Basics of Node Js

Const --> used for passwords
let --> used to initialize a variable for a specific scope
var --> used to initialize a variable for a global scope
scope of a variable: it is the particular region of the code where fucntion can be accessed.

If Else Statements

```
fucntion example(){
        var x = 10;
        if (1){
            var y = 20;
            console.log(x);  // print statement
         }console.log(y);
}
example();
```

command: node x.js
Output: Doesn't return error
why??
Because var has global scope.
Hence doesn't gives errors.

```
fucntion example(){
        var x = 10;
        if (1){
            let y = 20;
            console.log(x);
         }console.log(y);
}
example();
```

Output: Error
Because let has scope within a function.
Hence gives error.

What is difference between iteration and

loop?

iteration: no. of loops i.e. process of execution.

eg. the variable that is in the code which is running multiple times.

loop: code that executes multiple times.

eg. watching loop from outstide

```
fucntion example(){
        var x = 10;
        if (1){
            let y = 20;
            console.log(x);
         }console.log(y);
         if (1) {
            //
         }
         console.log(y);
}
example();
```

Javascript was a mistake. It was initially created to blink text in Nightscape browser.

Use let.

```
let x = 5;
conslole.log(!x);
```

Output: false

```
let x = [ ];
consloe.log(!!x);
```

truthe false converter !! used for typecasting truth and false

console.log(x) --> [ ]

console.log(!!x) --> Output: true
why?? because x is defined so true

```
let x = { };
consloe.log(!!x);
```

console.log(!!x) --> Output: true
why?? because x is defined so true

```
let x = " ";
consloe.log(!!x);
```

console.log(!!x) --> Output: false
why?? because strings, arrays do not have0 a memory allocation i.e., x is not defined.

```
let x = null;
consloe.log(!!x);
```

console.log(!!x) --> Output: false
why?? because null do not have a memory allocation i.e., x is not defined.

```
let x = undefined;
consloe.log(!!x);
```

console.log(!!x) --> Output: false
why?? because undefined do not have a memory allocation i.e., x is not defined.

```
let x = [ ]
if (!!x) {
   console.log("Yes");
}
```

Output: Yes
Because x is true , hence if statement is executed.

```
let x = [ ];
let state = !!x;
```

```
if (state) {
    console.log("Yes");
}
```

Debugging:
before running 1st line
x: undefined
state: undefined

after running 2nd line
x: (0) []
state: undefined

after running 3rd line
x: (0) []
state: true

after running last line
x: uncaught reference
state: uncaught reference
freed the memory at the end of the code

Ternary Operator

shorter way of using if else statement.

```
let age = 5;
let eligible = false
if (age>18) {
        eligible = true;
}
else {
        eligible = false;
}
```

shoter version:

```
eligible = age > 19 ? true : false;
```

=> this means if age > 18 than eligible = true and if age < 18 than eligible = false

Object: key value pair

let // safer as it is for a particular scope

```
let User = {
    name: 'John',
    age: 30
    phone: '123-456-7890',
    address: {
        street: '123 Main St',
        city: 'New York',
        state: 'NY',
        zip: '10001'
    },
    hobbies: ['movies', 'music'],
    magic_number: function (x) {
        return x * x;
    }
};
console.log(User.name);
```

Output: John

```
console . log ( User [ 'name' ]);  // not valid
json
```

```
console . log ( User . address . state );
```
Output: NY

```
console . log ( User . magic_number ( 4 ));
```
Output: 16

User is the object.
to access any element of the User object we use dot operator i.e. User.name

Strings

```
let sensText = "thisIsSesnText";
let maskedText =
sensText.substring(3).padStart(sensText.length, "*");
console.log( maskedText)
```

Output: ***sIsSesnText

code to delete a key and value pair

```
let User = {
    name: 'John',
    age: 30,
    phone: '123-456-7890',
    address: {
        street: '123 Main St',
        city: 'New York',
        state: 'NY',
        zip: '10001'
    },
    hobbies: ['movies', 'music'],
    magic_number: function (x) {
        return x * x;
    }
};
console.log(User.age);
delete User.age; // delete age
console.log(User.age);
```

Output:

30
undefined

Arrays

Similar to vector in C++.
Can hold anything inside the array.

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
console.log(arr);
```

Output:

```
[
  1, 2, 3, 4,
  5, 6, 7, 8
]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
arr.push(123);  // push at the end
console.log(arr);
```

Output:

```
[
```

```
  1, 2, 3,   4, 5,
  6, 7, 8, 123
]

let arr = [1, 2, 3, 4, 5, 6, 7, 8];
arr.pop();  // pops last element and returns
it
console.log(arr);
Output:
[
  1, 2, 3, 4,
  5, 6, 7
]

let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let lastEle = arr.pop();
console.log(arr);
console.log("     ",lastEle);
Output:
[
  1, 2, 3, 4,
```

```
  5, 6, 7
]
      8
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let lastEle = arr.shift(); // pops element at the beginning and returns it
console.log(arr)
console.log("     ",lastEle);
```

Output:

```
[
  2, 3, 4, 5,
  6, 7, 8
]
      1
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let lastEle = arr.unshift();  // inserts the given value at the beginning of the array and returns the length of the new array
console.log(arr)
```

```
console.log("     ",lastEle);
```

Output:

```
[
  1, 2, 3, 4,
  5, 6, 7, 8
]
      8
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let lastEle = arr.unshift(1);
console.log(arr)
console.log("     ",lastEle);
```

Output:

```
[
  1, 1, 2, 3, 4,
  5, 6, 7, 8
]
      9
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let slicedArr = arr.slice(1,4)  // to make
```

```
subarrays of the given array with particular elements
console.log(slicedArr)
```

Output:

```
[ 2, 3, 4 ]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let removedArr = arr.splice(1,2) // to remove particular elements from a particular index and or also to add index after the inedx
console.log(arr)
```

Output:

```
[ 1, 4, 5, 6, 7, 8 ]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let removedArr = arr.splice(1,2,99)
console.log(arr)
```

Output:

```
[
  1, 99, 4, 5,
  6,  7, 8
```

]

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let removedArr = arr.splice(1,2,99,88,77)
console.log(arr)
```

Output:

```
[
  1, 99, 88, 77, 4,
  5,  6,  7,  8
]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let removedArr = arr.splice(1,2,[99,88,77])
console.log(arr)
```

Output:

```
[ 1, [ 99, 88, 77 ], 4, 5, 6, 7, 8 ]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7, 8];
let removedArr = arr.splice(1,2,
[99,88,77],'test')
```

```
console.log(arr)
```
Output:
```
[ 1, [ 99, 88, 77 ], 'test', 4, 5, 6, 7, 8 ]
```

```
let arr1 = [1, 2, 3, 4, 5, 6, 7, 8];
let arr2 = [22,33,44];
let arr3 = arr1.concat(arr2);  // combine
two arrays
console.log(arr3);
```
Output:
```
[
   1, 2, 3,  4,  5,
   6, 7, 8, 22, 33,
  44
]
```

```
let arr = [1, 2, 3];
let outputStr = arr.join("=")
console.log(outputStr);
```
Output:
```
1=2=3
```

```
let arr = [1, 2, 3];
let outputStr = arr.join("= | =")  // converts
array to string with a given delimiter
console.log(outputStr);
```

Output:

1= | =2= | =3

```
let arr = [1, 2, 3, 4, 5, 6, 7]
console.log(arr.indexOf(3)); // returns
index of an element and if not found return
-1
```

Output:

2

```
let arr = [1, 2, 3, 4, 5, 6, 7]
arr.forEach( (e) => {
    console.log(e);
});  // access each element and print it
```

Output:

1

2

3

4

5

6

7

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let filtArr = arr.filter((e) => e%2) //
segregates values on the basis of truth or
false values
passes every element through the function
and adds to the array if the value is true
else discards the value after performing
the specified operation.
console.log(filtArr)
```

Output:

[1, 3, 5, 7]

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let filtArr = arr.filter((e) => e < 3)
console.log(filtArr)
```

Output:

```
[ 1, 2 ]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let filtArr = arr.filter((e) => e > 3)
console.log(filtArr)
```

Output:

```
[ 4, 5, 6, 7 ]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let filtArr = arr.filter((e) => 1)
console.log(filtArr)
```

Output:

```
[
  1, 2, 3, 4,
  5, 6, 7
]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let filtArr = arr.filter((e) => 0)
console.log(filtArr)
```

Output:

```
[]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let mappedArr = arr.map((e) => e + 3); // passes every element through the function and returns the value after performing the specified operation.
console.log(mappedArr);
```

Output:

```
[
  4, 5,  6, 7,
  8, 9, 10
]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let mappedArr = arr.map((e) => 2);
console.log(mappedArr);
```

Output:

```
[
  2, 2, 2, 2,
  2, 2, 2
]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let mappedArr = arr.map((e) => `${e} abc`);
console.log(mappedArr);
```

Output:

```
[
  '1 abc', '2 abc',
  '3 abc', '4 abc',
  '5 abc', '6 abc',
  '7 abc'
]
```

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let mappedArr = arr.map((e) => `${e} is a
number`);
console.log(mappedArr);
```

Output:

```
[
  '1 fis a number',
  '2 fis a number',
  '3 fis a number',
  '4 fis a number',
  '5 fis a number',
  '6 fis a number',
  '7 fis a number'
]
```

```
let arr = [1, 2, 3]
let sum = arr.reduce((acc, num) => acc + num, 10); // here the accumulater is initialized with a value and then the value gets added with the accumulator untill all elements are accessed by the num
console.log(sum);
```

Output:

16

Array Operartions:

- push --> add element at the end.
- pop --> remove element at beginning.
- shift --> deletes 1st element and returns it.
- unshift --> add element at the beginning and returns the size of the new array.
- slice --> create subarrays with elements in a range which includes the 1st element and not the last elementn i.e., slice(1,4) includes element at index=1 and doesn't include element at index=4.
- splice --> remove particular elements from a particular index and also to add index after the index
- concat --> combining to arrays
- join --> add some string between the

array elements while printing

- index0f --> returns index of an element
- forEach --> access each element and perform an operation as specified
- filter --> segregates values on the basis of truth or false values
- map --> passes every element through the function and returns the value after performing the specified operation.

Nested Ternary Operator

```
let user = {
    age: 17,
    role: 'admin',
};
let eligible = user.age > 18 ? true : user.role
=== 'admin' ? true : false;
console.log(eligible);
```

Output:

true

why not to use this? readability takes a toll

Using a predefined function in map

```
let arr = [1, 2, 3, 4, 5, 6, 7]
let mappedArr = arr.map((e) => process(e));
console.log(mappedArr);
function process(k)
{
    return `Processed value is ${k+2}`;
}
```

Output:

```
[
  'Processed value is 3',
  'Processed value is 4',
  'Processed value is 5',
  'Processed value is 6',
  'Processed value is 7',
  'Processed value is 8',
  'Processed value is 9'
]
```

```
let arr =
```

```
["RA20123","RA20127","RA20126","RA201234"];
let mappedArr = arr.map((e) => process(e));
console.log(mappedArr);
function process(k) {
// READ ROM DB
// VALIDATE
// RETURN
    return k;
}
```

```
function getResponse(){
    let addr = "https://
jsonplaceholder.typicode.com/todos/1";
// this has no yet been implemented
    const response = fetch(addr);
    const data = response.json();
    console.log(data);
}
getResponse();
```

Output:

Error

// not working because fetch is asynchronous. As the response is not yet received, the data is undefined.

// event loop --> main therad on which javascript runs. It is a single threaded language.

```
setTimeout(() => {
  console.log('Hellow!');
}, 4000);

console.log('Yes');
setTimeout(() => {
    console.log('Hellowww!');
  }, 2000);

// executed based on the time it takes to
execute the code
```

Using asyc-await function to get response from the url

```
async --> to define that the process will
take a undefined amount of time
await --> waits in the async untill the value
is completly fetched
async function getResponse(){
    let addr = "https://
```

```
jsonplaceholder.typicode.com/todos/1";
    const response = await fetch(addr);
    const data =  await response.json();
    console.log(data);
}
getResponse();
```

Output:
{ userId: 1, id: 1, title: 'delectus aut autem', completed: false }

```
async function getResponse(){
    let addr = "https://
jsonplaceholder.typicode.com/todos/1";
    const response = await fetch(addr);
    const data =  response.json();
    console.log(data);
}
getResponse();
```

Output:
Promise { <pending> }

Promise states:

- pending
- resolved
- rejected

Pre-historic version of async-await

```
const displayDelay = new
Promise((resolve, reject) => {
    setTimeout(() => {
        resolve("Met at 06:30");
    }, 1000);
});
displayDelay.then((v)=> {
    console.log("SUCCESS: ", v);
});
```

Output:
SUCCESS: Met at 06:30

```
const displayDelay = new
Promise((resolve, reject) => {
    setTimeout(() => {
        reject("Met at 06:30");
    }, 1000);
});
displayDelay.then((v)=> {
    console.log("SUCCESS: ", v);
});
```

Output:

```
node:internal/process/promises:288
            triggerUncaughtException(err, true /
* fromPromise */);
            ^
[UnhandledPromiseRejection: This error
originated either by throwing inside of an
async function without a catch block, or by
rejecting a promise which was not handled
with .catch(). The promise rejected with
the reason "Met at 06:30".] {
  code: 'ERR_UNHANDLED_REJECTION'
```

}

Here we didn't write code for what happens when there is error or it gets rejected hence got the error.

So in the below code this error has been removed to get the output by defining catch function whcih performs the respective task when the fuction in executed and gets error.

