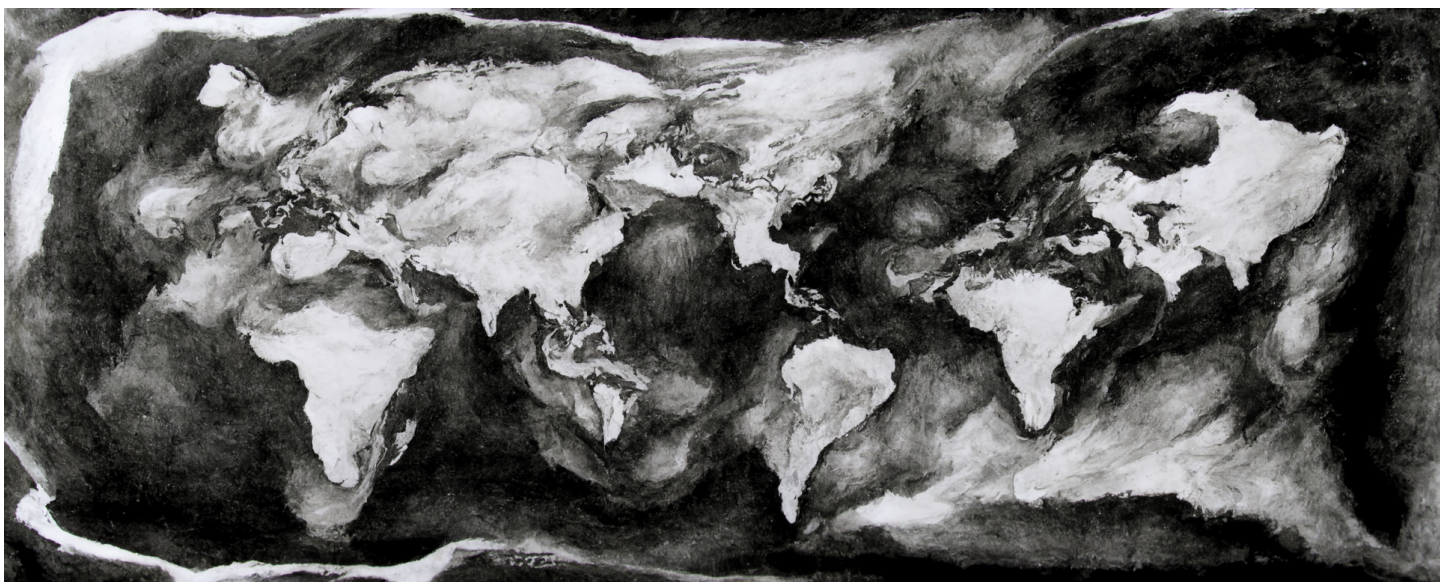# 10.2 Web API Fetch

charcoal world map - answered by Dante Magbuhos Jr.

- Fetching APIs allows the access and integration of external data and services into our own applications.
- By making HTTP requests to APIs, we can retrieve information, update data, or perform specific actions. APIs serve as bridges between different software systems, enabling seamless communication and data exchange.

Method	Description	Sample code	Code explanation
`getText(url)`	- Retrieves the text content from a source, such as a database or an array of sentences.	```let url = "https://data.binance.com/api/v3/ticker/24hr"; getText(url); async function getText(file) { let myObject = await fetch(file); let myText = await myObject.text(); myDisplay(myText); }```	- Uses the `fetch` function with the provided URL to make an asynchronous HTTP request.
`fetch`	- Used in JavaScript to make an asynchronous HTTP request to retrieve		- It then retrieves the response as text and calls the

	resources from a network,	myDisplay function with the text content as a parameter.
`async`	• Define a function as asynchronous, allowing it to operate independently from the main program flow.	
`await`	• Used in an asynchronous function to pause the execution of the function until a Promise is settled, and to resume the execution of the async function after the awaited Promise is resolved.	

Fetching data from public APIs

- The `fetch()` method starts the process of fetching a resource from a server.
- You can specify a resource by using the `getText()` function and supplying a location argument.

```
getText("https://data.binance.com/api/v3/ticker/24hr");

async function getText(file) {
  let myObject = await fetch(file);
  let myText = await myObject.text();
  myDisplay(myText);
}
```

- APIs typically return in a JSON format in a string data type. To convert the string to a JSON, use `JSON.parse()`

```
getText("https://data.binance.com/api/v3/ticker/24hr");
```

```
async function getText(file) {
let myObject = await fetch(file);
let myText = await myObject.text();
let out = JSON.parse(myText);
console.log(out);
console.log(out[0].askPrice);
}
```

Fetching data from RapidAPI

- **Rapid API** is an online platform that provides access to thousands of APIs (Application Programming Interfaces) from various providers.
- It allows developers to easily integrate third-party APIs into their applications, saving time and effort in building new functionalities.
- To use third-party APIs offered by RapidAPI, you would need to do the following:
  - Register for a RapidAPI account.

