Módulo 1b - Javascript

T04 #TDW #MCTW
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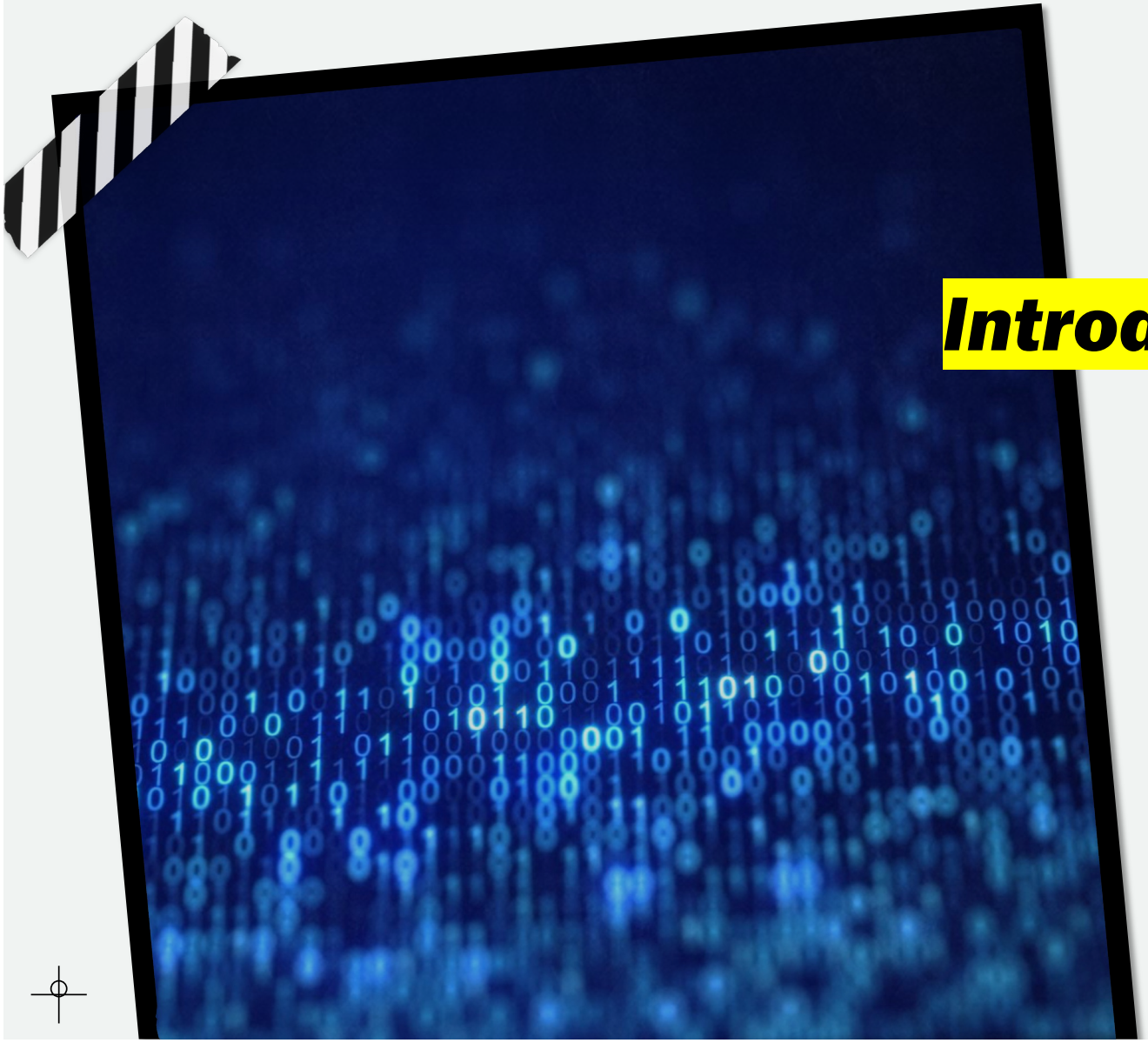
HTML CSS and JavaScript for Beginners - A Web Design Course

https://learning.oreilly.com/videos/html-css-and/9781838551278/

Chapter 6: JavaScript JSON and AJAX



Introduction to JSON

- JavaScript Object Notation

What is JSON

- Transferir informação na Web
- {…}
- Par -> Name: Value
- Separar pares com vírgula
- Tomou o lugar que antes era ocupado pelo XML