```
const displayDelay = new
Promise((resolve, reject) => {
    setTimeout(() => {
        reject("Met at 06:30");
    }, 1000);
});
displayDelay
    .then((v)=> {
        console.log("SUCCESS: ", v);
    })
    .catch((e) => {
```

```
        console.log("ERROR: ", e);
    });
```

Output:

ERROR: Met at 06:30

Due to callback hell we moved from promise to async-await.
To know why we moved from the above code to async-await.

ATM machines are the examples of async-await.

```
const displayDelay = new
Promise((resolve, reject) => {
// if user found in database:
    // resolve("User found");
// if user not found in database:
    // reject("User not found");
});
```

```
displayDelay
    .then((v)=> {
        // generateCertificate
    })
    .catch((e) => {
        // displayError
    });
```

Promise are used to handle uncertainities.

```
const displayDelay = new
Promise((resolve, reject) => {
// if user found in database:
    // resolve("User found");
// if user not found in database:
    // reject("User not found");
});
displayDelay
    .then((v)=> {
        // generateCertificate
    })
```

```
    .catch((e) => {
        // displayError
    });
```

The above code is for try and catch in async-await. Basically if we get error it can be resolved.

```
async function getResponse(){
    let addr = "https://
jsonplaceholder.typicode.com/todos/1";
    try {
    const response = await fetch(addr);
    const data =  await response.json();
    console.log(data);
    } catch (e) {
        console.log(e);
    }
}
getResponse();
```

Output:
{ userId: 1, id: 1, title: 'delectus aut autem', completed: false }

What is an API?
Rest API:
Representational State Transfer Interface
input --> object
ouput --> mostly object

npm --> collection of packages made by developers

Installing Express:
npm init // entry point: (x.js) index.js
npm i express

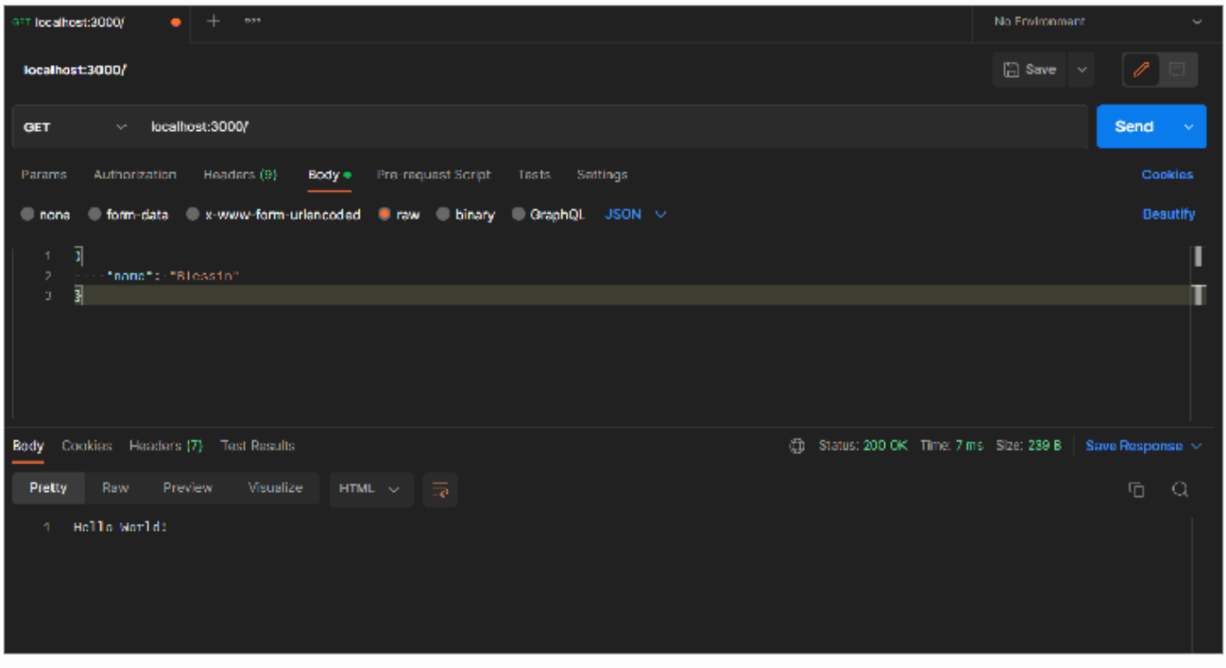
Download Postman agent

```
const express = require('express')
const app = express()
const port = 3000

app.get('/', (req, res) => {
  res.send('Hello World!')
})
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`)
})
```

Output:

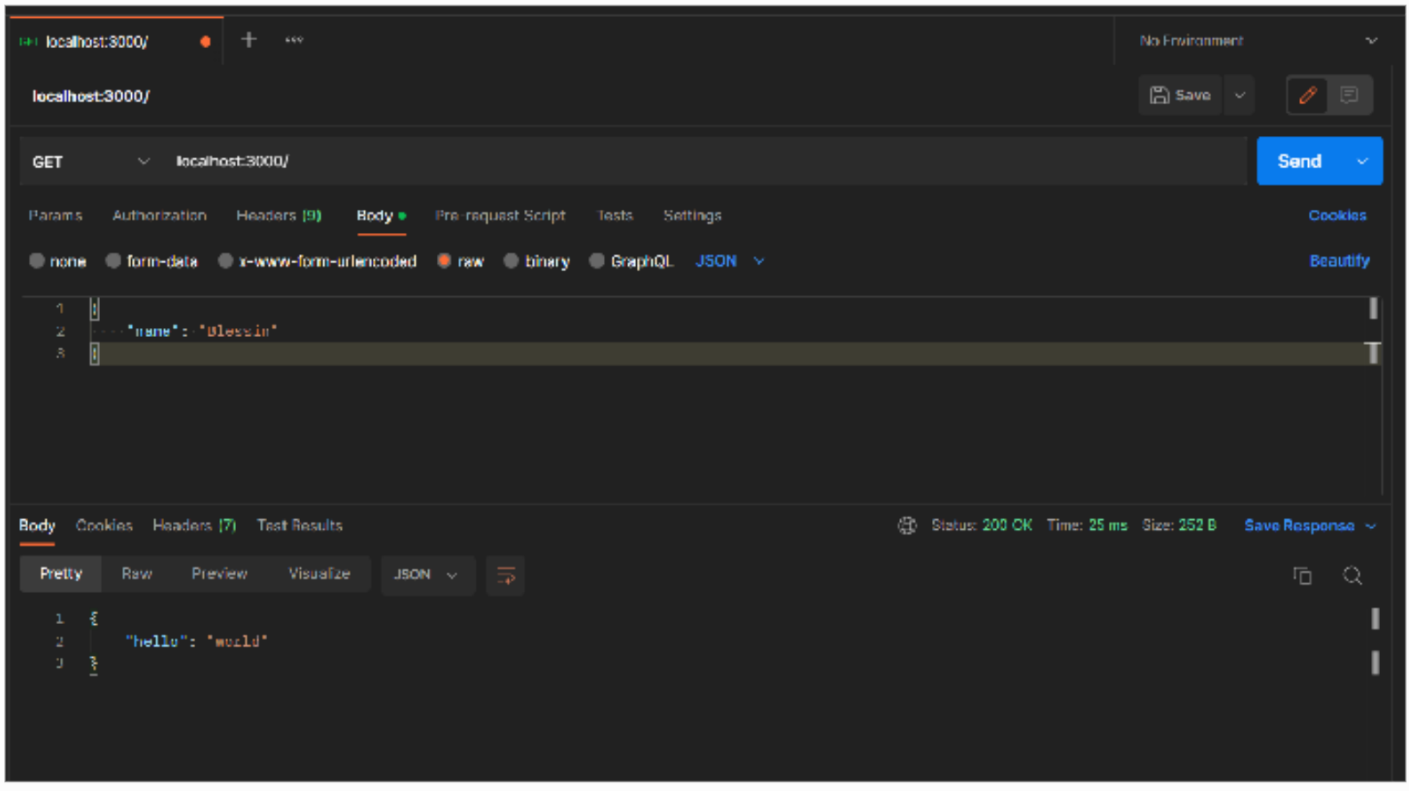
Example app listening on port 3000

Postman Output:



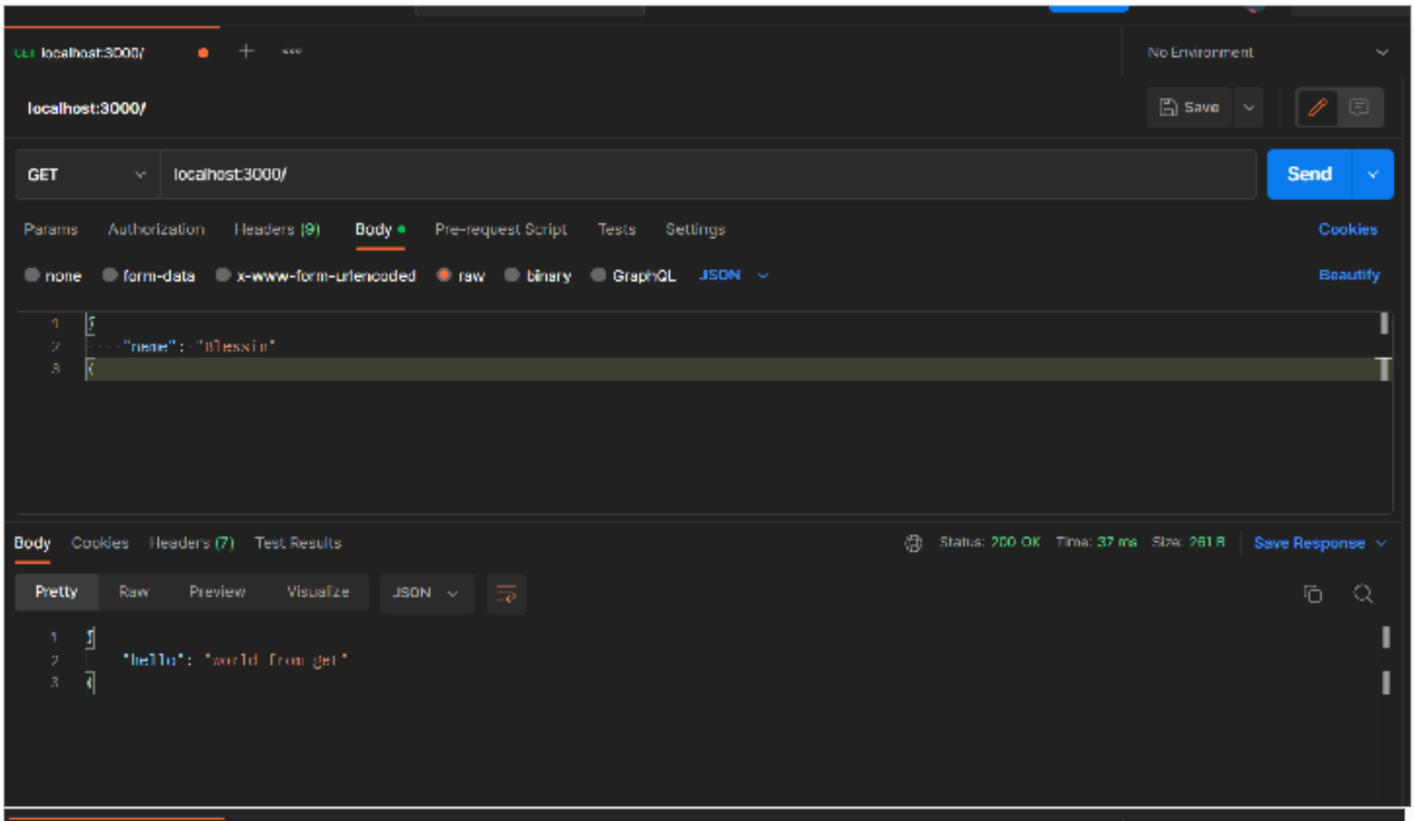
```
const express = require('express')
const app = express()
const port = 3000

