JSON Server

Most developers have heard of the term JSON. It abbreviates for "**JavaScript Object Notation**". JSON is nothing but an open standard file format and data interchange format. It uses human-readable text to store and transfer data objects. It generally consists of two human-readable attributes i.e. **value pairs** and **arrays.** JSON is a very common data format having different applications. For example, a web application communicating with a server uses JSON.

In the similar sense, JSON

Server is no different. JSON Server is a Node Module that you can use to create demo **REST JSON** services within a short span of minutes. All we need to do is have a JSON file as sample data. Let's learn more about how to install and set up a JSON server in our system and alongside we'll try to create a **REST API**. Let's learn more about it.

Installation

To get started with the installation of the JSON server, all we need to do is to open the Terminal of our system and type the following command.

```
npm install -g json-server
```

The next step involves the creation of a database with JSON. For the sake of learning, we have created an example database as shown below.

```
//db.json



"posts": [
  { "id": 1, "title": "json-server", "author": "typicode" }
],
"comments": [
  { "id": 1, "body": "some comment", "postId": 1 }
],
"profile": { "name": "typicode" }
```

We are almost done. The next step is to start the JSON Server and t

```
json server --watch db.json
```

Now, if we move to http://localhost:3000/posts/1, we'll get something like this.

```
{ "id": 1, "title": "json-server", "author": "typicode" }
```

This output signifies that our JSON server is working fine for the above attributes and is having some values in them. We can now easily create a request for the JSON Server. But, before moving further, it is good to take some key factors into account. Those key factors are:

1. If we make some requests like **POST, DELETE, PUT**, or **PATCH**, the changes are directly reflected and safely stored in the db.json file.

2. The requested JSON body should be object enclosed, just like the **GET** For example:

```
{"name": Foobar}
```

3. The **ID** values are not generally mutable. Any value of the ID present in the body of the PUT and PATCH request is usually ignored by default. The value set in a POST request is only taken into consideration if not already taken.

4. The PATCH, POST and PUT request should always include a **Content-Type: application/json** header to be used in the JSON request body. Else, it will return the **2XX** status code without updating the changes made to the data.

Routes

Routes are nothing but the pathways through which the requests are processed in a pipeline. A specific route serves a specific request so that dependencies are not disturbed.

Therefore, based on the previous **db.json** file various default routes can be added with the command **--routes** at the terminal. Some default routes are shown below.

Singular Routes

```
GET    /profile
POST   /profile
PUT    /profile
PATCH  /profile
```

Plural Routes

```
GET    /posts
GET    /posts/1
POST   /posts
PUT    /posts/1
PATCH  /posts/1
DELETE /posts/1
```

Creating REST API

Representational State Transfer (REST) is a software architectural style that uses a subset of **HTTP**. It is generally used to create an interactive application based on the available services offered by the web. All those applications that follow these web services guidelines are thereby termed **RESTful**.

Now let's create a new JSON file with the name db.json. This file would contain the sample data that should be exposed by the REST API. For all the objects contained inside the JSON structure, **CRUD** (**Create Read Update Delete**) endpoints are automatically created. Let's take a look at the sample db.json file.