  - Browse for APIs you would like to use. Select one you would like to use to access it's API page.
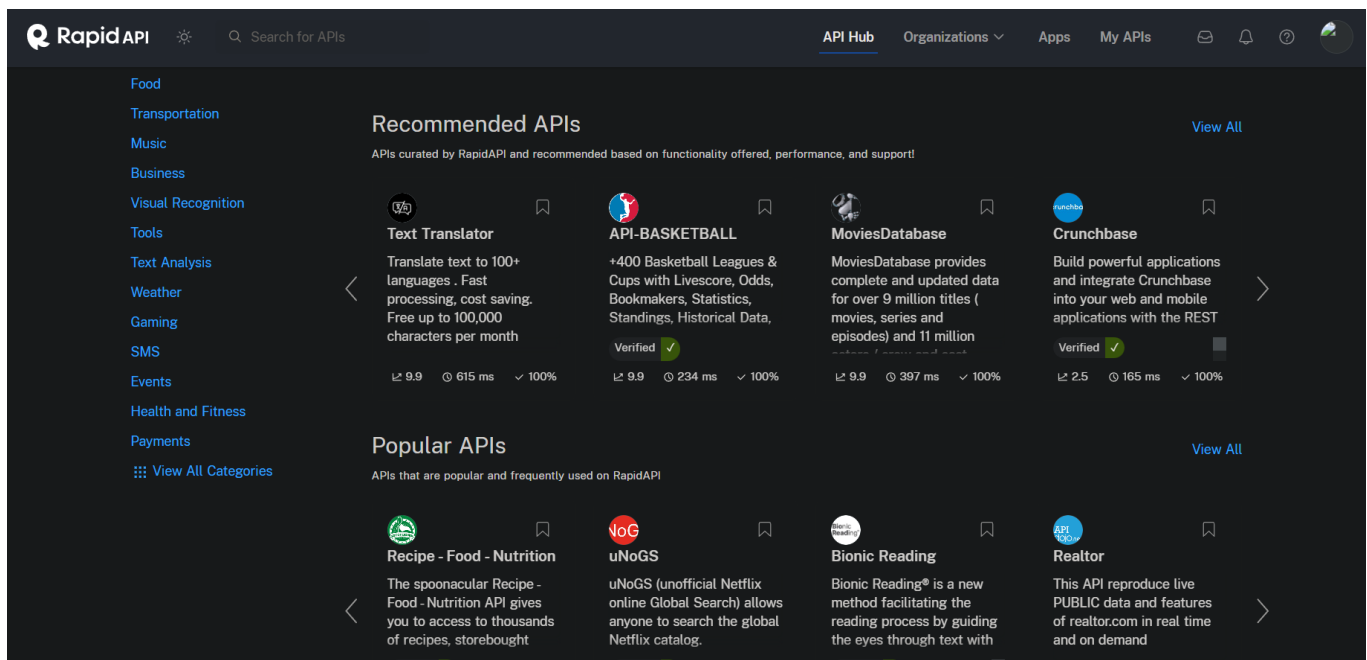
- Browse through the endpoints over at the leftmost panel. Selecting one would pull that endpoint's instructions and parameters at the second panel.
  - Different APIs can have drastically different endpoints. Look for ones that suit your particular use case.
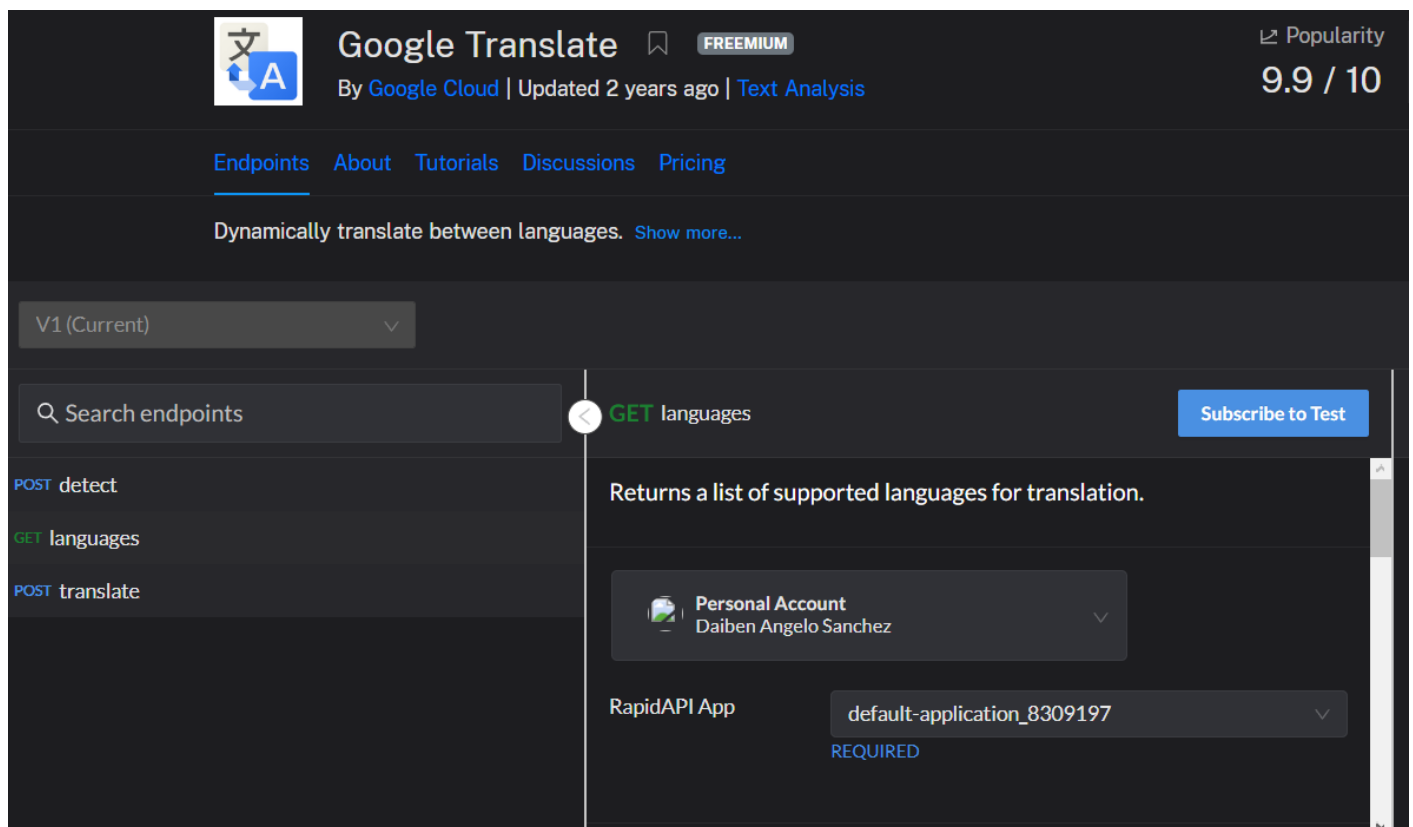
- After selecting an endpoint you would like to use, select Subscribe to Test. Select the Basic subscription plan.