app.get('/', (req, res) => {
  res.send({hello: "world"})
})
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`)
})
```

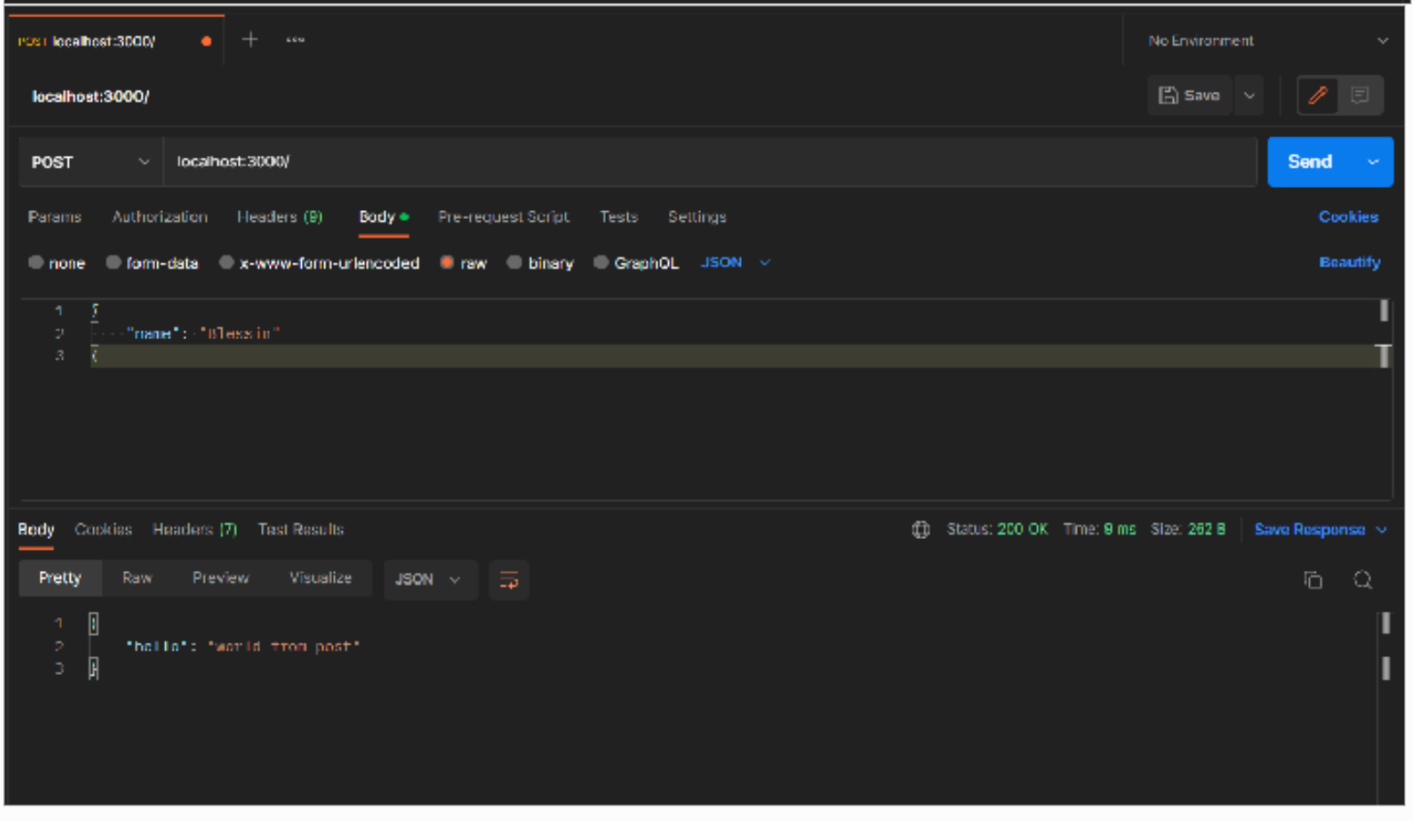
Postman Output:



```
const express = require('express')
const app = express()
app.use(express.json());
const port = 3000

app.get('/', (req, res) => {
  res.send({hello: "world from get"})
})
app.post('/', (req, res) => {
  res.send({hello: "world from post"})
})
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`)
})
```

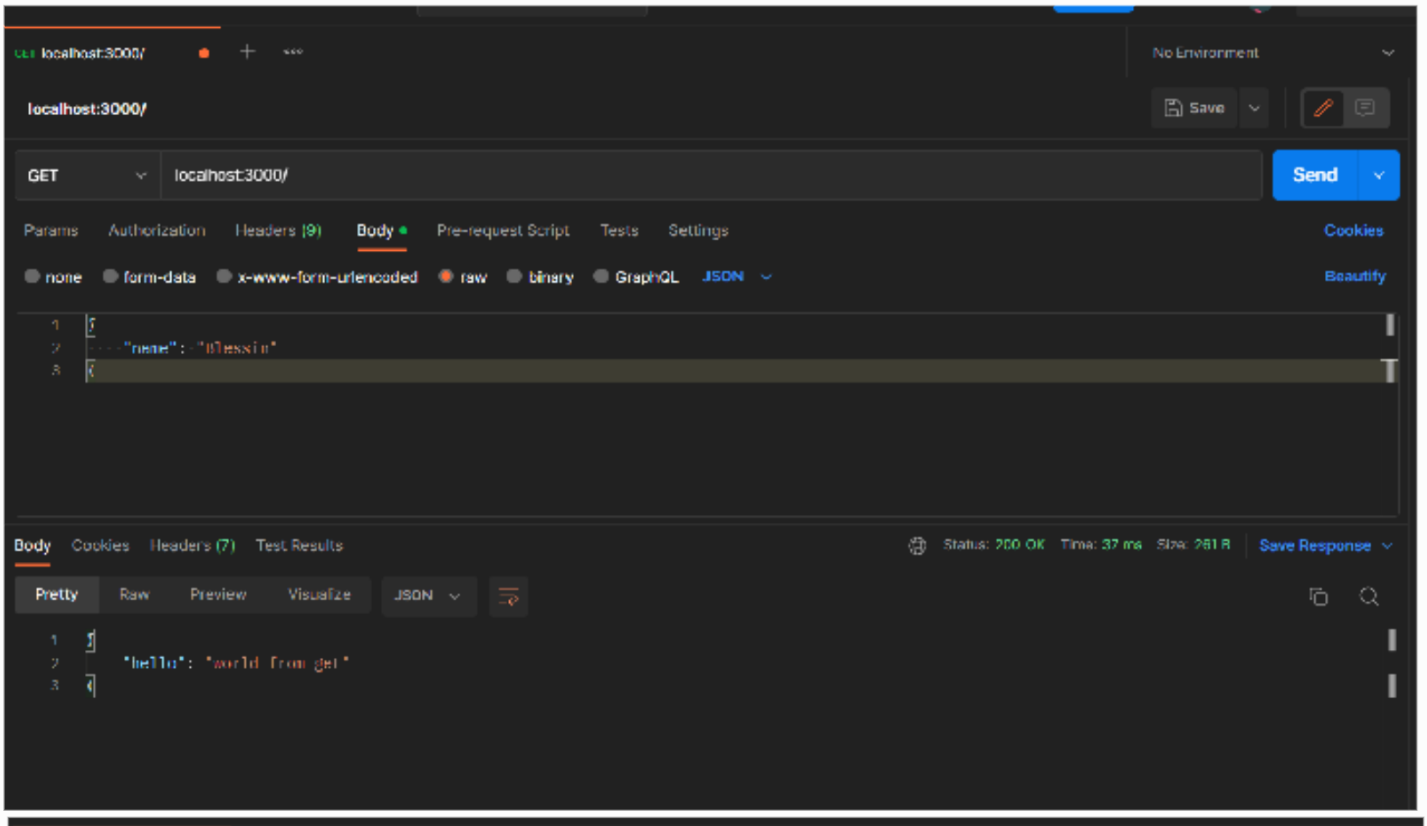
Postman Output:

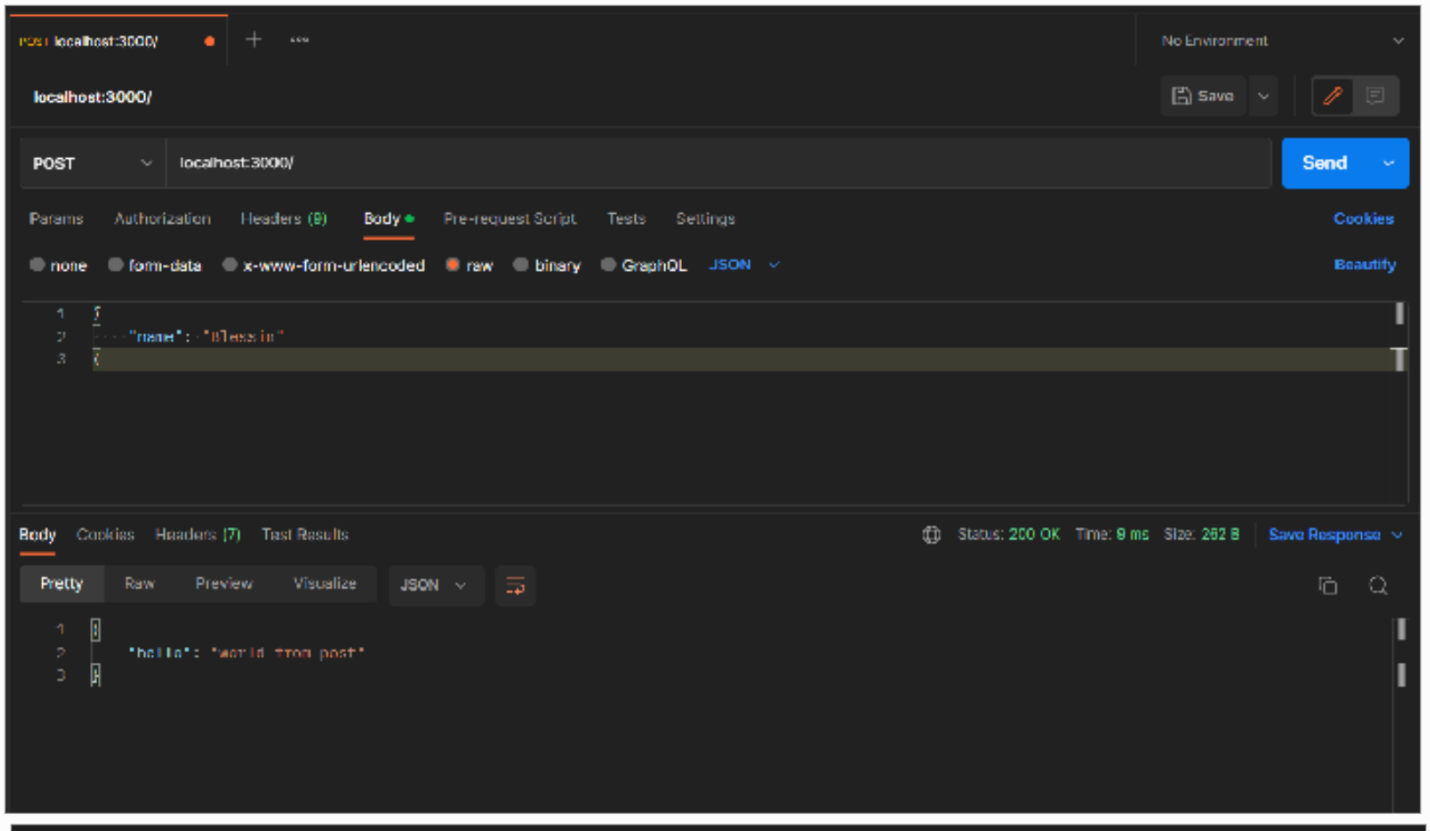

GET localhost:3000/
No Environment
localhost:3000/
Save
GET
localhost:3000/
Send
Params
Authorization
Headers (9)
Body
Pre-request Script
Tests
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"name": "Blessin"
}
Body
Cookies
Headers (7)
Test Results
Status: 200 OK
Time: 37 ms
Size: 261 B
Save Response
Pretty
Raw
Preview
Visualize
JSON
{
"hello": "world from get"
}


POST localhost:3000/
No Environment
localhost:3000/
Save
POST
localhost:3000/
Send
Params
Authorization
Headers (9)
Body
Pre-request Script
Tests
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"name": "Blessin"
}
Body
Cookies
Headers (7)
Test Results
Status: 200 OK
Time: 9 ms
Size: 262 B
Save Response
Pretty
Raw
Preview
Visualize
JSON
{
"hello": "world from post"
}