Basics of JSON

key/name value pairs

{ "name" : "value" }

Objects are comma separated

{ "name1" : "value" , "name2" : "value", "name3" : "value"}

Arrays have square brackets with values separated by comma

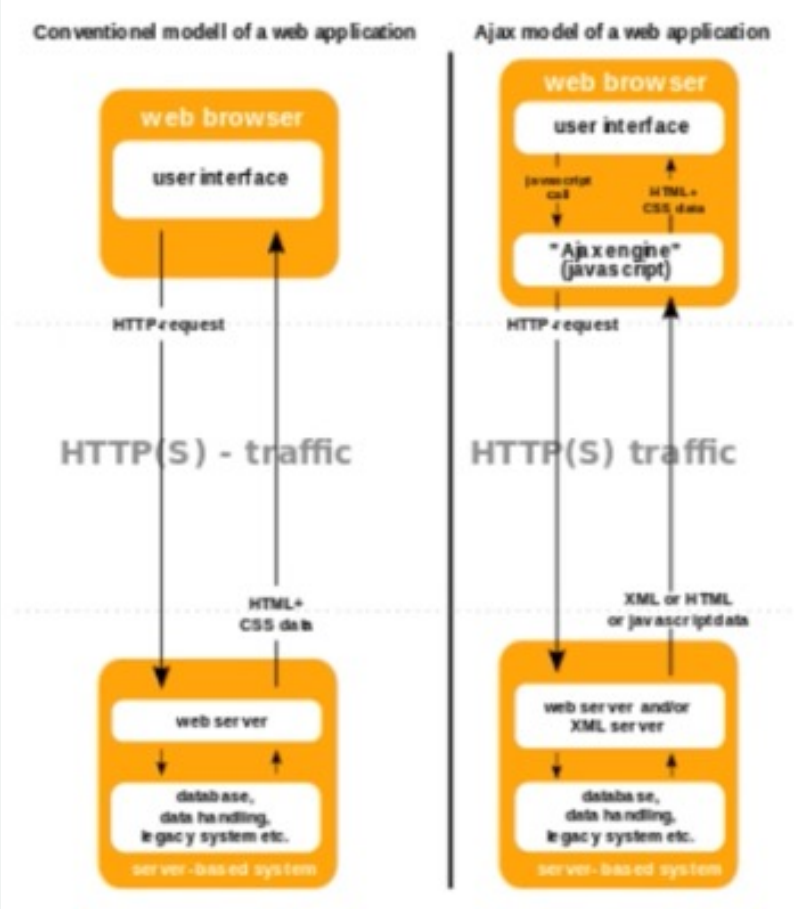
{ "name" : [{ "name" : "value" }, { "name" : "value" }] }

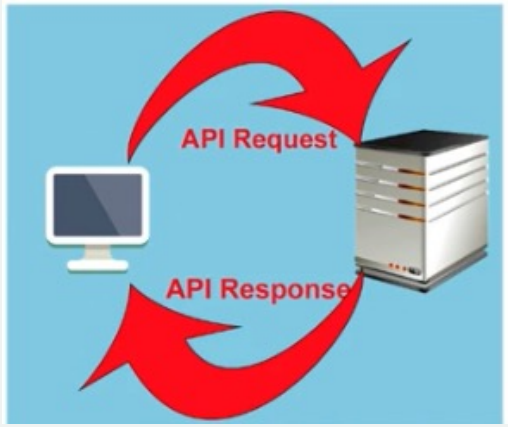
Introduction to JSON

- Para facilitar a leitura de JSON
- jsonlint.com
- Procurem uma extensão para o vosso browser
  + Chrome: JSON Viewer
- Recursos
  + https://randomuser.me
  + https://randomuser.me/api/?results=10