- ○ Return to the API page.
- ○ Over at the rightmost panel, select (JavaScript) jQuery as the language, then copy-paste the provided script to your code.
  - ▪ You may need to modify some of the properties within the JSON object literal portion of the code.

- ○ You can now utilize the data however you see fit for your own purposes.

HTTP Methods

- Most RapidFire APIs provide access to 2 HTTP methods for their endpoints: GET and POST.

Method	Description	Example	Code explanation

GET	• Requests data from a specified resource, typically to retrieve information and should not have the significance of changing the state of the server or the data.	```html
		<script>
		const settings = {
		    async: true,
		    crossDomain: true,
		    url: 'https://google-translate1.p.rapidapi.com/language/translate/v2/languages',
		    method: 'GET',
		    headers: {
		        'Accept-Encoding': 'application/gzip',
		        'X-RapidAPI-Key': 'a899b49bd6msh0620aea32fa8800p1415e4jsnfb718239de9d',
		        'X-RapidAPI-Host': 'google-translate1.p.rapidapi.com'
		    }
		};
		
		$.ajax(settings).done(function (response) {
		    console.log(response);
		});
		</script>
		``
			• The code uses the third-party Google Translate API.
			• The code sends a request for a list of all the languages that Google Translate supports.
			• A response would be returned back to the user containing an object literal which includes all of the languages offered by Google Translate.