```
const express = require('express')
const app = express()
app.use(express.json());
const port = 3000

app.get('/', (req, res) => {
  res.send({hello: "world from get"})
})
app.post('/', (req, res) => {
  console.log(req.body.name)
  res.send({hello: "world from post"})
})
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`)
})
```

Postman Output:

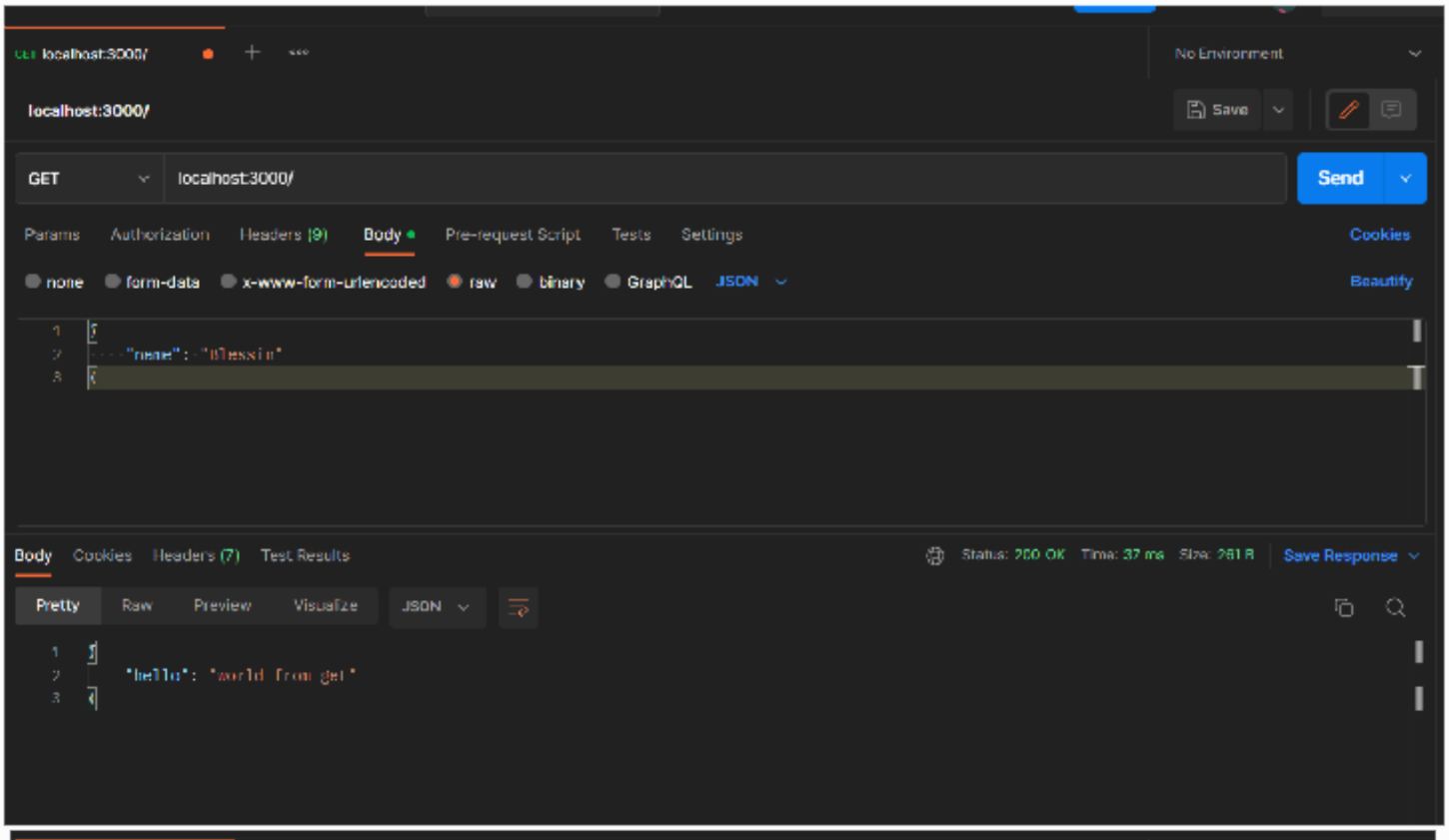


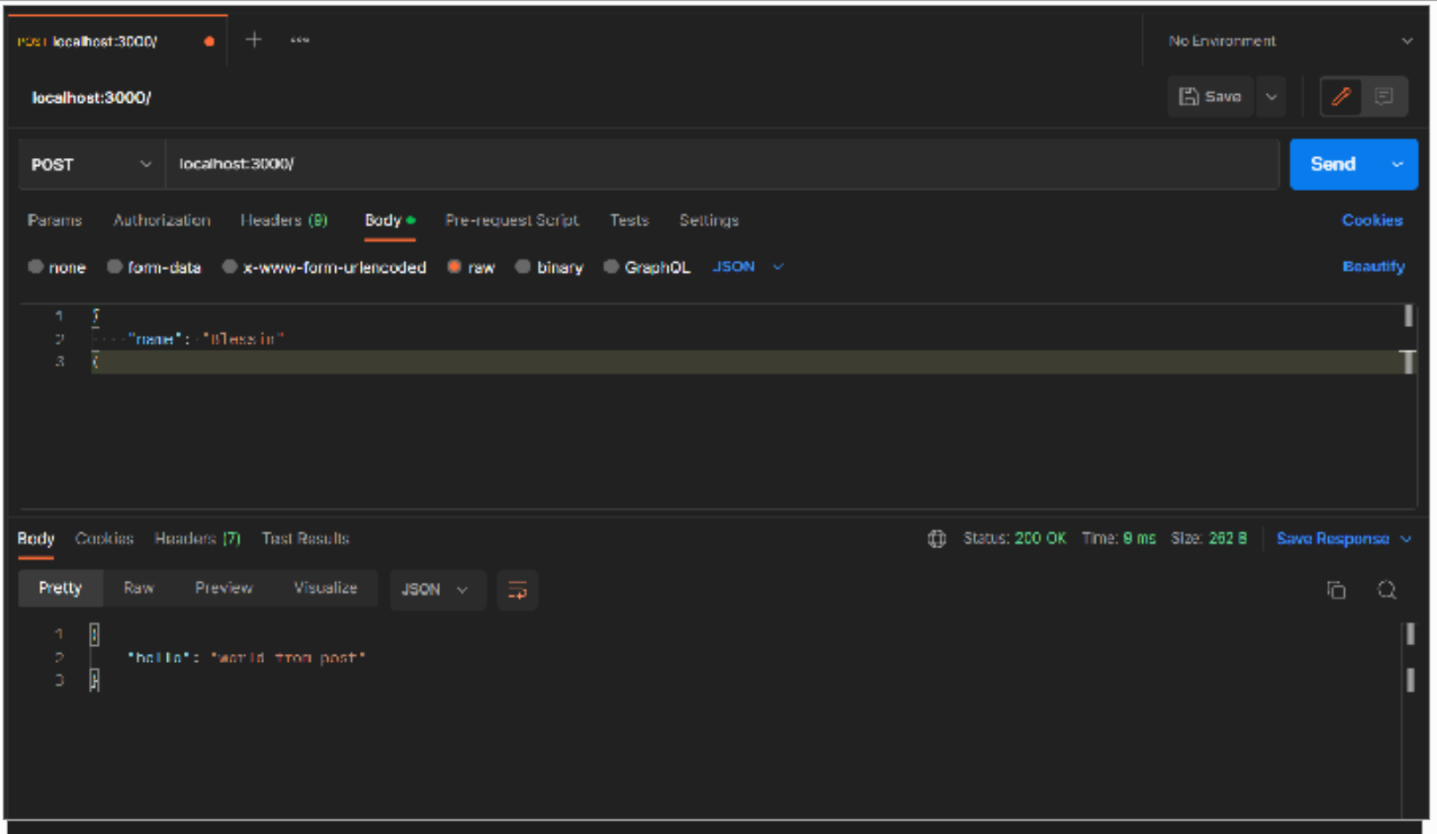



```
PS G:\Node Js and React Js> node "g:\Node Js and React Js\index.js"
Example app listening on port 3000
Blessin
```

```
const express = require('express')
const app = express()
app.use(express.json());
const port = 3000

app.get('/', (req, res) => {
  res.send({hello: "world from get"})
})
app.post('/', (req, res) => {
  console.log(req.body)
  res.send({hello: "world from post"})
})
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`)
})
```

Postman Output:

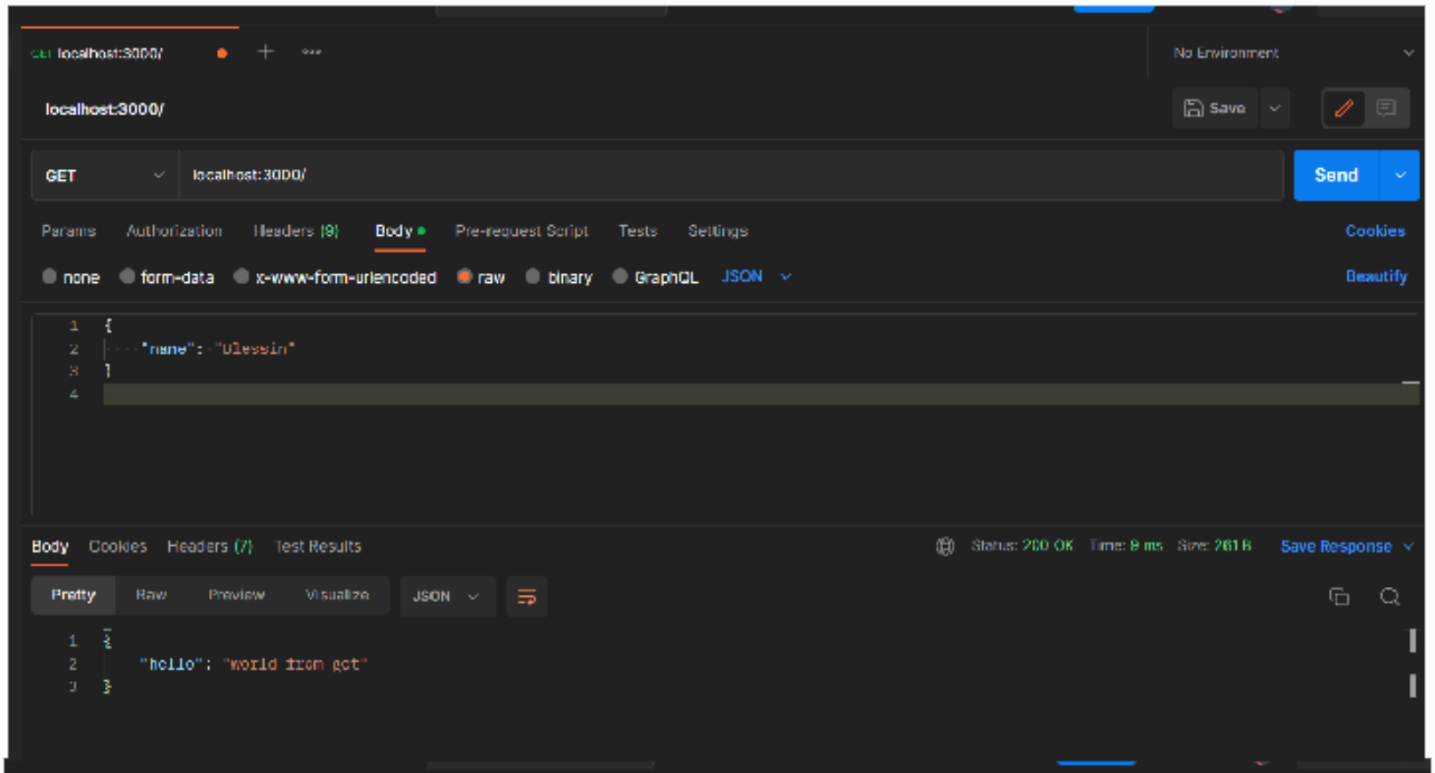


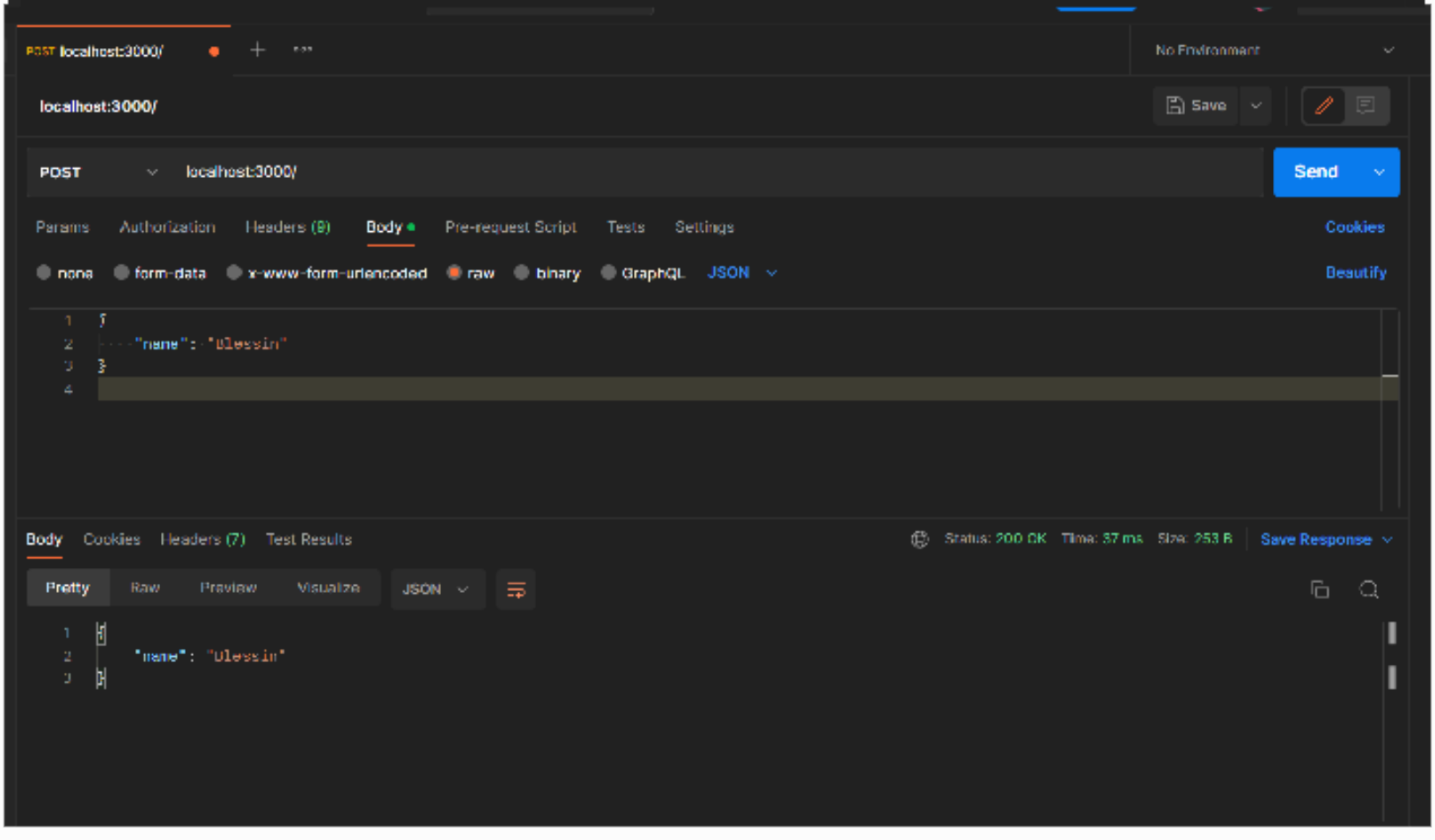