JSON as Data

- Informação estruturada
- APIs

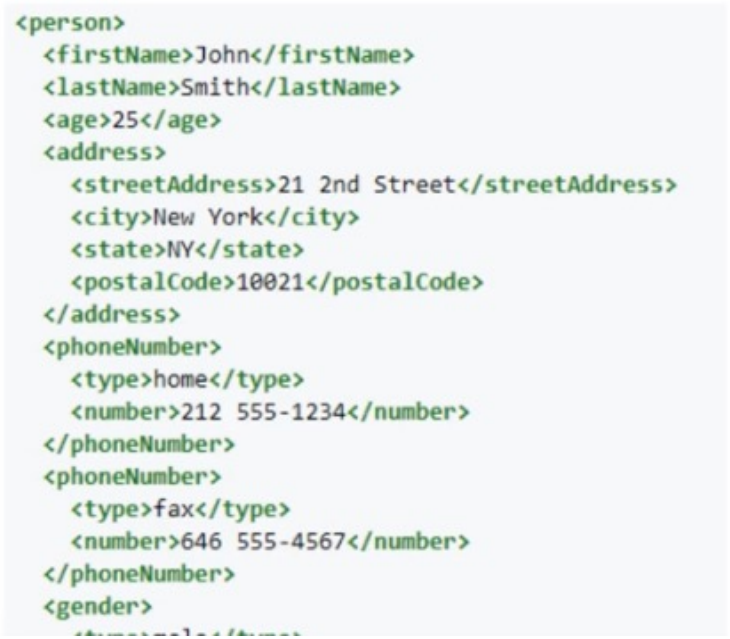




JSON as Data

- Data Types
  - Number {“name”: 10}
  - String {”name”: ”Hello world”}
  - Boolean {”name”: true}
  - Array {”name”: [{“name1”: 1}, “hello”, “world”]}
  - Object {”name”: {“name1”: 1, “name2”: 2}}
  - Null {”name”: null}
- https://jsonschema.net

```
{
  "firstName": "John",
  "lastName": "Smith",
  "age": 25,
  "address": {
    "streetAddress": "21 2nd Street",
    "city": "New York",
    "state": "NY",
    "postalCode": "10021"
  },
  "phoneNumber": [
    {
      "type": "home",
      "number": "212 555-1234"
    },
    {
      "type": "fax",
      "number": "646 555-4567"
    }
  ],
  "gender": {
```



```
<person>
  <firstName>John</firstName>
  <lastName>Smith</lastName>
  <age>25</age>
  <address>
    <streetAddress>21 2nd Street</streetAddress>
    <city>New York</city>
    <state>NY</state>
    <postalCode>10021</postalCode>
  </address>
  <phoneNumber>
    <type>home</type>
    <number>212 555-1234</number>
  </phoneNumber>
  <phoneNumber>
    <type>fax</type>
    <number>646 555-4567</number>
  </phoneNumber>
  <gender>
```

```
firstName: John
lastName: Smith
age: 25
address:
  streetAddress: 21 2nd Street
  city: New York
  state: NY
  postalCode: '10021'
phoneNumber:
- type: home
  number: 212 555-1234
- type: fax
  number: 646 555-4567
gender:
```

JSON vs XML vs YAML

JSON vs JavaScript Object

- JSON obriga que as chaves tenham aspas
- {“foo”: “bar”}
- var o = {foo: “bar”};

- Exercício: https://jsoneditoronline.org/

JSON Details

- ```
  var myJSON1 = {};
  myJSON.car1 = “black”;
  myJSON.car2 = “blue;
  ```

- ```
  var myJSON2 = {};
  myJSON2[“car1”] = “black”;
  myJSON2[“car2”] = “blue”;
  ```

- ```
  var myJSON3 = {“car1”: “black”, “car2”: “blue”};
  ```


  ```

JSON Details