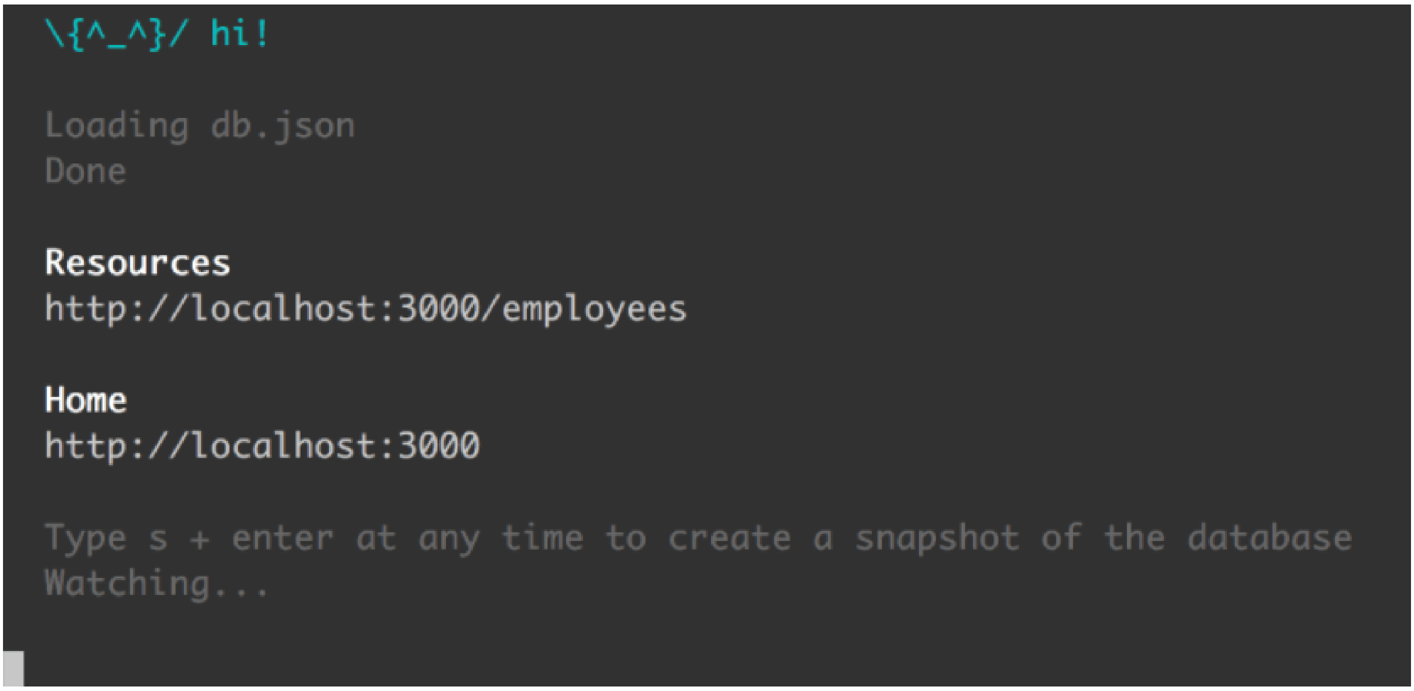
```
"employees": [
   {
     "id": 1,
     "first_name": "Sebastian",
     "last_name": "Eschweiler",
     "email": "sebastian@javatpoint.com"
   },
   {
     "id": 2,
     "first_name": "Steve",
     "last_name": "Palmer",
     "email": "steve@javatpoint.com"
   },
   {
     "id": 3,
     "first_name": "Ann",
     "last_name": "Smith",
     "email": "ann@javatpoint.com"
   }
 ]
}
```

The above sample **db.json** structure consists of an objecting emplc employee objects consists of four properties like **id, first_name, las**