```
PS G:\Node Js and React Js> node "g:\Node Js and React Js\index.js"
Example app listening on port 3000
{ name: 'Blessin' }
```

```
const express = require('express')
const app = express()
app.use(express.json());
const port = 3000

app.get('/', (req, res) => {
  res.send({hello: "world from get"})
})
app.post('/', (req, res) => {
  let user = req.body.name;
  res.send({name: user})
})
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`)
})
```

Postman Output:


GET localhost:3000/
No Environment
localhost:3000/
Save
GET
localhost:3000/
Send
Params
Authorization
Headers (9)
Body
Pre-request Script
Tests
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"name": "Ulessin"
}
Body
Cookies
Headers (7)
Test Results
Status: 200 OK
Time: 8 ms
Size: 261 B
Save Response
Pretty
Raw
Preview
Visualize
JSON
{
"hello": "world from get"
}


POST localhost:3000/
No Environment
localhost:3000/
Save
POST
localhost:3000/
Send
Params
Authorization
Headers (9)
Body
Pre-request Script
Tests
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
{
"name": "Ulessin"
}
Body
Cookies
Headers (7)
Test Results
Status: 200 OK
Time: 37 ms
Size: 253 B
Save Response
Pretty
Raw
Preview
Visualize
JSON
{
"name": "Ulessin"
}

Put:
Patch:

Installing nodemon:

it is used for faster real time work in javascript

npm i nodemon -g

To run the file
nodemon index.js

if not working:
open powershell as admin
run the below command

- Set-ExecutionPolicy RemoteSigned -Scope CurrentUser

```
const express = require('express')
const app = express()
app.use(express.json());
const port = 3000

app.get('/', (req, res) => {
  res.send({hello: "world from get api"})
})

app.post('/', (req, res) => {
  let user = req.body.name;
  res.send({name: user})
})
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`)
})
```

Ouput:

When the code is run gets updated as we run the send button in postman. Hence automated the manual process of running

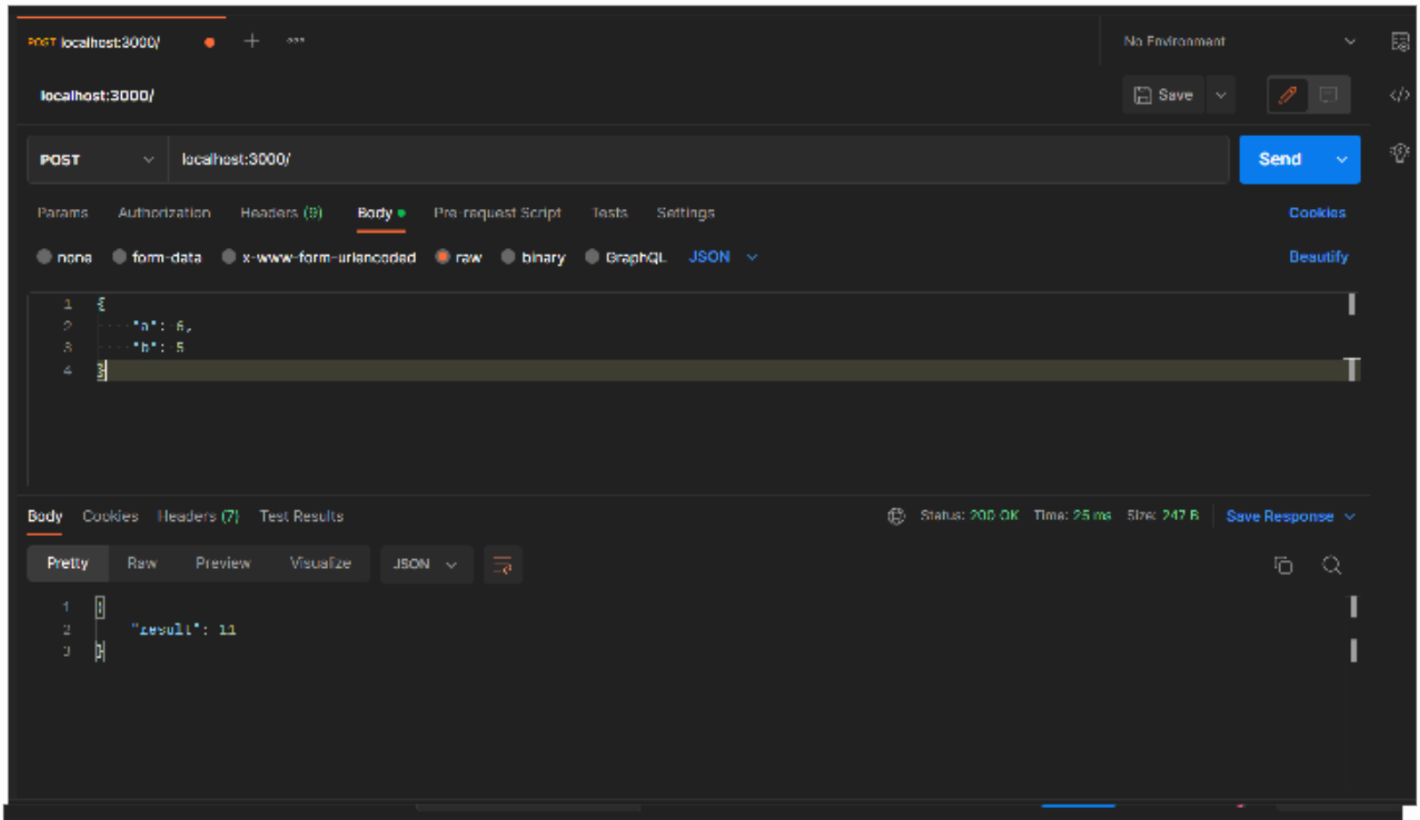
in terminal again and again.

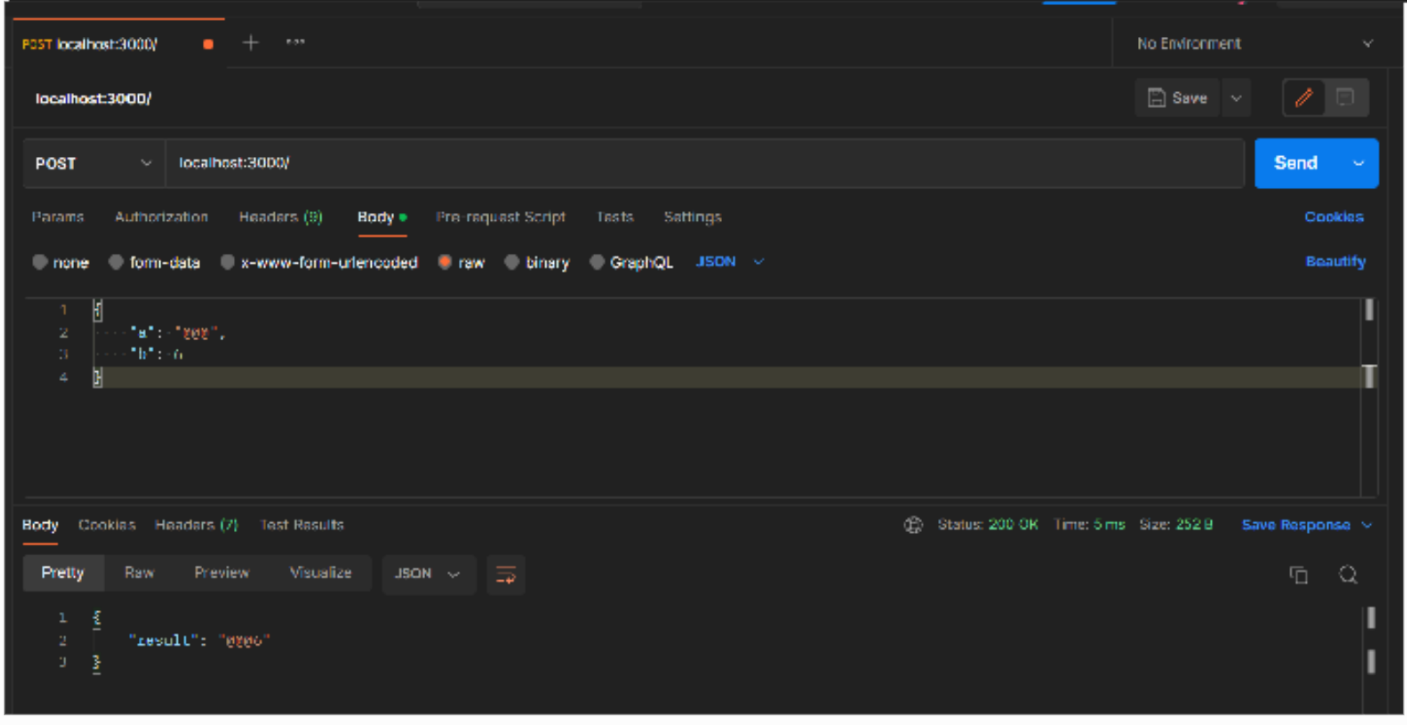
```
const express = require("express");
const app = express();
app.use(express.json());
const port = 3000;