- ```
  var myObj = {“firstName”: “Mike”, “lastName”: “Smith”};
  var name = “Name”;

  // Output JSON to HTML
  output1.innerHTML = myObj.firstName;
  output2.innerHTML = myObj[‘last’ + name];
  ```


  ```

```
<div id="output1"></div>
<div id="output2"></div>
<script>
  var myObj = {
      "firstName":"Mike",
      "lastName":"Svekis",
      "age":30
      }
  console.log(myObj);
  var output1 =
        document.getElementById("output1");
  var output2 =
        document.getElementById("output2");
  output1.innerHTML = myObj.firstName;
  output2.innerHTML = myObj.lastName;
```

Exemplo

Arrays of Objects

```
var obj1 = {
   "car":["blue","black"]
};
```

```
obj1.car[0]
```

```
var obj2 = {
   "car1":{ "color":"blue" },
   "car2":{ "color":"black" }
};
```

```
obj2.car1.color
```

```
var obj3 = {
   "car1":{
      "color":"blue",
      "model":"Mustang"
   },
   "car2":{
      "color":"black",
      "model":"Honda"
   }
};
```

```
obj3.car1.color
```

```
var obj = {
    "people":[
        {
            "firstName" : "Laurence",
            "last" : "Svekis",
            "age" : 30
        },
        {
            "firstName" : "Mike",
            "last" : "Smith",
            "age" : 50
        }
    ]
}
```

Array of objects

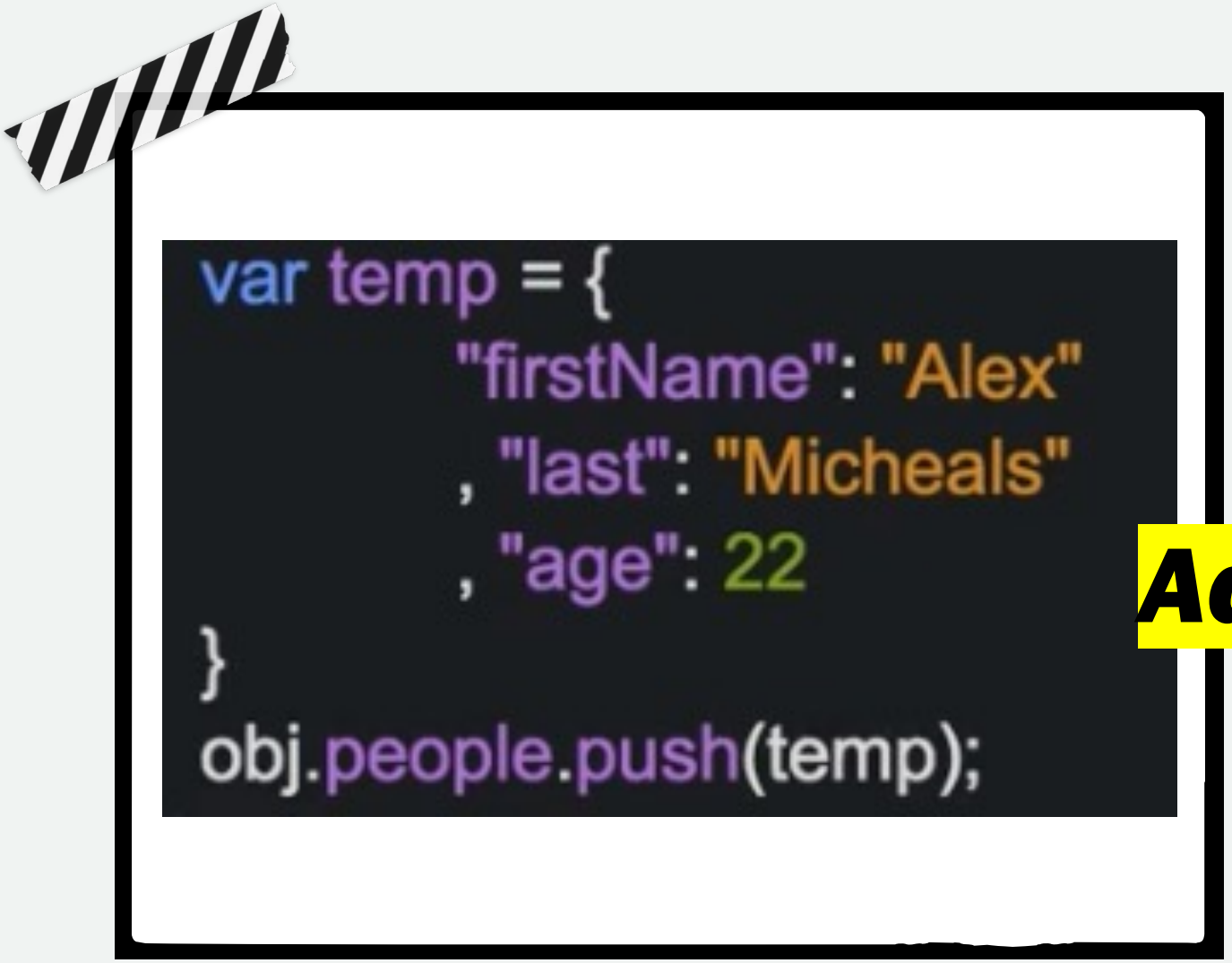
- `obj.people[0].firstName`

```
var obj = {
   "people":[
      {
         "firstName" : "Laurence",
         "last" : "Svekis",
         "age" : 30
      },
      {
         "firstName" : "Mike",
         "last" : "Smith",
         "age" : 50
      }
   ]
}
```

```
for(var x=0;x<obj.people.length;x++){
   var person = obj.people[x];
   console.log(person);
   output1.innerHTML += person.firstName + " "
         + person.last + "<br>";
}
```