After this step, all we need to do is to run the server through the Te

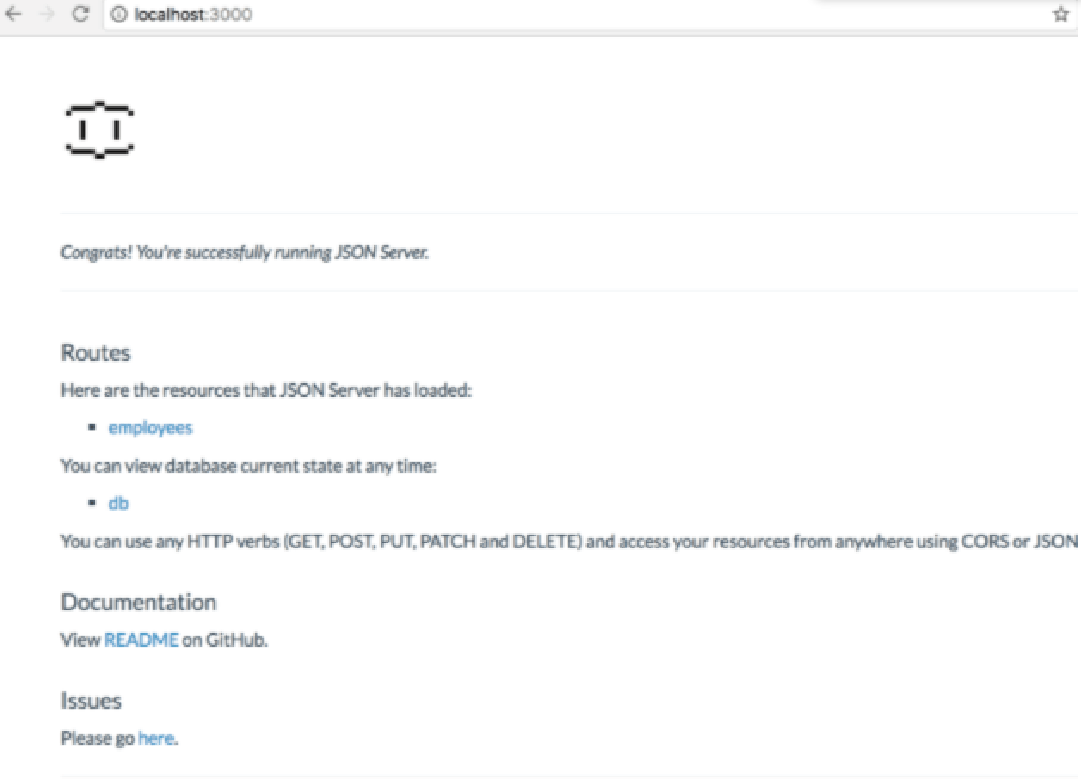
```
json server --watch db.json
```

The next step is to pass a parameter over the file containing the JSON structure. Also, we are making use of the watch parameter because this makes us sure that the server is being started in watch mode and the changes and updates are accordingly exposed to the API. The following console shoots after we start the server.



```
\{^_^}/ hi!

Loading db.json
Done

Resources
http://localhost:3000/employees

Home
http://localhost:3000

Type s + enter at any time to create a snapshot of the database
Watching...
```

Now, if we run the URL http://localhost:3000/employees in the browser environment, we might see the following results.



Congrats! You're successfully running JSON Server.

Routes

Here are the resources that JSON Server has loaded:

- employees

You can view database current state at any time:

- db

You can use any HTTP verbs (GET, POST, PUT, PATCH and DELETE) and access your resources from anywhere using CORS or JSON

Documentation

View README on GitHub.

Issues

Please go here.

From the above image, we can see that the correct recognition of the resource employees. Now, when we click on the employees link and use the **HTTP GET** request to the http://localhost:3000/employees , it will show us the following JSON result.

```
[
  {
    "id": 1,
    "first_name": "Sebastian",
    "last_name": "Eschweiler",
    "email": "sebastian@javatpoint.com"
  },
  {
    "id": 2,
    "first_name": "Steve",
    "last_name": "Palmer",
    "email": "steve@javatpoint.com"
  },
  {
    "id": 3,
    "first_name": "Ann",
    "last_name": "Smith",
    "email": "ann@javatpoint.com"
}
```

This action would create various routed endpoints like we discussed previously and on inspection, we would find the following results.

```
GET    /employees
GET    /employees/{id}
POST   /employees
PUT    /employees/{id}
PATCH  /employees/{id}
DELETE /employees/{id}
```

The above endpoints signify that we can now make DELETE, PATCH, GET, POST, and PUT requests and any changes would certainly be automatically saved to the **db.json** file. Meanwhile, while creating a PATCH, PUT or POST request, never forget to include a **Content-Type: application/json** header because the JSON would seek content in the requested body. Else, it might result in the **200 OK** without changes being made to the data.