app.get("/", (req, res) => {
  res.send({ hello: "world from get api
endpoint" });
});
app.post("/", (req, res) => {
  let user = req.body.name;
  res.send({ name: user });
});
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
```

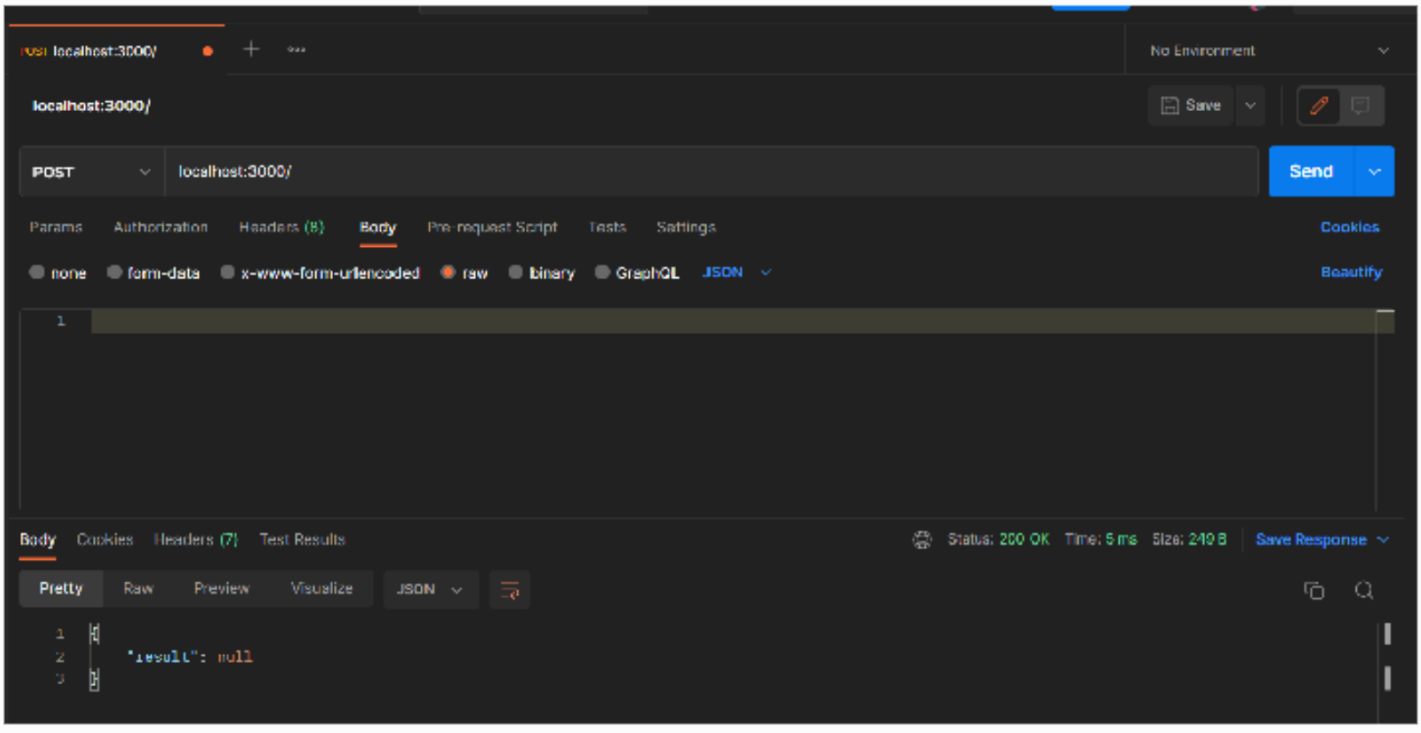
```
// in terminal:
// npm i nodemon -g
// nodemon index.js


const express = require("express");
const app = express();
app.use(express.json());
const port = 3000;

app.get("/", (req, res) => {
  res.send({ hello: "world from get api
endpoint" });
});
app.post("/", (req, res) => {
  let a = req.body.a;
  let b = req.body.b;
  let c = a + b;
  res.send({ result: c });
});
```

```
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
```

Output:



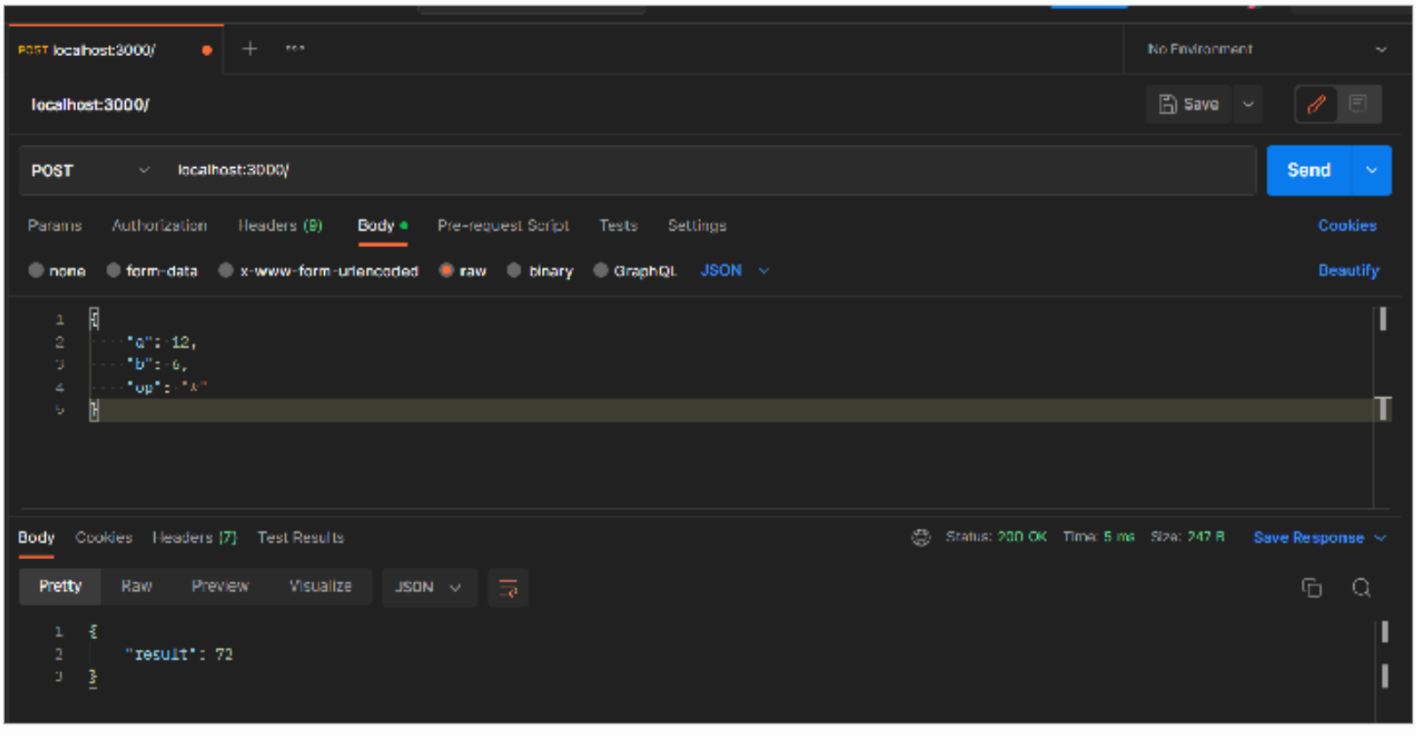





```
const express = require("express");
const app = express();
app.use(express.json());
const port = 3000;

app.get("/", (req, res) => {
  res.send({ hello: "world from get api
endpoint" });
});
app.post("/", (req, res) => {
  let a = req.body.a;
```

```
  let b = req.body.b;
  let op = req.body.op;
  let c = 0;
  switch(op)
  {
    case '+':
      c = a + b;
      break;
    case '-':
      c = a - b;
      break;
    case '*':
      c = a * b;
      break;
    case '/':
      c = a / b;
      break;
  }
  res.send({ result: c });
});
```

```
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
```



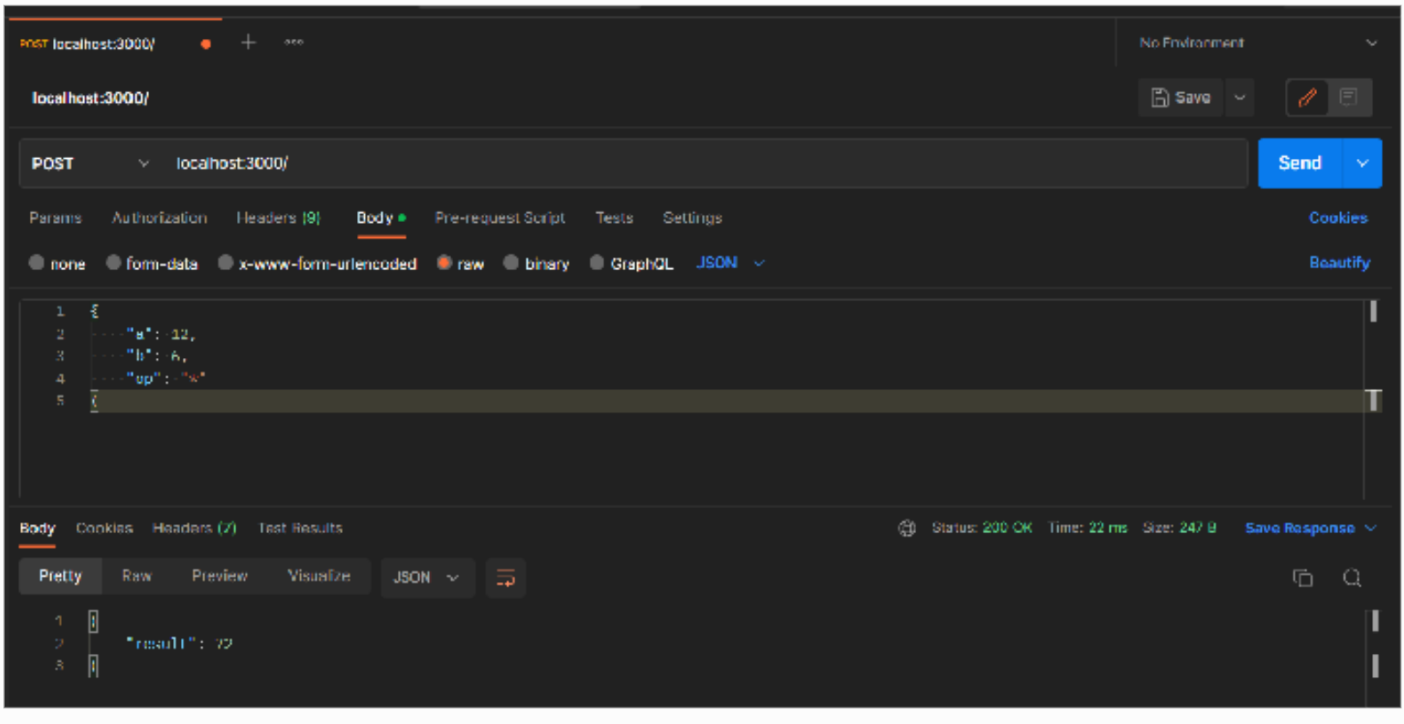
Using a seprately defined function:

```
const express = require("express");
const app = express();
app.use(express.json());
const port = 3000;

app.get("/", (req, res) => {
```

```
  res.send({ hello: "world from get api
endpoint" });
});
app.post("/", (req, res) => {
  let a = req.body.a;
  let b = req.body.b;
  let op = req.body.op;
  let c = 0;
  c = operation(a,b,op)
  res.send({ result: c });
});
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
function operation(a,b,op){
  switch(op)
  {
    case '+':
      return a + b;
    case '-':
```

```
      return a - b;
    case '*':
      return a * b;
    case '/':
      return a / b;
  }
}
```

Output:



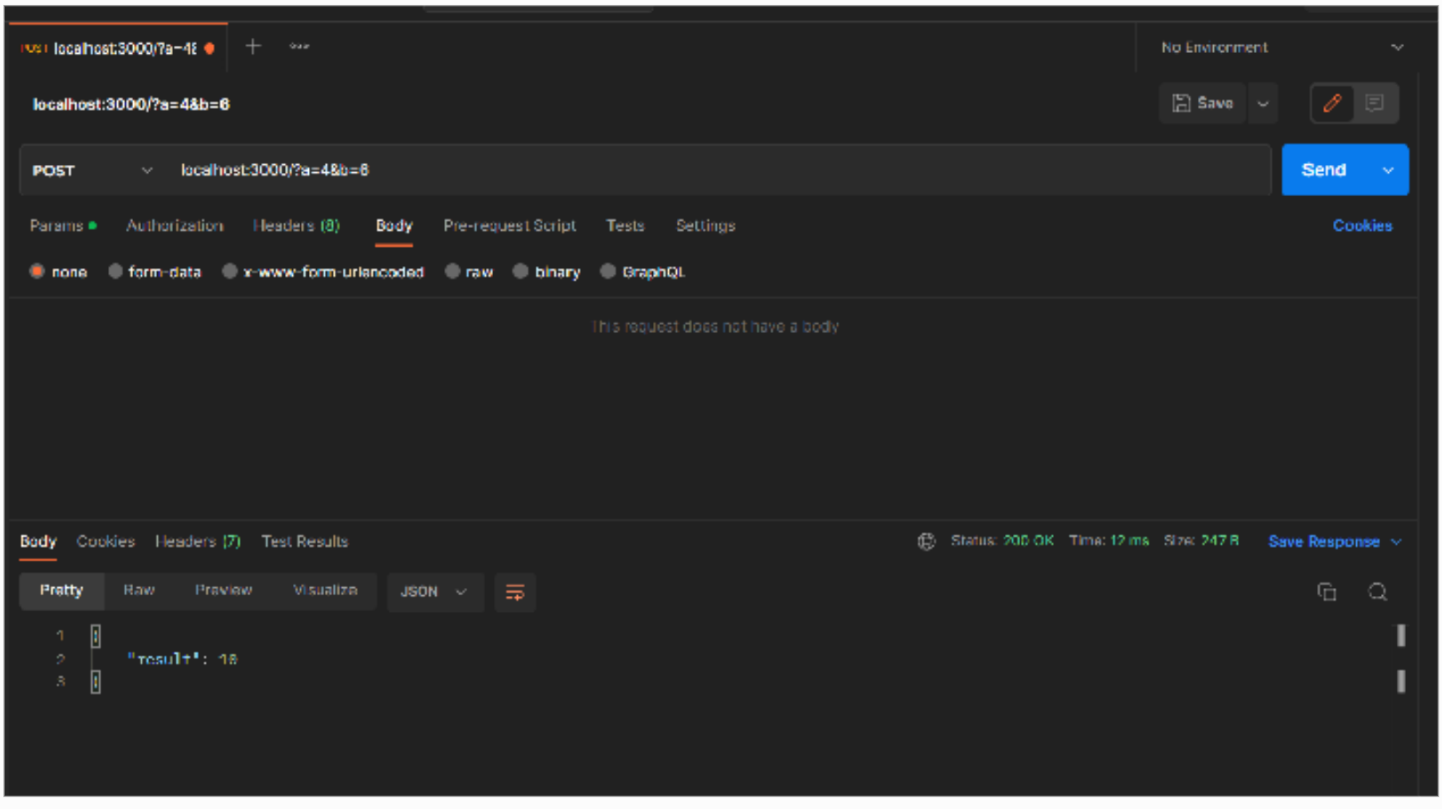
localhost:3000/?a=4&b=6

url query parameter

