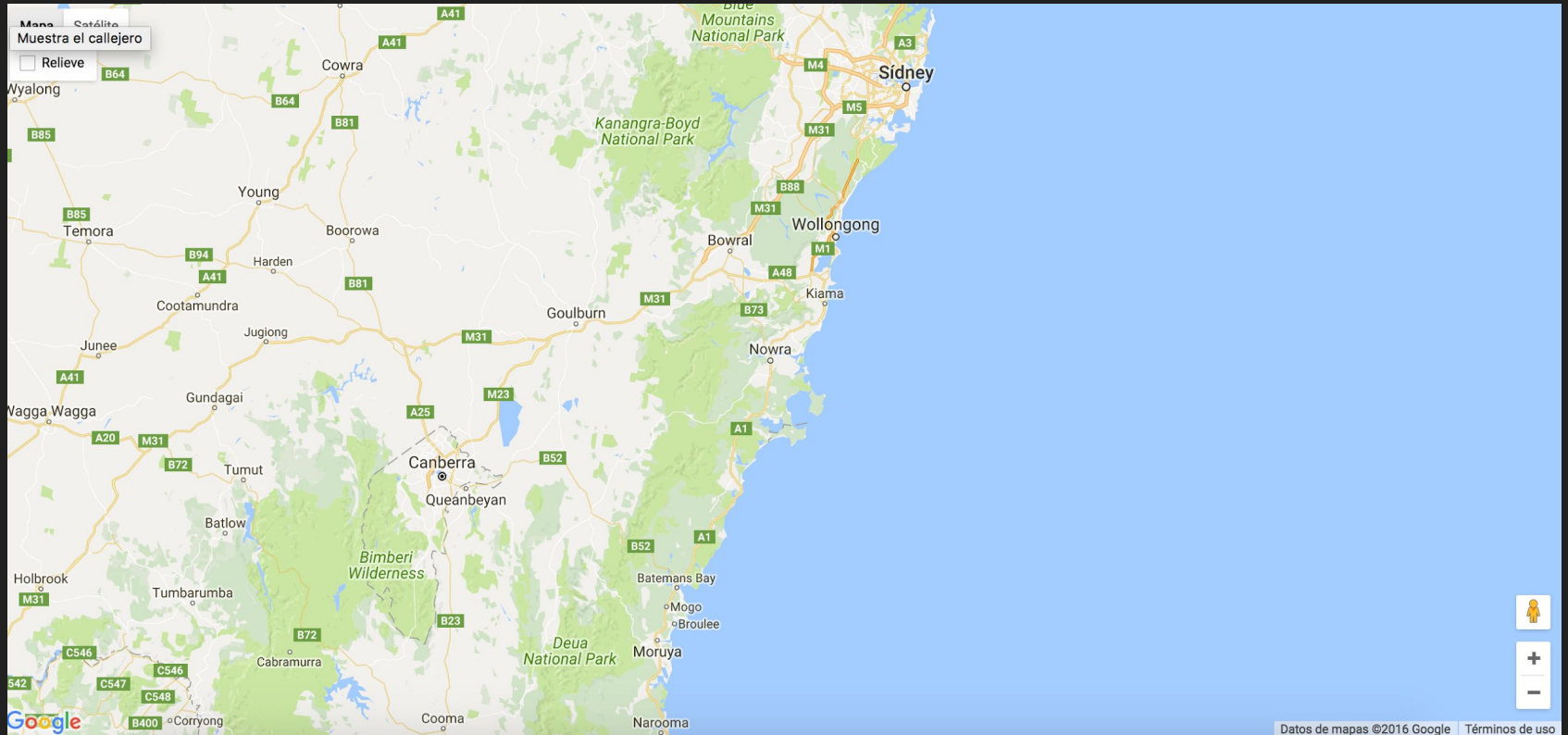
```
navigator.geolocation.getCurrentPosition(showPosition);

function showPosition(position) {
    console.log(position.coords.latitude);
    console.log(position.coords.longitude);
}
```