Furthermore, there's another instance of extending our URL with more parameters like filtering the parameters by modifying the existing URL with the following set of the parameter using **http://localhost:3000/employees?first_name=Sebastian**. In the similar sense, other requests can also be filtered easily and would be automatically reflected and saved to the db.json file. This is how we successfully created a RESTful API. We can test it, deploy it with ease using various tools like **Netlify, Heroku**, or **Postman**. Let's learn some extra actions that can be carried out with the temporary API we have created.

Extra Options

Static file server

The JSON server that we have created can be used to serve our HTML. CSS and JS compatibility but simply creating a **./public** directory or use the command **--static** so that a different static file directory is set.

```
mkdir public
echo 'hello world' > public/index.html
json-server db.json
```

```
json-server db.json --static ./some-other-dir
```

Port Switch/ Alternative Port

The request processing through the localhost can be shifted or switched to another port using the below command to our existing JSON Server. We just need to use the **--port number** flag. For example:

```
json-server --watch db.json --port 3004
```

Middleware Module

If we want any validation, authentication, or behavioral changes f
creating a module in combination with other **Express** middleware. C

```
npm install json-server --save-dev
```

```
// server.js
const jsonServer = require('json-server')
const server = jsonServer.create()
const router = jsonServer.router('db.json')
const middlewares = jsonServer.defaults()

server.use(middlewares)
server.use(router)
server.listen(3000, () => {
  console.log('JSON Server is running')
})
```

Run the above file using,

```
node server.js
```

The path provided by us for the json.Server.router function in the above code snippet is relative to the directory from where we would be launching the node process. If we run the above code snippet from another directory, it is highly recommended to use an absolute path:

```
const path = require('path')
const router = jsonServer.router(path.join(__dirname, 'db.json'))
```

For any other in-memory database, we simply need to pass an object to **jsonServer.router()** function in the existing Express project.

Data Mocking of JSON Server

As of now, we learned to expose data by creating a fake API manua
sets, this manual way can result in hectic and absurd. Therefore, to
it can handle large amounts of data for JSON Server. It does that
JSON and API. This can be done by using the following steps.

```
npm init
```

Next, install Faker.js by using the command:

```
npm install faker
```

Faker.js will successfully be installed in the **node_modules** folder. Now, create another file in the employees.js and insert the below given sample JavaScript code.

```
// employees.js
var faker = require('faker')
function generateEmployees () {
  var employees = []
  for (var id = 0; id < 50; id++) {
    var firstName = faker.name.firstName()
    var lastName = faker.name.lastName()
    var email = faker.internet.email()
    employees.push({
      "id": id,
      "first_name": firstName,
      "last_name": lastName,
      "email": email
    })
  }
  return { "employees": employees }
}
```

In the above code snippet, we are implementing the function **generateEmployees()** to generate JSON-based object containing the data of 50 employees. Thus, to obtain fake data for the first name, last name, and the email that we are using, we would be using the methods **faker.name.firstName(), faker.name.lastName()** and **faker.internet.email()**.

Moreover, the JSON Server requires exporting the general **employees()** function in the above code which is done by using the method.

```
module.exports = generateEmployees
```

Having added that export, we would now be able to pass the employees.js file directly to the json-server command by

```
Json-server employees.js
```

The work is done. We have successfully exposed REST API that will give us the access to all the 50 employees data sets by the means of Faker.js.

Summary

In this tutorial, we learned about the JSON Server from scratch to
and eventually learned its implementation along with setting up t
also learned about routes that are quite important because we can
our files and then trace back the requests like **POST, DELETE,**
middleware with Express environment followed by mocking up t

jump to conclusion that JSON Server covers tremendous application in the development since most of the developers use this format for establishing data manipulation, access, and storage mechanism and carrying out overall data-driven paradigms.