```
const express = require("express");
const app = express();
app.use(express.json());
const port = 3000;

app.get("/", (req, res) => {
  res.send({ hello: "world from get api
endpoint" });
});
app.post("/", (req, res) => {
  let a = parseInt(req.query.a);
  let b = parseInt(req.query.b);
  let c = a + b;
  res.send({ result: c });
});
app.listen(port, () => {
  console.log(`Example app listening on
```

```
port ${port}`);
});
```

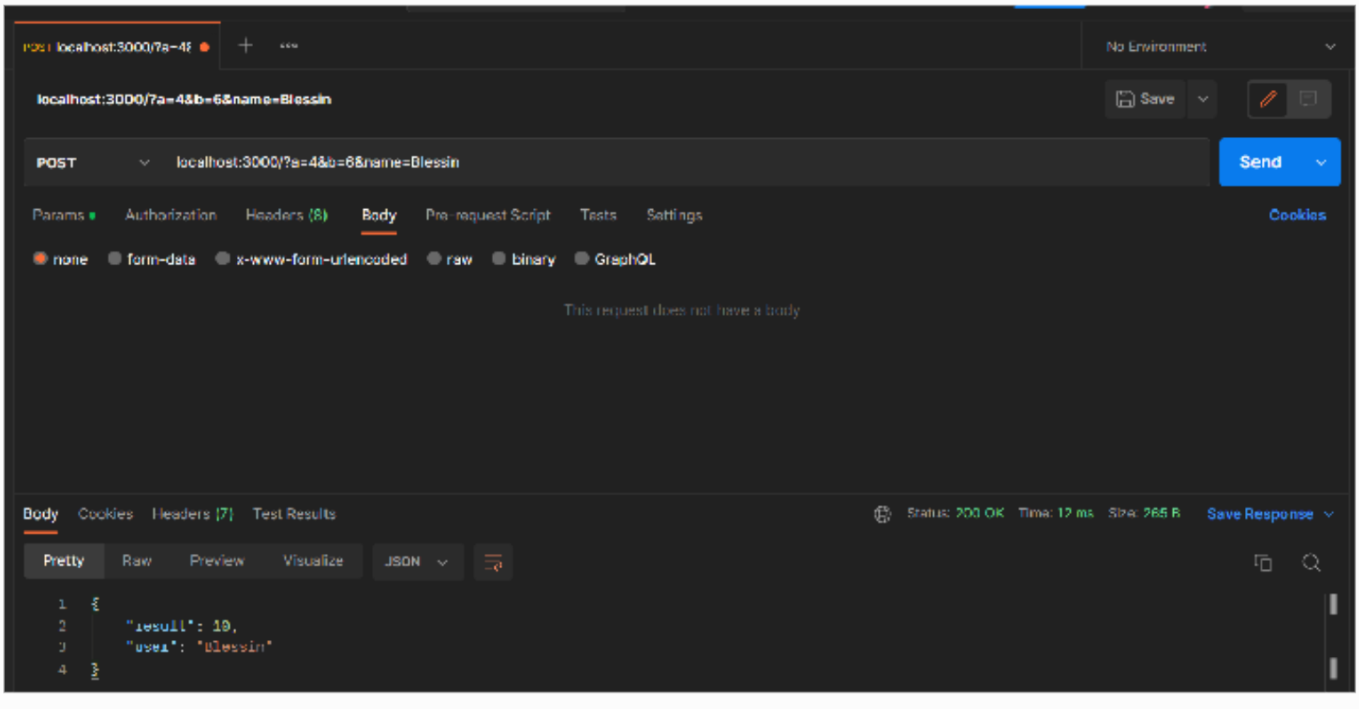
Output:



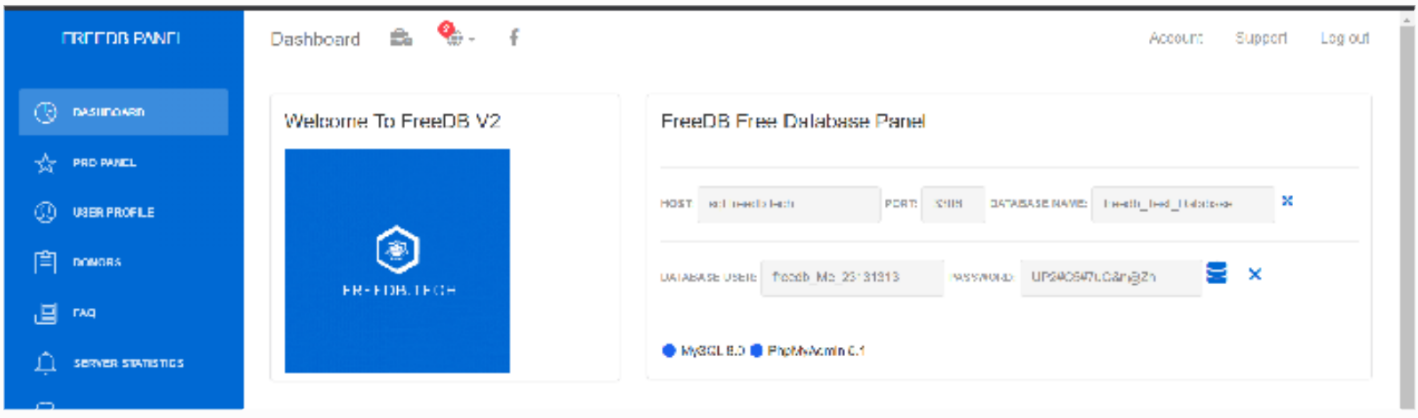

```
const express = require("express");
const app = express();
app.use(express.json());
const port = 3000;

app.get("/", (req, res) => {
  res.send({ hello: "world from get api
```

```
endpoint" });
});
app.post("/", (req, res) => {
  let a = parseInt(req.query.a);
  let b = parseInt(req.query.b);
  let name = req.query.name;
  let c = a + b;
  res.send({ result: c, user: name });
});
app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
```

Output:



Now using "freedb.tech" website to create database.



Installing mysql:

npm i mysql

Now creating a new folder db

creating config.js file in db

config.js file

```
const mysql = require('mysql2');
const connecction =
mysql.createConnection(
    {
```

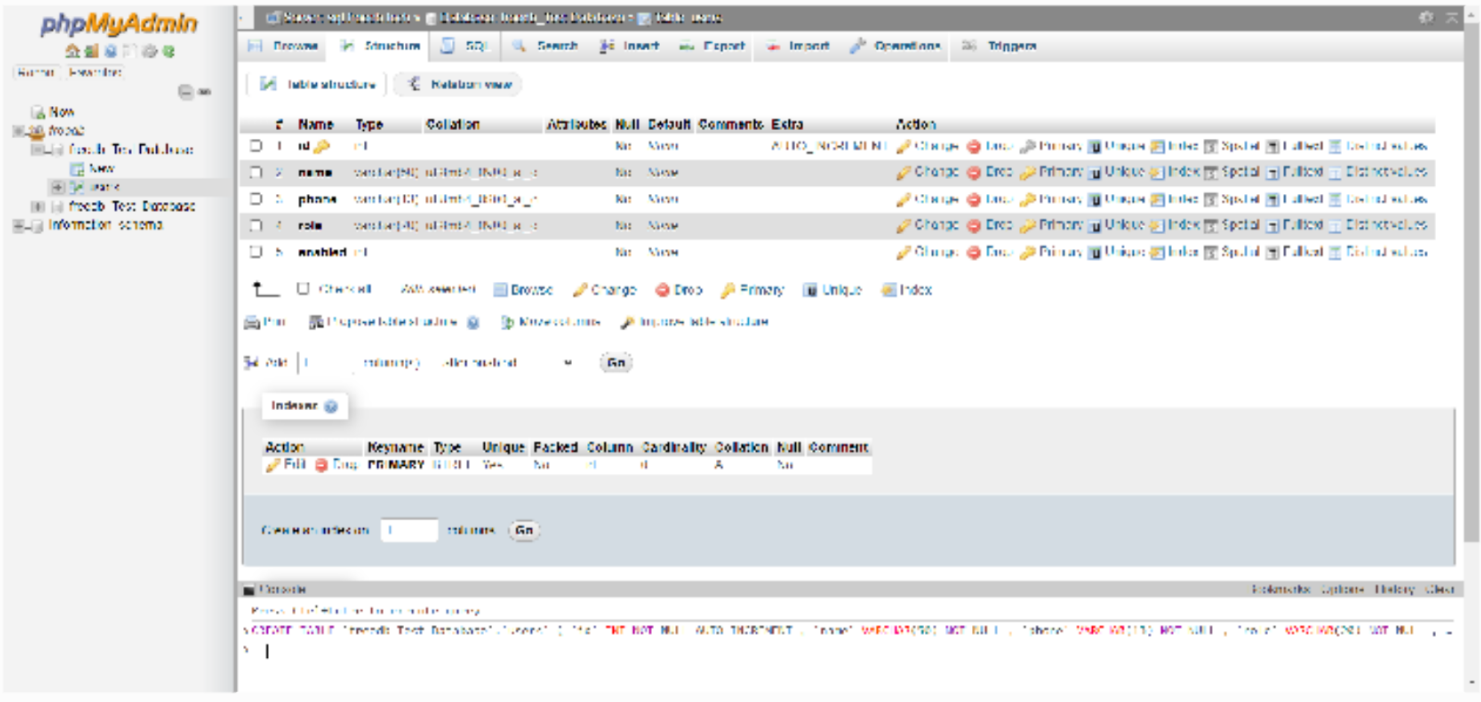
```
        host: 'sql.freedb.tech',
        user: 'freedb_Me_23131313',
        password: 'UP2#C5#7uG&n@Zh',
        database: 'freedb_Test_Database'
    });
connecction.connect((err)=>{
    if(err)
    {
        console.log(err);
    }
    else
    {
        console.log('Connected to database');
    }
});
```

Run: node db/config.js

```
PS G:\Node Js and React Js> node db/config.js
Debugger attached.
Connected to database
```

Output:

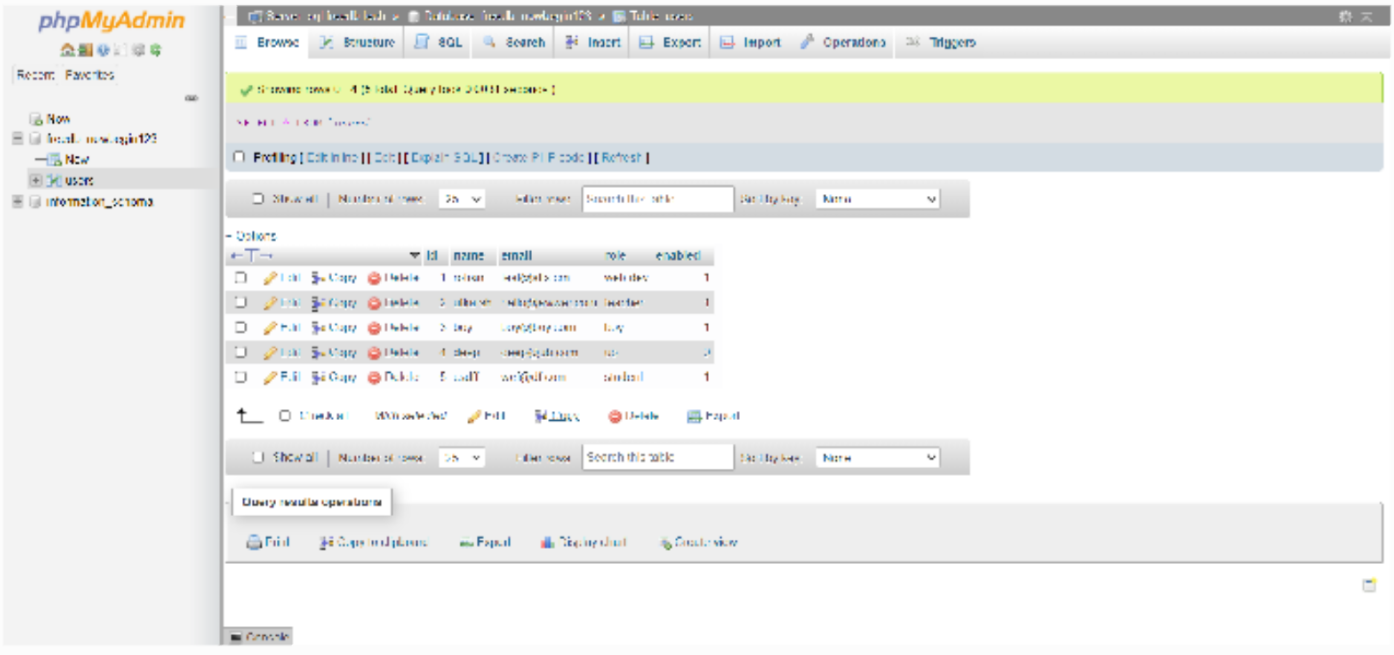
Now open webiste "phpmyadmin.co"
fill the details from freedb.tech
click on new
create table with name as 'users' and
column name as 5



What are the differnt ways to track a customer?
Cookie
JWT --> Json Web Tokens

Config file for xampp

Config file for xampp