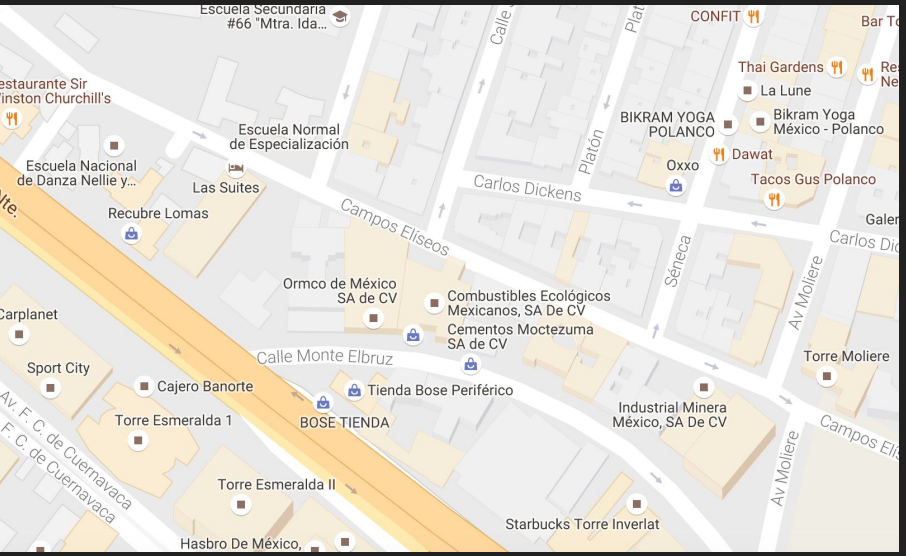
Static Maps

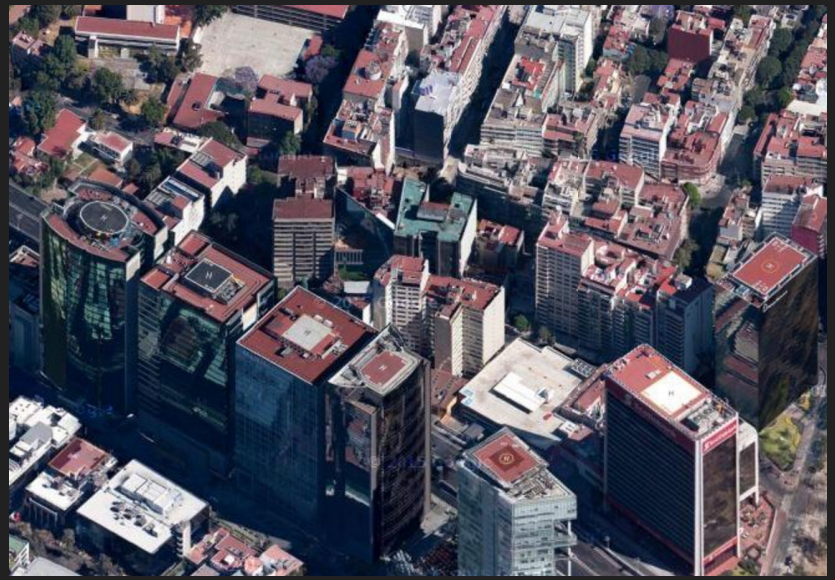

COL. IRRIGACIÓN
Av. Río San Joaquín
LOS MANZANOS
MARIANO ESCOBEDO
CAMPO MILITAR 1 A
LOMAS DE SOTELO
AMP GRANADA
DOS LAGOS
GRANADA
ANÁHUAC I SECC
Museo Soumaya
Antara Fashion Hall
Hipódromo de Las Americas
Av Ejército Nacional
Av. Industria Militar
MILITAR
Avenida Homero
Avenida Horacio
POLANCO III SECC
POLANCO V SECC
ANZURE
LOMAS DE CHAPULTEPEC III SECC
Av. Pdte. Masaryk
Lamartine
Leibnitz
REFORMA SOC
CTM XII
LINCOLN
LOMAS DE SAN ISIDRO
Av. Paseo de las Palmas
Paseo de la Reforma
Museo Nacional de Antropología
LOMAS DE CHAPULTEPEC V SECC
Autopista Urbana Nte.
Auditorio Nacional
MOLINO DEL REY
LOMAS DE CHAPULTEPEC VIII SECC
Castillo de Chapultepec
Sierra Fría
Prado Sur
LOMAS VIRREYES
Bosque de Chapultepec
Kiosko
Monte Líbano
Av Toluca
LOMAS DE CHAPULTEPEC VI SECC
La Feria de Chapultepec
Google
Map data ©2016 Google INEG

Maps (hardcoded locations)



Finally! Maps





Reverse geocoding

```
function getReverseGeocodingData(lat, lng) {
    var latlng = new google.maps.LatLng(lat, lng);
    var geocoder = new google.maps.Geocoder();
    geocoder.geocode({ 'latLng': latlng }, function (results, status) {
        console.log(results);
        var address = (results[0].formatted_address);
    });
}
```

Weather API