Loop Object Data

,,,



Add to Object

JSON Methods

- `JSON.stringify(…);`
- `JSON.parse(…);`

Local Storage Values

```
var temp = {
        "firstName": "Alex"
        , "last": "Micheals"
        , "age": 22
}
var tempString = JSON.stringify(temp);
//localStorage.setItem('test',tempString);
var tempObj = localStorage.getItem('test');
console.log(tempObj);
var obj2 = JSON.parse(tempObj);
```

JavaScript Fetch

- AJAX – XMLHttpRequest
- Fetch API

```
const url =
      "https://api.myjson.com/bins/hqys2";
fetch(url).then(function(response){
    return response.json()
}).then(function (data){
    console.log(data);
})
```

JavaScript Fetch

```
const output =
      document.getElementById("output");
const url = "https://randomuser.me/api/";
fetch(url).then(function(rep){
    return rep.json()
}).then(function(data){
    console.log(data.results[0]);
    let person = data.results[0].name;
    output.innerHTML = person.first + " " +
            person.last;
})
```

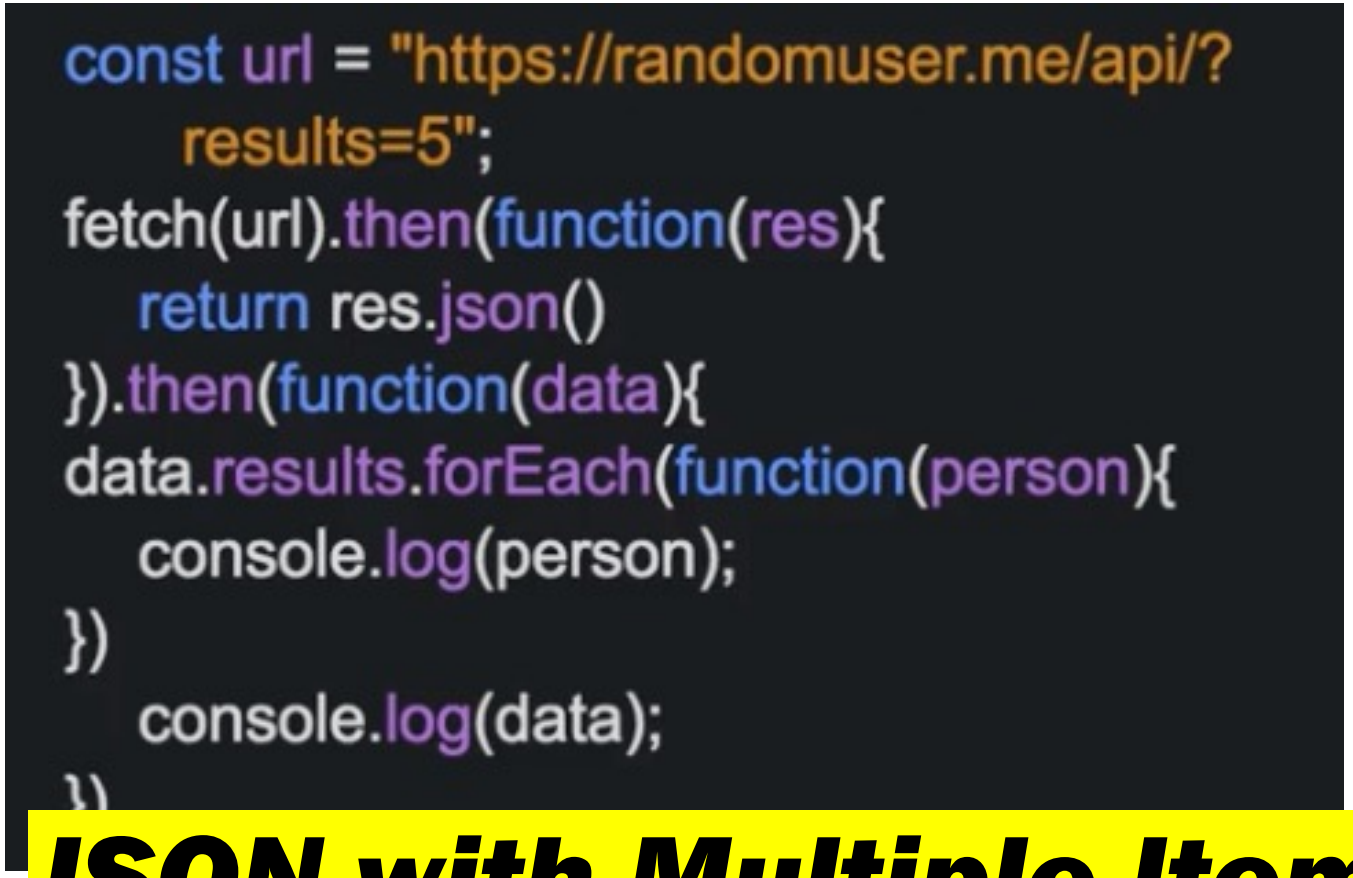
Long Function Syntax

```
var url = "https://api.myjson.com/
bins/hqys2";

fetch(url).then(function (res) {
        return res.json();
}).then(function (data) {
        console.log(data);  }).catch
(function (error) {
        console.log(error);
 });
```

```
const url =
    "https://api.myjson.com/bins/hqys2";
fetch(url).then(res => {
    return res.json();
}).then( data => {
    console.log(data);
}).catch(error => {
    console.log(error);
})
```

JavaScript Fetch Errors



JSON with Multiple Items

JSON with Multiple Items

```
const output =
      document.getElementById("output");
const url = "https://randomuser.me/api/?
      results=5";
fetch(url).then(function(res){
    return res.json()
}).then(function(data){
data.results.forEach(function(person){
    console.log(person.name.first);
    console.log(person.picture.thumbnail);
    output.innerHTML += person.name.first + "
            ";
    output.innerHTML += "<img
            src='"+person.picture.thumbnail+"'>
            <br>";
})
```


The end