```
const mysql = require('mysql2');
const connection =
mysql.createConnection(
    {
        host: 'sql.freedb.tech',
        user: 'freedb_weuidfjwe841',
        password: 'bStEB%88Ac%zs@*',
        database: 'freedb_nowbegin123'
    });
connection.connect((err)=>{
    if(err)
    {
        console.log(err);
    }
    else
    {
        console.log('Connected to database');
    }
});

module.exports = connection;
```

Unopioniated --> where we can choose names of the folders in the directory.
Opinionated --> where we can't choose named of the folders in the directory.

request is generated and it hits express than if the "/users" is identified than if the router is identified than the request is given to the router than it is detects "/" than passes the access to the controller file.

router --> similar to a sign board
controller file is used to access the database

404 --> the route does not exist.

INDEX.JS

```
const express = require("express");
const app = express();
const userRoutes = require("./routes/
user.routes");

app.use(express.json());
const port = 3000;

app.use("/users",userRoutes);

app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
```

USER.ROUTES.JS

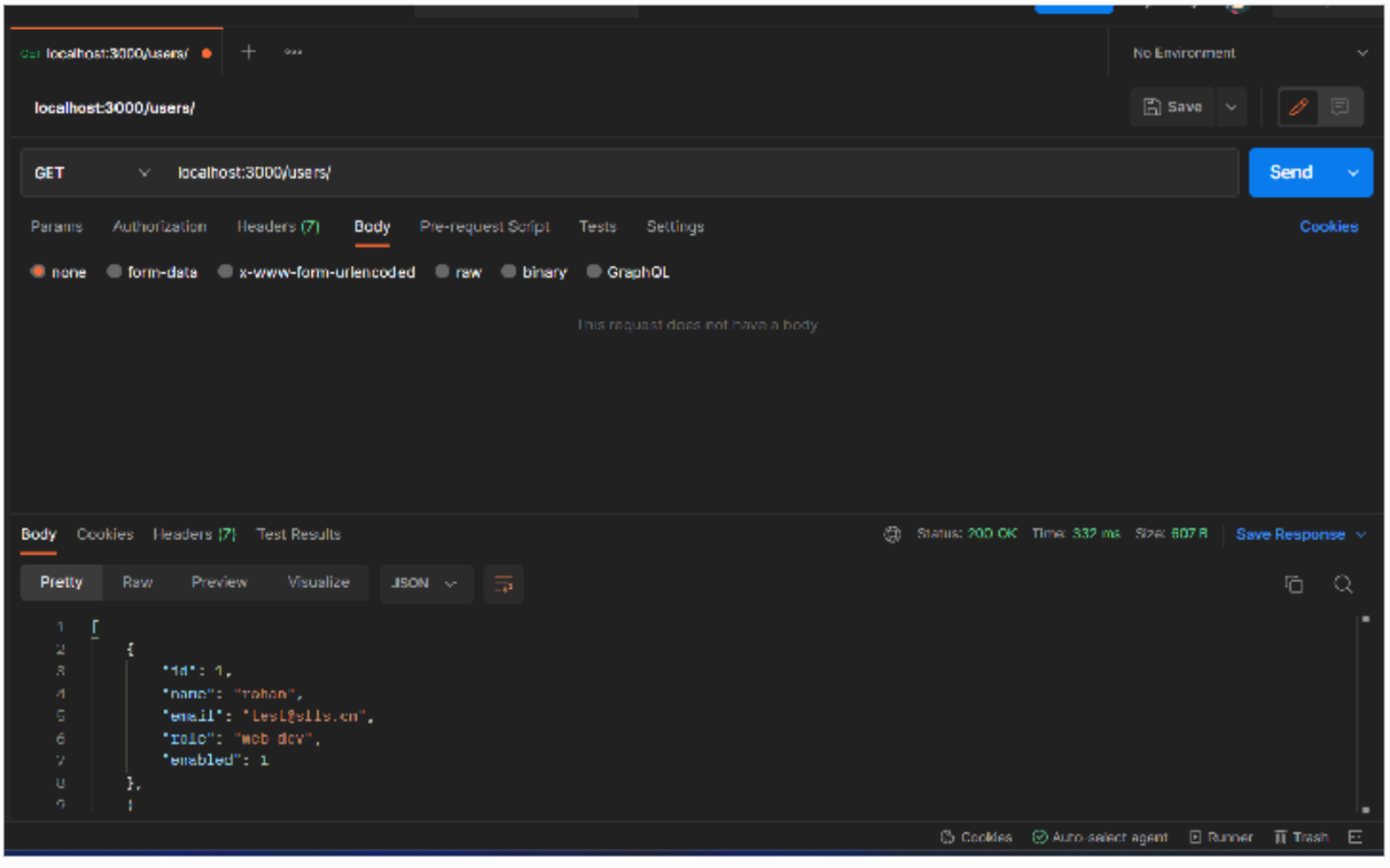
```
const express = require('express');
const userController = require('../
controllers/user.controller');
const router = express.Router();

router.get("/",userController.getAllUsers);

module.exports = router;
```

USER.CONTROLLER.JS

```
const connection = require("../db/config");
module.exports = {
    getAllUsers:(req, res)=>{
        connection.query("SELECT * FROM
users", (err, results)=>{
            if(err) {
```

```
            res.status(500).send("Error
retrieving users");
            }
            else
            {
                res.json(results);
            }
        });
}
}
```

Output:



Index.js

```
const express = require("express");
const app = express();
const userRoutes = require("./routes/
user.routes");
app.use(express.json());
const port = 3000;

app.use("/users",userRoutes);

app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
```

User.routes.js

```
const express = require('express');
const userController = require('../
controllers/user.controller');
const router = express.Router();

router.get("/",userController.getAllUsers);
router.get("/:id",userController.getUserByID)
;

module.exports = router;
```

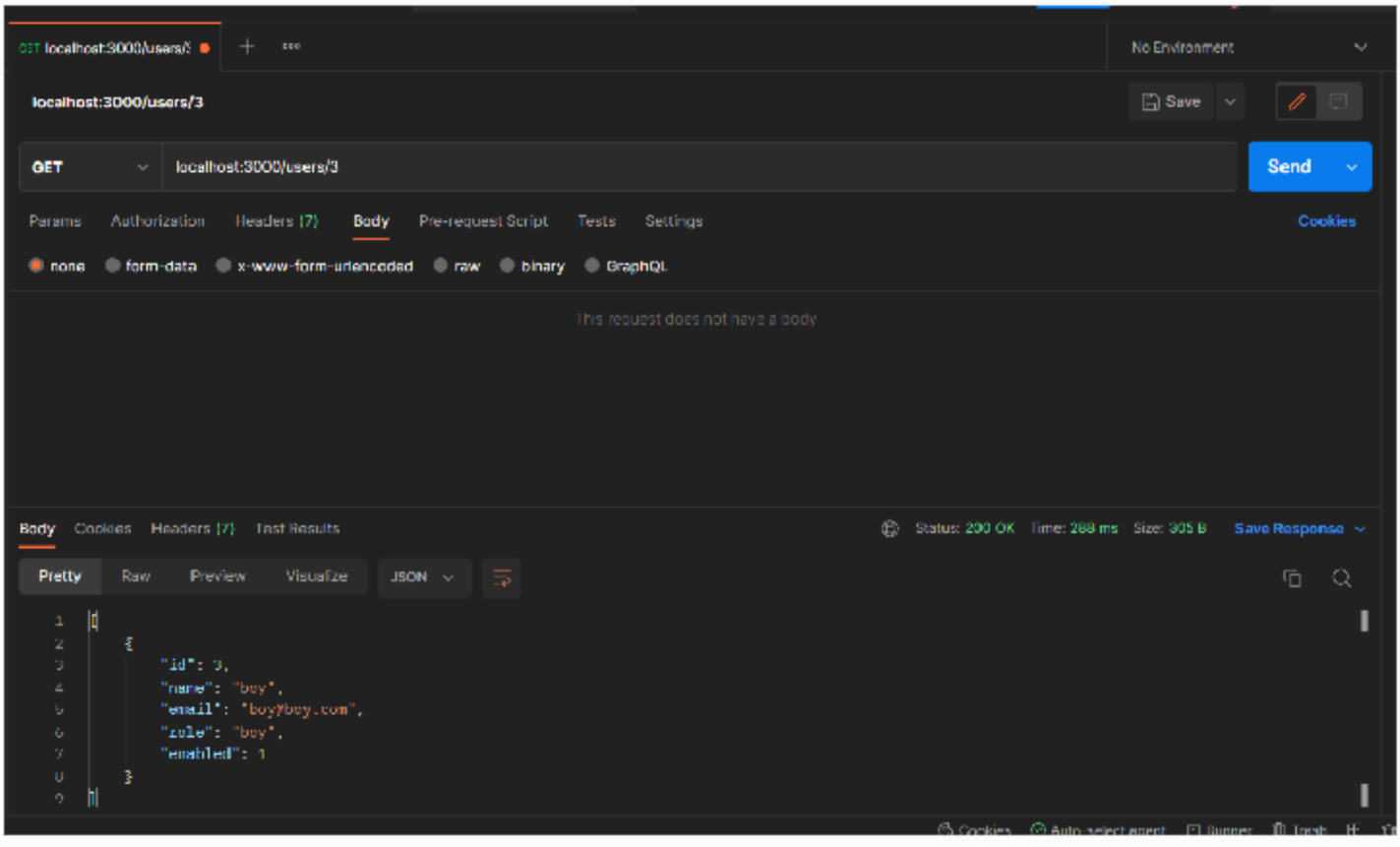
User.controller.js

```
const connection = require("../db/config");
module.exports = {
    getAllUsers:(req, res)=>{
        connection.query("SELECT * FROM
users", (err, results)=>{
            if(err) {
```

```
            res.status(500).send("Error
retrieving users");
            }
            else
            {
                res.json(results);
            }
        });
    },
    getUserByID:(req, res)=>{
        connection.query(`SELECT * FROM
users WHERE id = ${req.params.id}`, (err,
results)=>{
            if(err) {
            res.status(500).send("Error
retrieving users");
            }
            else
            {
                res.json(results);
            }
```

```
        });
    }
}
```

Output:



Using SQL WORKBENCH for database

Index.js

```
const express = require("express");
const app = express();
const userRoutes = require("./routes/
user.routes");

app.use(express.json());
const port = 3000;

app.use("/users",userRoutes);

app.listen(port, () => {
  console.log(`Example app listening on
port ${port}`);
});
```

User.routes.js

```
const express = require('express');
const userController = require('../
controllers/user.controller');
const router = express.Router();

router.get("/",userController.getAllUsers);

router.get("/:id",userController.getUserByID)
;

module.exports = router;
```

User.controller.js

```
const connection = require("../db/config");

module.exports = {
    getAllUsers:(req, res)=>{
        connection.query("SELECT * FROM
episodes", (err, results)=>{
            if(err) {
            res.status(500).send("Error
retrieving users");
            }
            else
            {
                res.json(results);
            }
        });
    },
    getUserByID:(req, res)=>{
        connection.query(`SELECT * FROM
episodes WHERE id = ${req.params.id}`,
```

```
(err, results)=>{
            if(err) {
            res.status(500).send("Error
retrieving users");
            }
            else
            {
                res.json(results);
            }
        });
    }
}
```

Config.js

```
const mysql = require('mysql2');
const connection =
mysql.createConnection(
    {
        host: 'localhost',
```

```
        user: 'root',
        password: '12345',
        database: 'anime'
    });
connection.connect((err)=>{
    if(err)
    {
        console.log(err);
    }
    else
    {
        console.log('Connected to database');
    }
});

module.exports = connection;
```

Errors
200 success
300 redirected
500 server error
403 forbiden