POST	• Submits data to be processed to a specified resource, often causing a	```html
		<script>
		const settings = {
		    async: true,
		    crossDomain: true,
		    url: 'https://google-translate1.p.rapidapi.com/language/translate/v2/detect',
		    method: 'POST',
		    headers: {
		``
			• The code uses the third-party Google Translate API.
			• The code sends a

| change in the state or side effects on the server or the data. | ```javascript
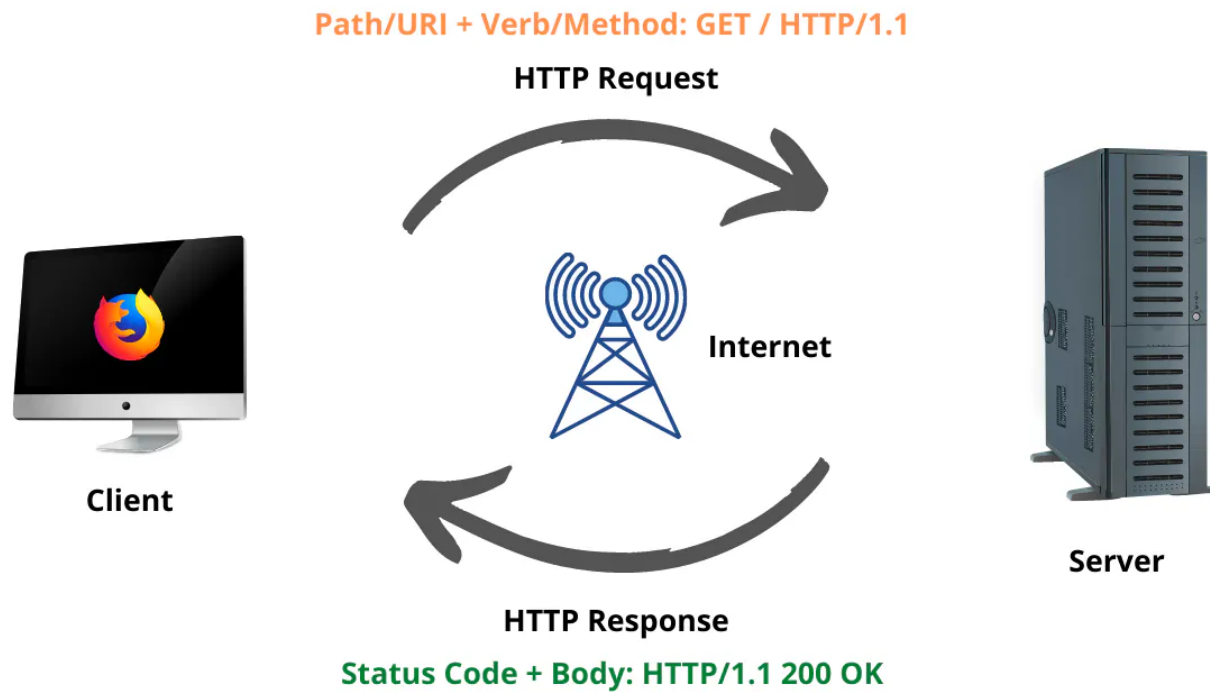    'content-type': 'application/x-www-form-urlencoded',
    'Accept-Encoding': 'application/gzip',
    'X-RapidAPI-Key':
'a899b49bd6msh0620aea32fa8800p1415e4jsnfb718239de9d',
    'X-RapidAPI-Host': 'google-translate1.p.rapidapi.com'
  },
  data: {
    q: 'English is hard, but detectably so'
  }
};


$.ajax(settings).done(function (response) {
  console.log(response);
});
</script>
``` | request which includes a query under the `data` property of the JSON object literal.<br>• A response would be returned back to the user containing the language of the requested `data` and displayed via the console. |

Request and Response

Path/URI + Verb/Method: GET / HTTP/1.1

HTTP Request

Internet

Client

Server

HTTP Response

Status Code + Body: HTTP/1.1 200 OK

- A **request** an action initiated by a client to retrieve or modify a resource on a server.
  - It contains information such as the URL, HTTP method, headers, and sometimes a request body.
- A **response** a message sent by the server to fulfill a client's request.
  - It contains the requested resource, along with metadata such as status code, headers, and sometimes a response body.

Additional Material

- **References:**
  - W3Schools
- **Learn more**
  - **Rapid API** ↗ **(https://rapidapi.com/googlecloud/api/google-translate1/)**
  - **Big List of Free and Open Public APIs** ↗ **(https://mixedanalytics.com/blog/list-actually-free-open-no-auth-needed-apis/)**